

SECTION 501-00: Body System — General Information
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

General Specifications

Item	Specification
Sealers	
HB Fuller E709	ESD-M4G162-A
3M Strip-Caulk-Black 051135-08578	ESB-M4G32-A
Silicone Gasket and Sealant F7AZ-19554-EA	WSK-M2G343-A4
Adhesives	
Weather Strip Adhesive E8AZ-19552-A	ESB-M2G14-A
3M Scotch CA Tape F67B-78311A40-AA	
Lubricants	
Silicone Lubricant COAZ-19553-AA	ESR-M13P4-A

SECTION 501-00: Body System — General Information
DESCRIPTION AND OPERATION

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Body

The body is constructed of a lightweight all-steel welded material. The body is bolted to a full frame.

SECTION 501-00: Body System — General Information
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Insulation

Insulation is installed:

- Under the hood.
 - Above and below the instrument panel.
 - At the cowl side panels.
 - Over the front and rear tunnel.
 - Over the front and rear floor pans.
 - Inside the B, C, and D pillars.
-

Body Sealer Types and Applications

HB Fuller E709

HB Fuller E709:

- Does not run.
- Is fast drying.
- Remains semi-elastic.
- Can be used for seam sealing in such areas as the floorpan, wheelhouse, bulkhead, door openings, and drip rails.
- Can be used to seal outside moulding clip holes.
- Meets Ford Specification ESD-M4G162-A.

3M Strip-Caulk-Black 051135-08578

3M Strip-Caulk-Black 051135-08578:

- Has a plastic base with a filler.
- Is heavy-bodied.
- Is used on spot-weld holes, around mounting clips, and between surfaces not sealed by a gasket.
- Meets Ford Specification ESB-M4G32-A.

Weatherstrip Adhesive

Weatherstrip Adhesive E8AZ-19552-A or equivalent meeting Ford specification ESB-M2G14-A is designed to hold weatherstripping to the body.

Silicone Lubricant

Silicone Lubricant COAZ-19553-AA meeting Ford specification ESR-M13P4-A :

- Is used on the door and window weatherstrips.
 - Should be applied at regular lubrication intervals.
 - Makes doors easier to close.
 - Reduces weatherstrip squeaks.
 - Reduces weatherstrip wear.
 - Helps retain door-window alignment by reducing friction between the glass and the rubber weatherstrips.
-

SECTION 501-00: Body System — General Information
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop Manual

Body System

Inspection and Verification

Leaks

NOTE: Trim will reveal the location of most leaks.

1. Remove any trim or carpet in the general area of the leak.
2. Road test or water test the vehicle.
3. Inspect for a dust pattern around the area in question.
4. Inspect for water paths near and above the area in question.
5. Some leaks can be located by placing bright light under the vehicle, removing any necessary trim or carpet, and inspecting the interior of the body at joints and weld lines.

Noise

Wind noise, rattles, and their sources are detected by driving the vehicle at highway speeds. The vehicle should be driven in four different directions, with all the windows closed, the radio off, the blower motor off, and all the ventilation ducts open.

Most wind noise leaks will occur at the door and window seals or at the sheet metal joints in the door or the door opening.

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
Dust/Water Leaks	- Body sealer missing. - Opening in weldings or body joints. - Components not fully installed. - Components missing. - Components damaged.	REMOVE trim. CHECK for leaks and SEAL with appropriate sealer. ROAD TEST or WATER TEST for leaks. RECHECK trim for leaks; USE light under vehicle with trim removed. CHECK interior of body at joints and weld lines.
Dust Leak at Right Rear Quarter Panel	Tape under trim panel is loose.	REPAIR and/or REPLACE tape as necessary. TEST the system for normal operation.
Dust/Water	Missing or damaged	CHECK plugs for proper

Leaks at Floor Pan and Grommets	plugs and/or grommets.	installation. REPLACE if necessary. TEST the system for normal operation.
Door Drain Holes Collecting Water	Holes clogged with mud or road tar.	CLEAN drain holes of dirt and foreign material with a punch or screwdriver. CHECK drain holes regularly. TEST the system for normal operation.
Wind Noise	- Leaks at door and window seals or sheet metal joints in dorrs or door openings. - Loose/misaligned weatherstrip. - Poor Door Fit.	- SEAL leaks with Silicone Gasket and Sealant F7AZ-19554-EA or equivalent meeting Ford Specification WSK-M2G343-A4. - Reattach weatherstrip. Replace any damaged pin-type retainers. Use weatherstrip adhesive E8AZ-19552-A or equivalent meeting Ford Specification ESB-M2G14-A as necessary. - Adjust the striker or hinges as necessary. For additional information on the hinge adjustment, refer to Section 501-03. Check for acceptable door efforts after repair.
Rattles	- Loose objects in door wells, pillars, and quarter panels. - Misalignment (if tightening bolts does not eliminate rattle). - Weatherstripping and anti-squeak material.	- CHECK doors by carefully STRIKING underside of door with a rubber mallet. LISTEN for loose objects in door. REPAIR. TIGHTEN body bolts and screws. - REFER to Section 501-03. - APPLY additional sealer; INSTALL in proper location to eliminate rattle. TEST the system for normal operation.

SECTION 501-02: Front End Body Panels
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

Torque Specifications

Description	Nm	lb-ft	lb-in
Cowl Top Vent Panel to Cowl Screw	2.5-2.9	—	22.3-25.9
Fender to Front Fender Radiator Support Brace Bolt	10-14	8-10	—
Fender to Radiator Grille Opening Panel Nut	6-8	—	54-70
Front Fender to Front Fender Apron Screws	10-14	8-10	—
Fender to Rocker Panel Bolts	10-14	8-10	—
Radiator Grille Opening Panel to Fender Bolt	6-8	—	54-70
Radiator Grille Opening Panel to Hood Latch Support Bolt	6-8	—	54-70
Radiator Grille Opening Panel Support Bracket Bolts	6-8	—	54-70
Speed Control Servo Bracket Bolt	9-12	7-9	—
Top Fender to Inner Fender Bolts	10-14	8-10	—

SECTION 501-02: Front End Body Panels
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Front End Body Panels

The front end body panel components consist of:

- the hood
 - the hood hinges
 - the cowl top vent panels
 - the front fenders
 - the front fender apron (16054)
 - the radiator grille opening panel reinforcement
 - the radiator opening cover
 - the hood latch support
 - the radiator air deflector
 - the front bumper
 - the radiator grille
 - the radiator upper sight shield
-

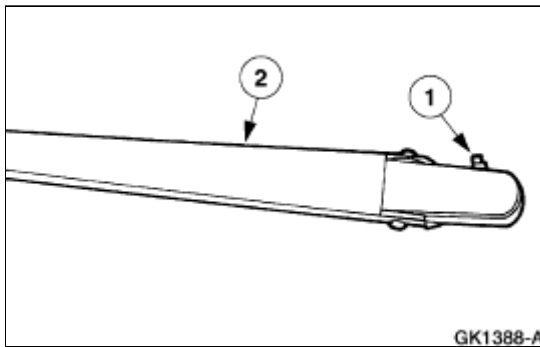
SECTION 501-02: Front End Body Panels
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

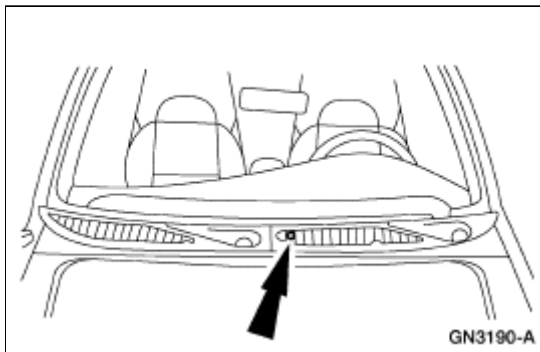
Panel —Cowl Top Vent

Removal

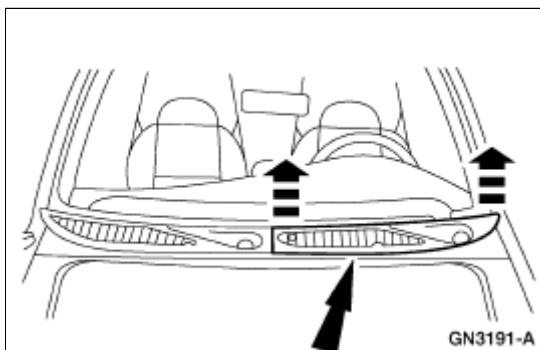
1. Disconnect the LH windshield washer hose from inside the engine compartment.
2. Remove the wiper arms.
 1. Slide the clip to clear the wiper arm drive mechanism.
 2. Pull the wiper arm from the wiper arm drive mechanism.



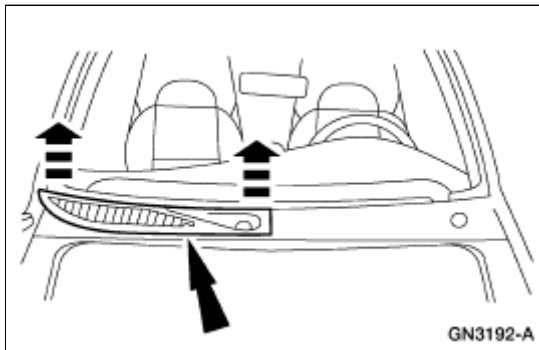
3. Remove the cowl top vent panel-to-cowl screw.



4. Remove the LH cowl top vent panel by pulling up on the LH cowl top vent panel to disengage the clips.

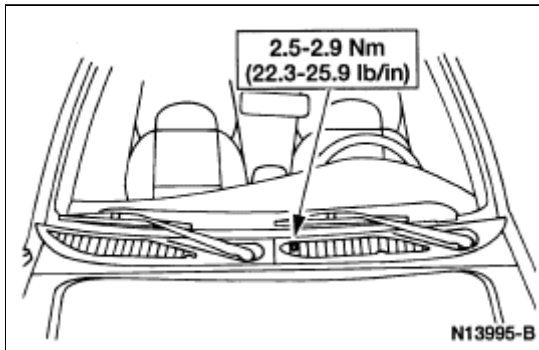


5. Remove the RH cowl top vent panel by pulling up on the RH cowl top vent panel to disengage the clips and disconnect the right washer hose.



Installation

1. To install, reverse the removal procedure.



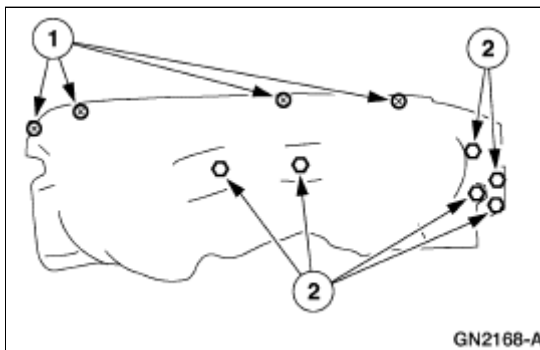
SECTION 501-02: Front End Body Panels
REMOVAL AND INSTALLATION

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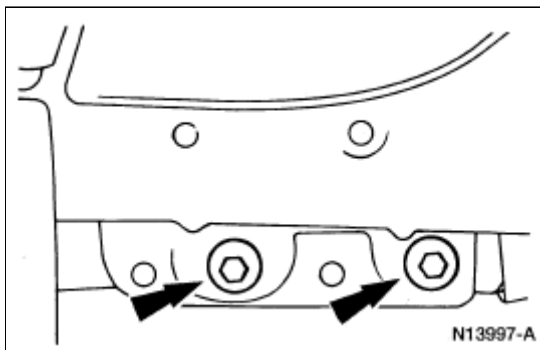
Fender —Front

Removal

1. Remove the grille opening panel reinforcement. For additional information, refer to [Grille Opening Panel Reinforcement](#).
2. Remove the front bumper (17757). For additional information, refer to [Section 501-19](#).
3. Remove the front panel of the rocker panel trim or, if equipped, the running board(s).
4. Remove the front wheel and tire assembly. For additional information, refer to [Section 204-04](#).
5. Remove the front fender apron (16054).
 1. Remove the screws.
 2. Remove the bolts.

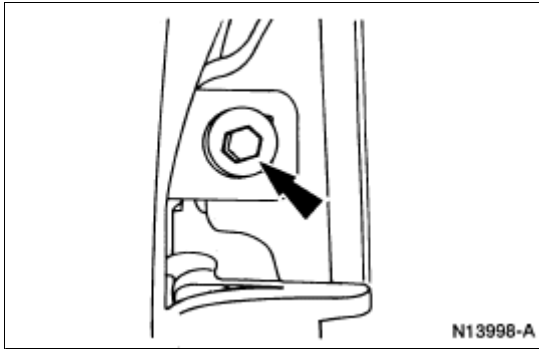


6. Remove the lower fender to rocker panel bolts and spacers.

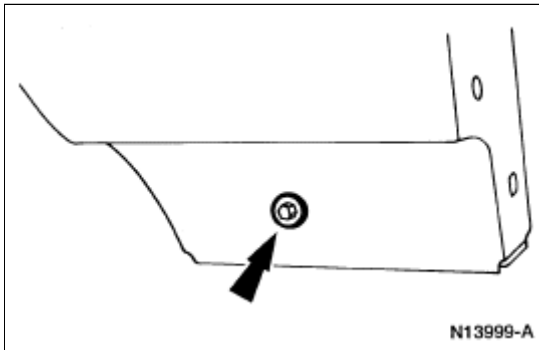


7. **NOTE:** The front door must be open to gain access to the fender bolt.

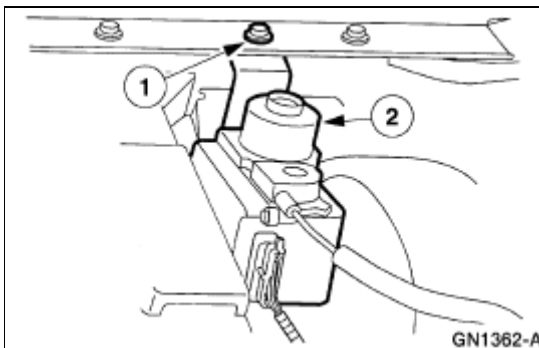
Remove the fender bolt.



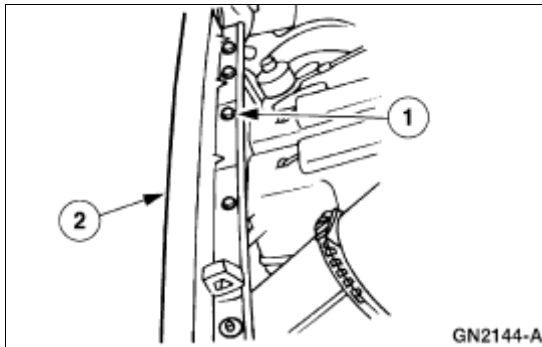
8. Remove the fender to front fender radiator support brace bolt.



9. If removing the RH front fender, position the speed control servo (9C735) aside.
 1. Remove the bolt.
 2. Position the speed control servo aside.

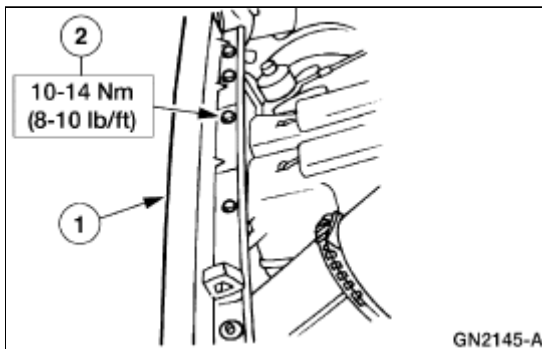


10. If removing the RH front fender, remove the antenna. For additional information, refer to [Section 415-02](#).
11. Remove the front fender (16005).
 1. Remove the top fender to inner fender bolts.
 2. Remove the front fender.

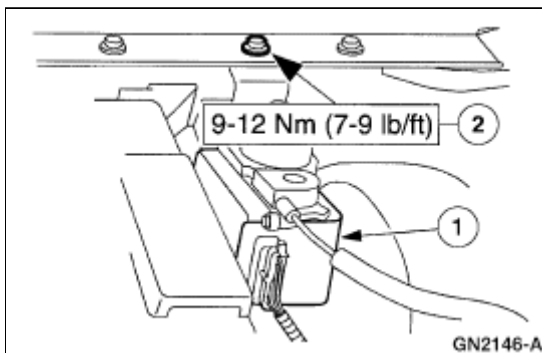


Installation

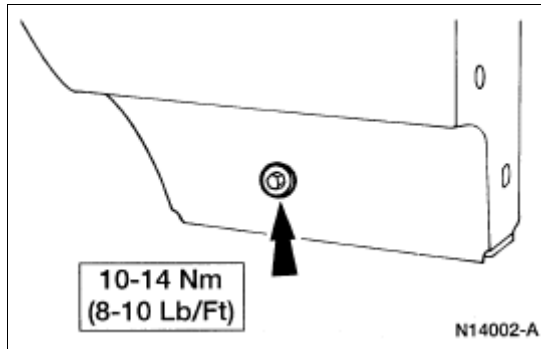
1. Install the front fender.
 1. Install the front fender.
 2. Install the top fender to inner fender bolts.



2. If installing the RH front fender, install the antenna. For additional information, refer to [Section 415-02](#).
3. If installing the RH front fender, install the speed control servo bracket.
 1. Position the servo bracket.
 2. Install the bolt.

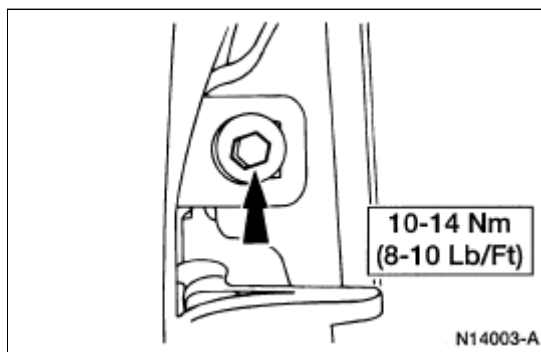


4. Install the fender to front fender radiator support brace bolt.

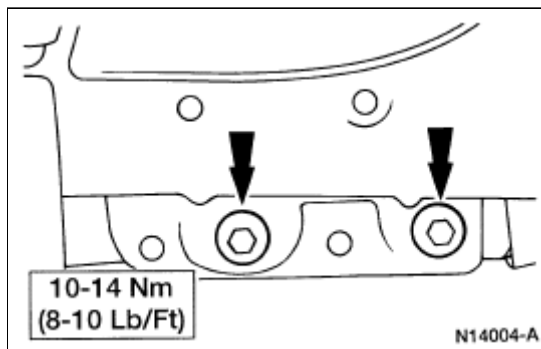


5. **NOTE:** The front door must be open to gain access to the bolt.

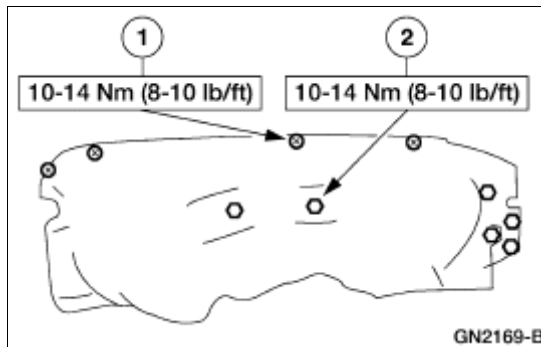
Install the top fender to inner fender bolt.



6. Install the fender to rocker panel bolts and spacers.



7. Install the front fender apron.
1. Install the front fender to front fender apron screws.
 2. Install the top fender to inner fender bolts.



8. Install the front wheel and tire assembly. For additional information, refer to [Section 204-04](#).
 9. Install the front panel of the rocker panel trim or, if equipped, the running board(s).
 10. Install the front bumper. For additional information, refer to [Section 501-19](#).
 11. Install the grille opening panel reinforcement. For additional information, refer to [Grille Opening Panel Reinforcement](#).
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SECTION 501-02: Front End Body Panels
REMOVAL AND INSTALLATION

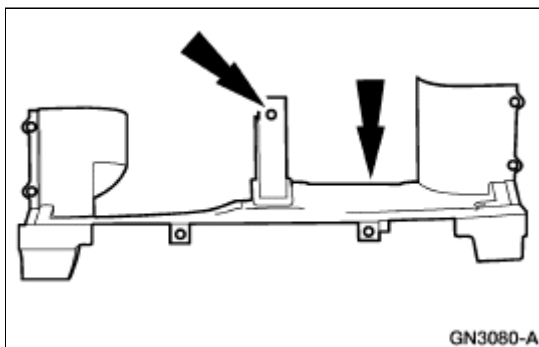
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Grille Opening Panel Reinforcement

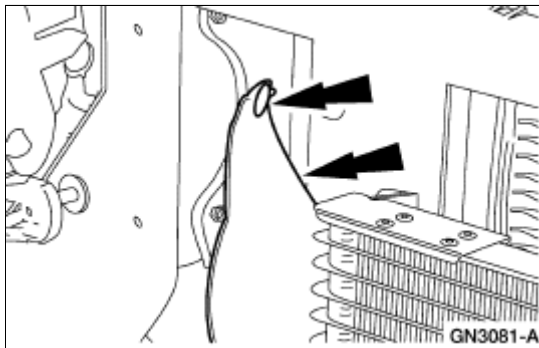
Removal

NOTE: Mountaineer shown, Explorer similar.

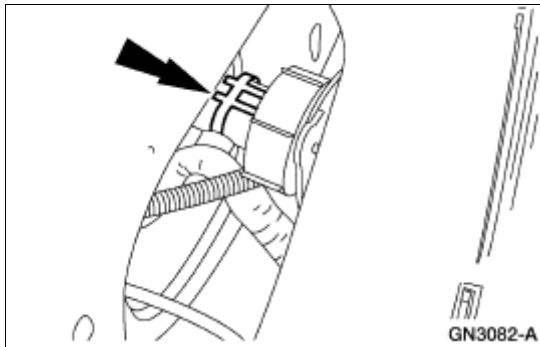
1. Remove the radiator grille (8200). For additional information, refer to [Section 501-08](#).
2. Remove the radiator opening cover (8C299).
 - Remove the seven pin-type retainers.



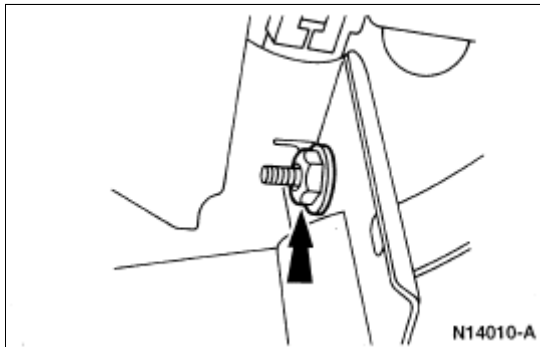
3. Position the two radiator grille splash shields aside.
 - Remove the two pin-type retainers.



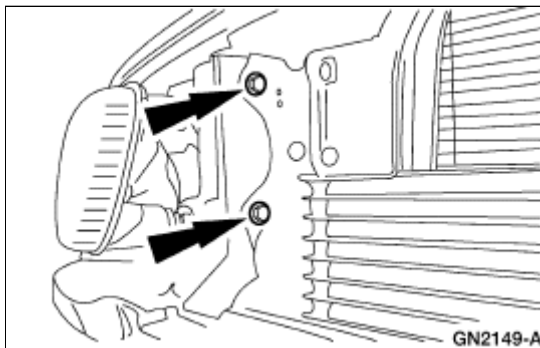
4. Disconnect the two headlamp electrical connectors.



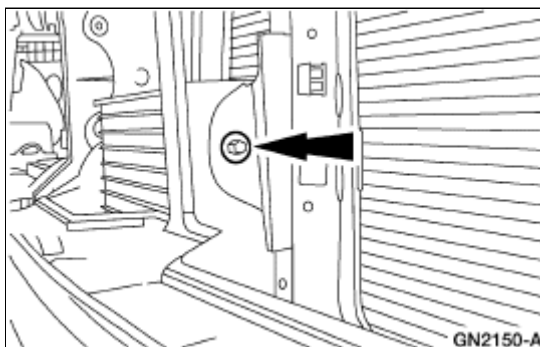
5. Remove the fender to radiator grille opening panel nut.



6. Remove the four radiator grille opening panel support bracket bolts.



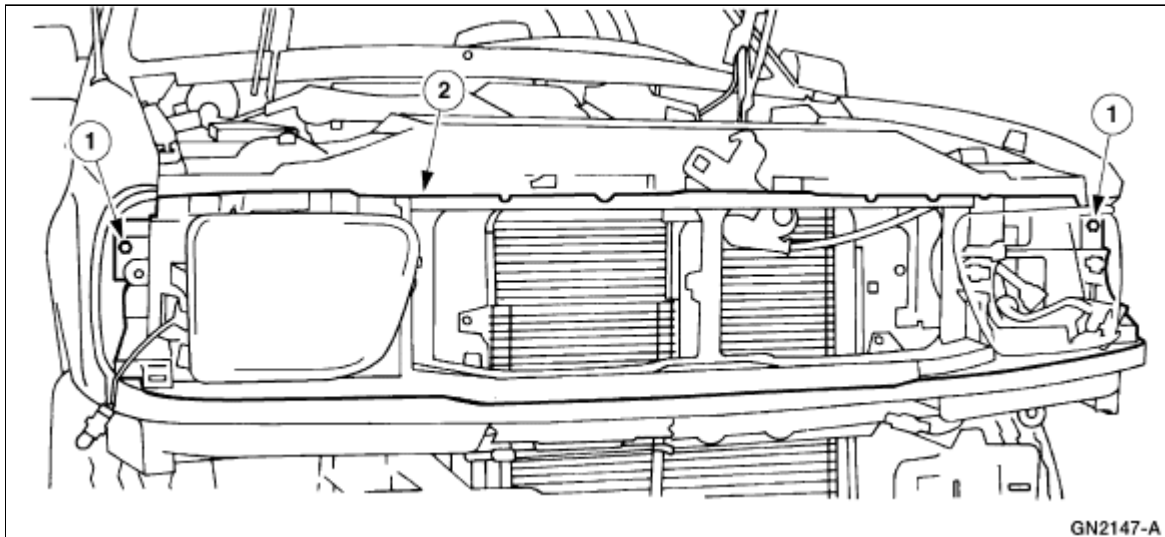
7. Remove the radiator grille opening panel to hood latch support bolt.



8. **NOTE:** If necessary, transfer parts to the new component.

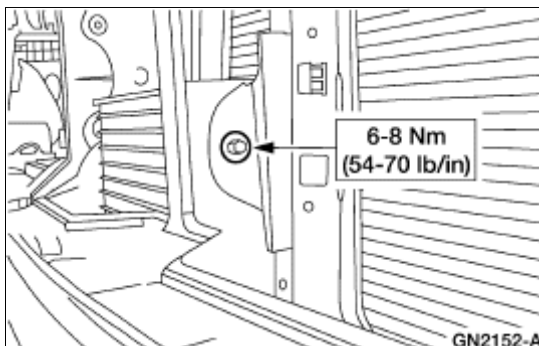
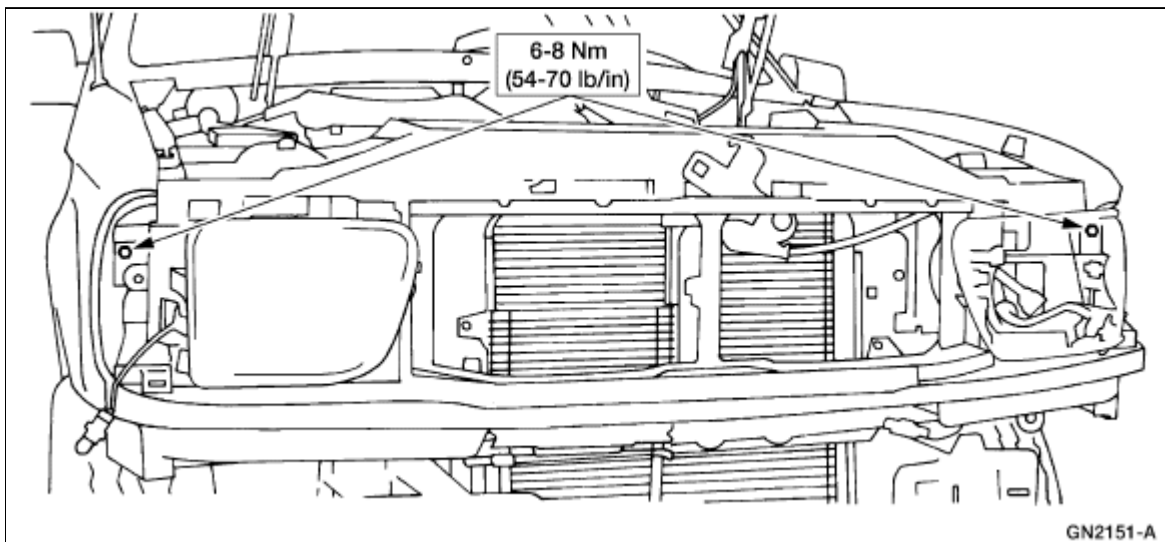
Remove the radiator grille opening panel.

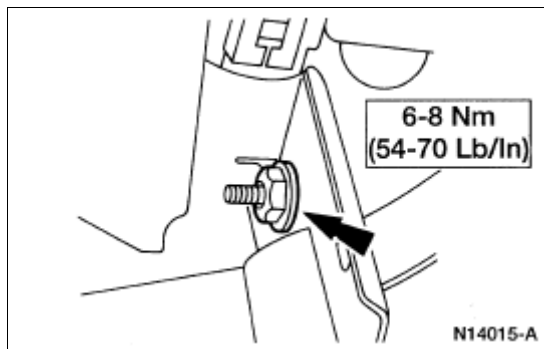
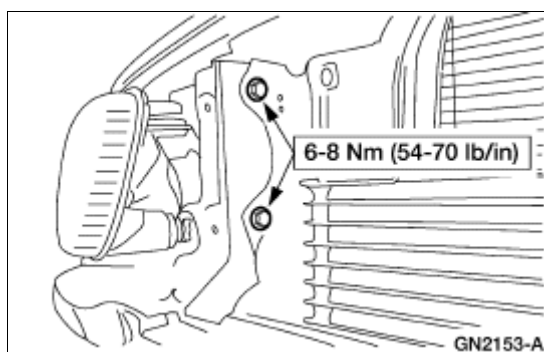
1. Remove the radiator grille opening panel to fender bolts.
2. Remove the grille opening panel.



Installation

1. To install, reverse the removal procedure.





SECTION 501-03: Body Closures
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

General Specifications

Item	Specification
Door clearance; front and rear edge	3.0-7.0 mm (0.118-0.275in) parallel top to bottom within 1.0 mm (0.04 in)
Door clearance; top of door to roof	3.0-7.0 mm (0.118-0.275in) parallel top to bottom within 2.0 mm (0.08 in)
Door flushness; front door to front fender, rear door to front door	-1.0-0.00mm (-0.04-0.00in)

Torque Specifications

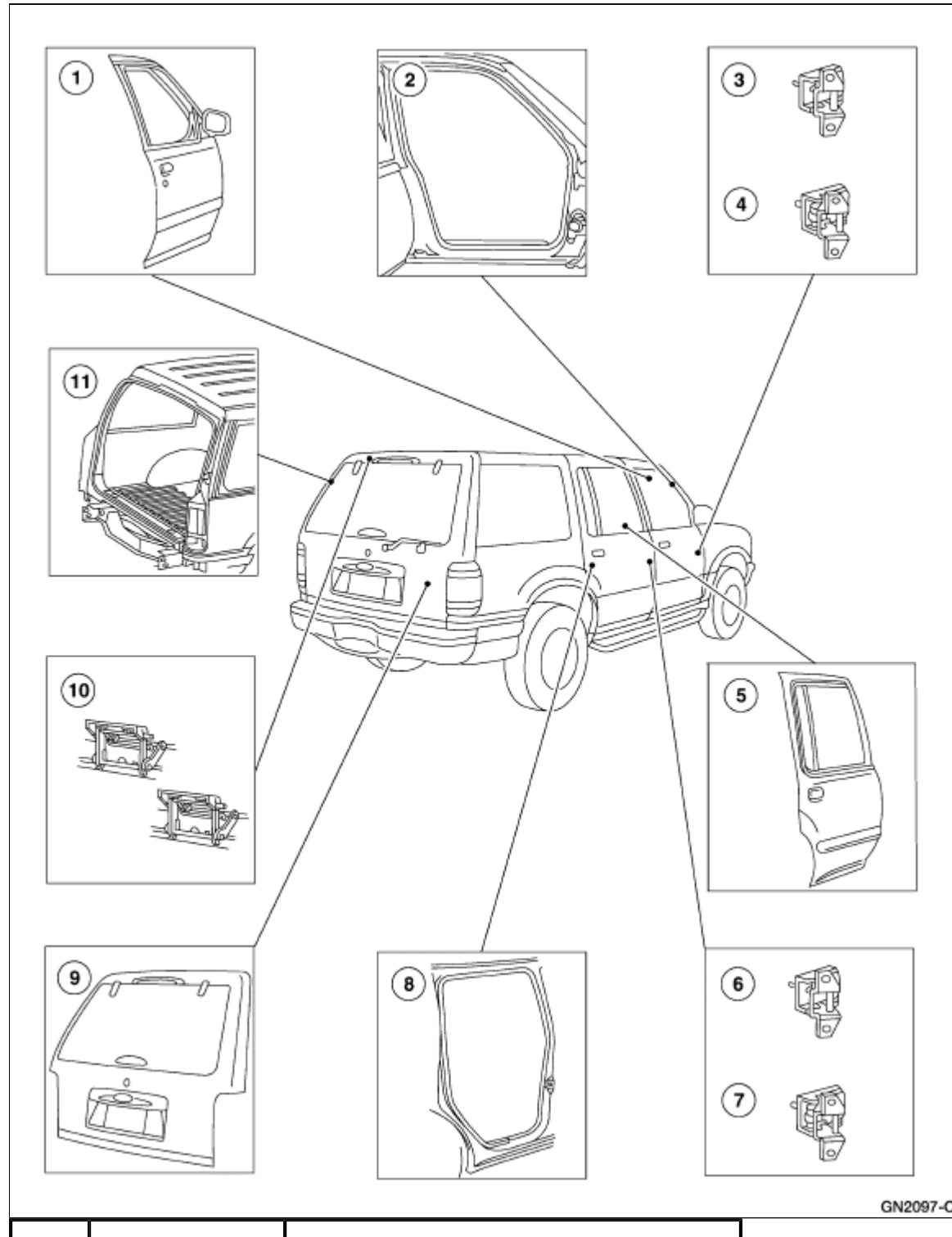
Description	Nm	lb-ft	lb-in
Battery cable bolts	7-10	—	62-89
Chassis wire harness to front door bolt	2.7-3.7	—	24-33
Door hinge to body bolts/nuts	30	22	—
Hinge to door bolts	30	22	—
Liftgate hinge to liftgate bolts	17-27	13-20	—
Liftgate hinge to body bolt and nut	26-34	19-24	—

SECTION 501-03: Body Closures
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Body Closures

Body Closures



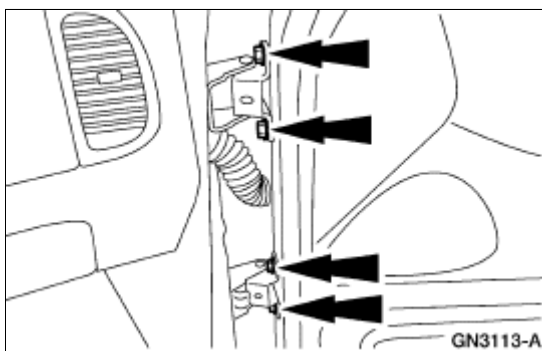
Item	Part Number	Description
1	20124	Front Door
2	20708	Front Door Opening Weatherstrip
3	22800	Front Door Upper Hinge
4	22810	Front Door Lower Hinge
5	24630	Rear Door
6	—	Rear Door Upper Hinge
7	26802	Rear Door Lower Hinge
8	—	Rear Door Opening Weatherstrip
9	40010	Liftgate
10	42900	Liftgate Hinge
11	404A06	Liftgate Weatherstrip

SECTION 501-03: Body Closures
GENERAL PROCEDURES

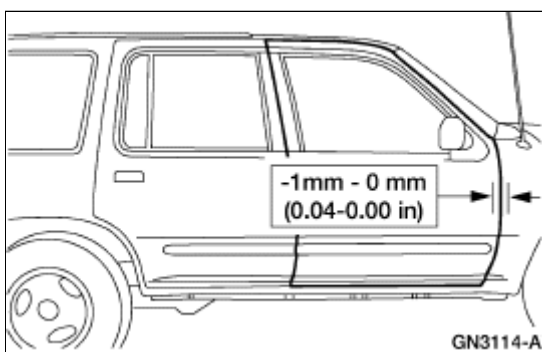
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Hinge Adjustment —Front Door, Horizontal and Vertical

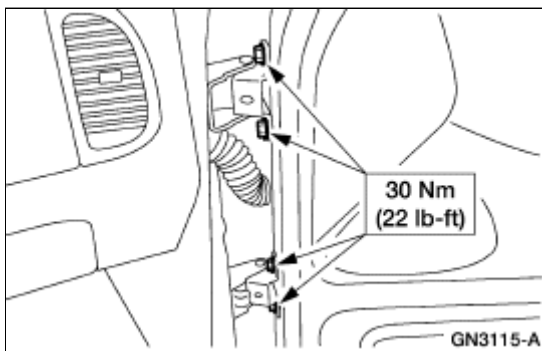
1. Mark the position of the front door hinges to use as a reference point.
2. Loosen the front door hinge to front door bolts just enough to permit movement of the door .



3. Adjust the front door alignment to specification.



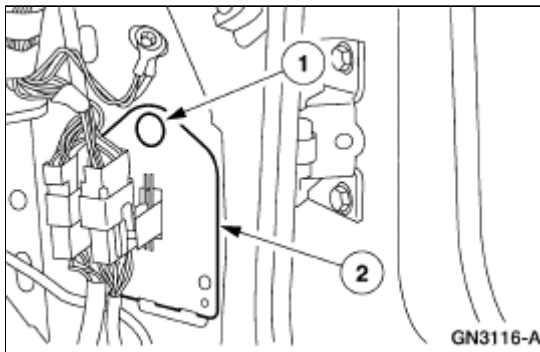
4. Tighten the front door hinge to front door bolts.



Hinge Adjustment —Front Door, Fore and Aft

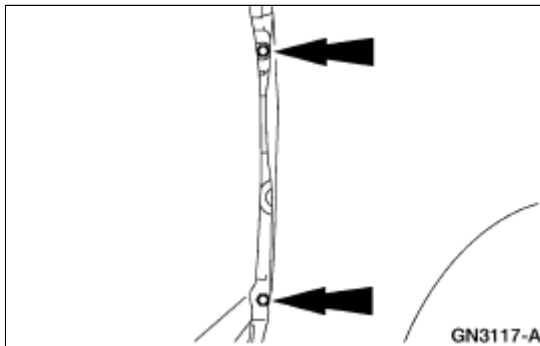
NOTE: Check the rear door hinge adjustment before adjusting the front door hinge.

1. Remove the cowl side trim panel. For additional information, refer to [Section 501-05](#).
2. Position the electrical connector mounting bracket aside.
 1. Remove the pin-type retainer.
 2. Position the electrical connector mounting bracket aside.

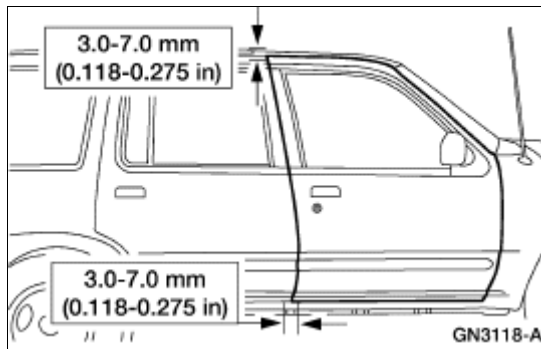


3. Mark the position of the front door hinges to use as a reference point.
4. **NOTE:** Position the front door to gain access to the bolts.

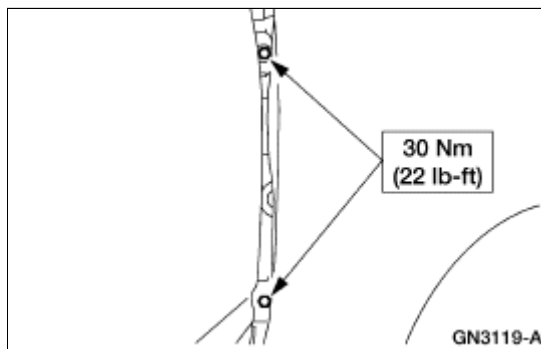
Loosen the two front door hinge to body bolts and nuts just enough to permit movement of the door.



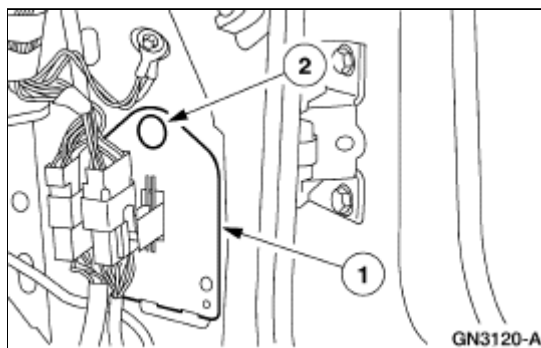
5. Adjust the front door alignment to specification.



6. Tighten the front door hinge to body bolts.



7. Position the electrical connector mounting bracket.
 1. Position the electrical connector mounting bracket.
 2. Install the pin-type retainer.



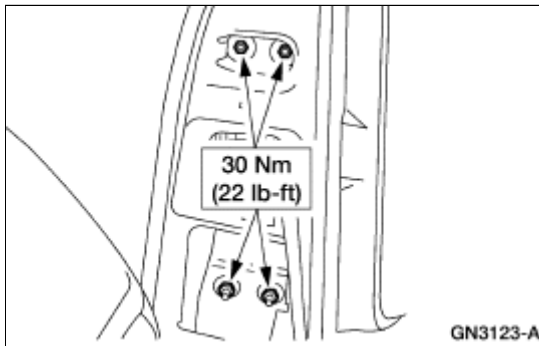
8. Install the cowl side trim panel. For additional information, refer to [Section 501-05](#).
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SECTION 501-03: Body Closures
GENERAL PROCEDURES

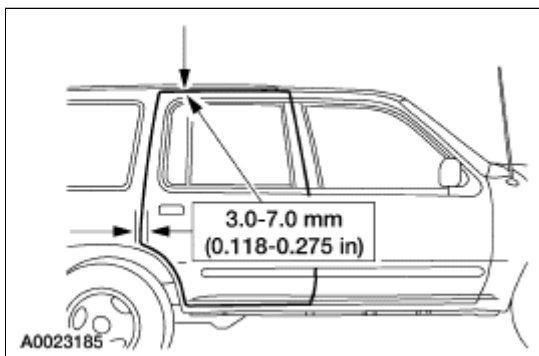
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Hinge Adjustment —Door, Rear

1. Remove the front seat safety belt retractor. For additional information, refer to [Section 501-20A](#).
2. Mark the position of the rear door hinges to use as a reference point.
3. Loosen the rear door hinge to body nuts just enough to permit movement of the door.



4. Adjust the rear door alignment to specification.



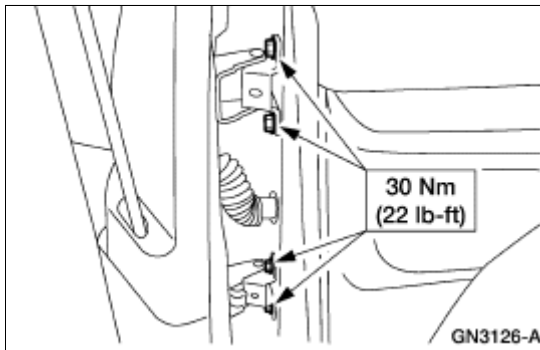
5. Tighten the rear door hinge to body nuts.
 6. Check the front door hinge adjustment. For additional information, refer to [Hinge Adjustment—Front Door, Fore and Aft](#) or [Hinge Adjustment—Front Door, Horizontal and Vertical](#).
 7. Install the front seat safety belt retractor. For additional information, refer to [Section 501-20A](#).
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SECTION 501-03: Body Closures
GENERAL PROCEDURES

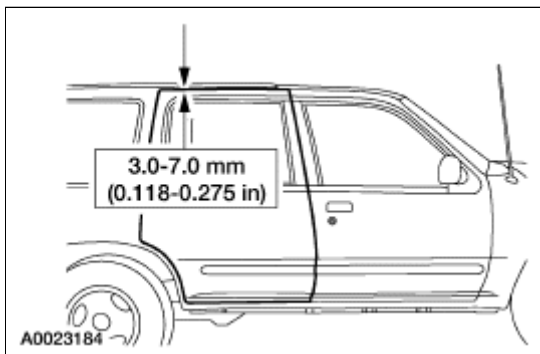
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Hinge Adjustment —Rear Door, Horizontal and Vertical

1. Mark the position of the rear door hinge to use as a reference.
2. Loosen the rear door hinge to rear door bolts just enough to permit movement of the door.



3. Adjust the rear door alignment to specification and flush to adjacent panels.



4. Tighten the rear door hinge to rear door bolts.
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SECTION 501-05: Interior Trim and Ornamentation
SPECIFICATIONS

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Torque Specifications

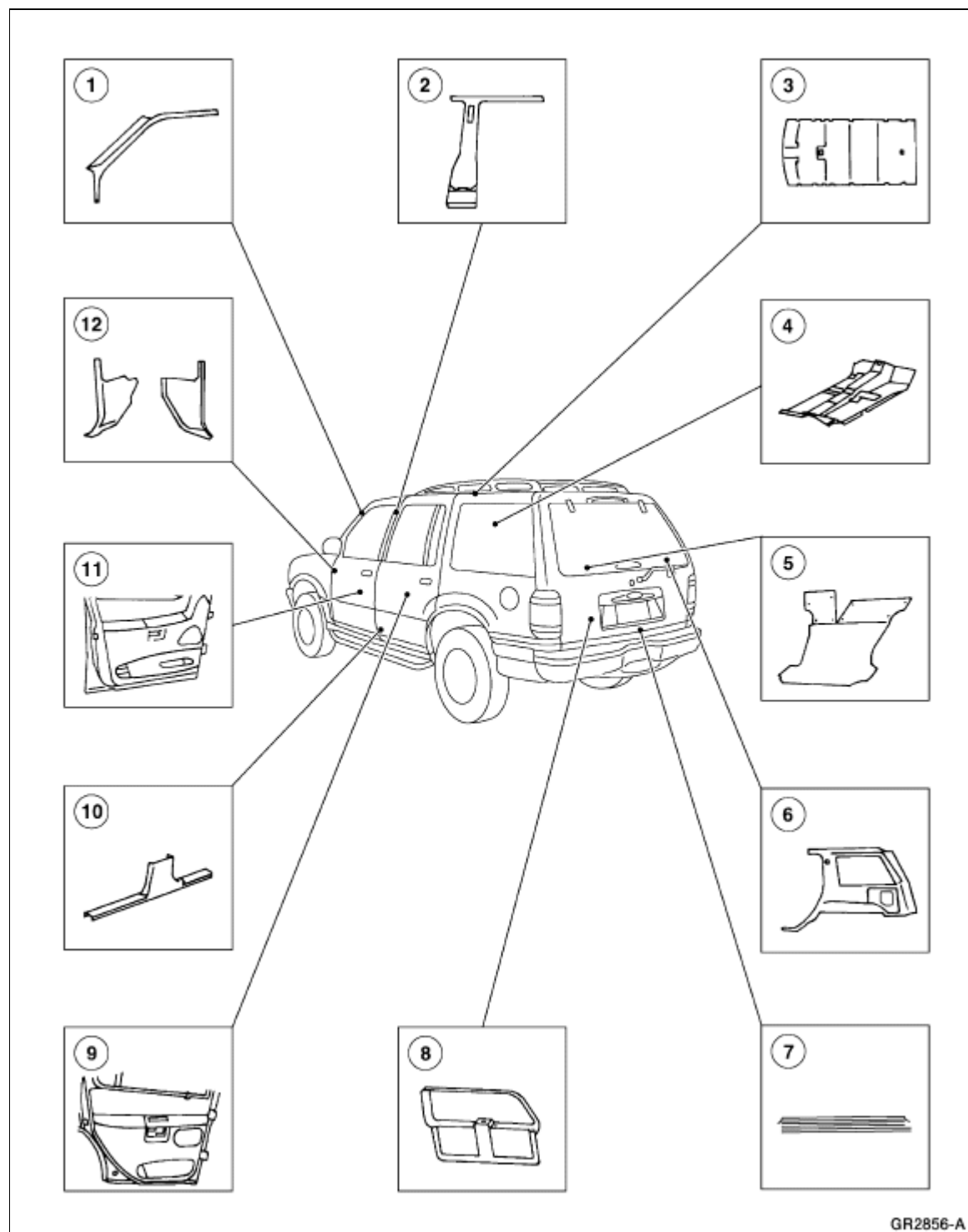
Description	Nm	lb-ft	lb-in
Battery ground cable	7-10	5-7	—
Coat hook screw	1.4-2.0	—	12-18
Door trim panel screws	1.4-2.0	—	12-18
Liftgate handle screws	1-1.3	—	9-11
Liftgate trim panel screw	2.3-3.3	—	20-29
Quarter trim panel screws	1.0-1.5	—	9-13
Quarter window latch screws	9	—	80
Safety belt guide bolt	34-46	25.1-33.9	—
Safety belt anchor bolts	30-40	23-29	—
Safety belt anchor nuts	34-46	24.9-33.8	—

SECTION 501-05: Interior Trim and Ornamentation
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Interior Trim

Interior Trim Components



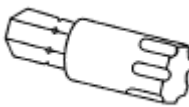
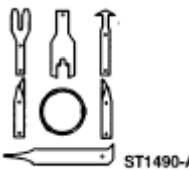
Item	Part Number	Description
1	03598	Windshield Side Garnish Moulding
2	—	B-Pillar Trim Panel
3	51968	Roof Trim Panel
4	13000	Floor Carpet
5	—	Carpet Assembly, Rear Floor
6	31012	Quarter Trim Panel
7	13144	Liftgate Scuff Plate
8	46404	Liftgate Door Trim Panel
9	27406	Rear Door Trim Panel
10	13208	Front Door Scuff Plate
11	23942	Front Door Trim Panel
12	02345	Cowl Side Trim Panel, RH and LH

SECTION 501-05: Interior Trim and Ornamentation
REMOVAL AND INSTALLATION

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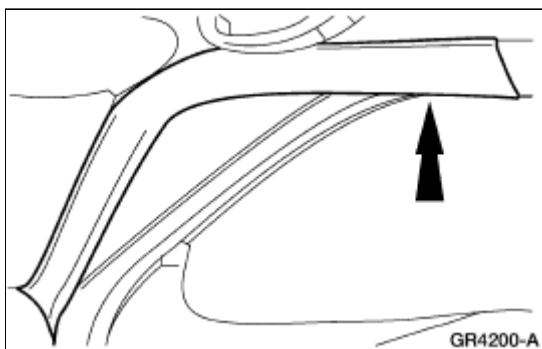
Trim Panel —B-Pillar

Special Tool(s)

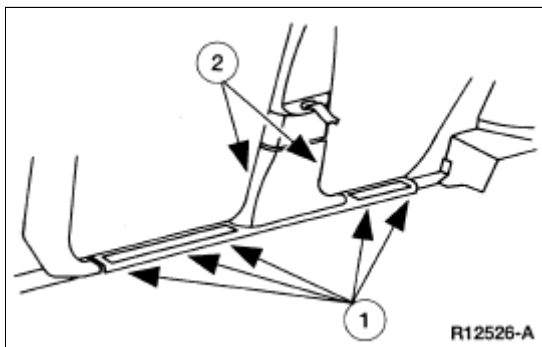
 ST1181-A	Safety Belt Bolt Bit 501-010 (T77L-2100-A)
 ST1490-A	Windshield and Molding/Trim Removal Kit or equivalent 107-R0401

Removal

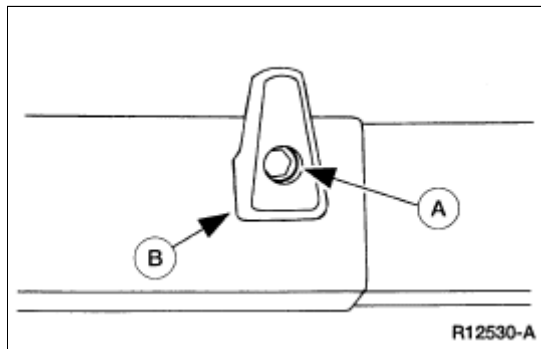
1. Remove the windshield side garnish moulding (03598).



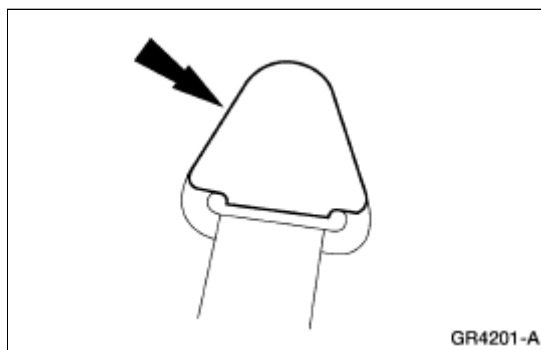
2. Remove the front door scuff plate (13208).
 1. Starting at one end and working along the front door scuff plate, use Windshield and Molding/Trim Removal Kit to remove the front door scuff plate.
 2. Remove the front door scuff plate from the B-pillar.



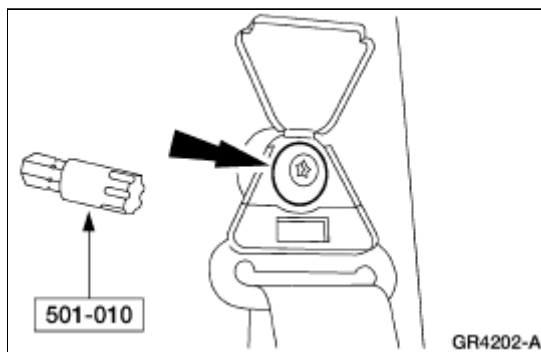
3. Remove the (A) screw and the (B) coat hook.



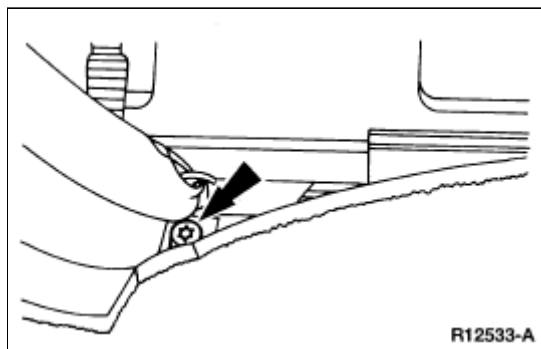
4. Open the front safety belt guide bolt cover.



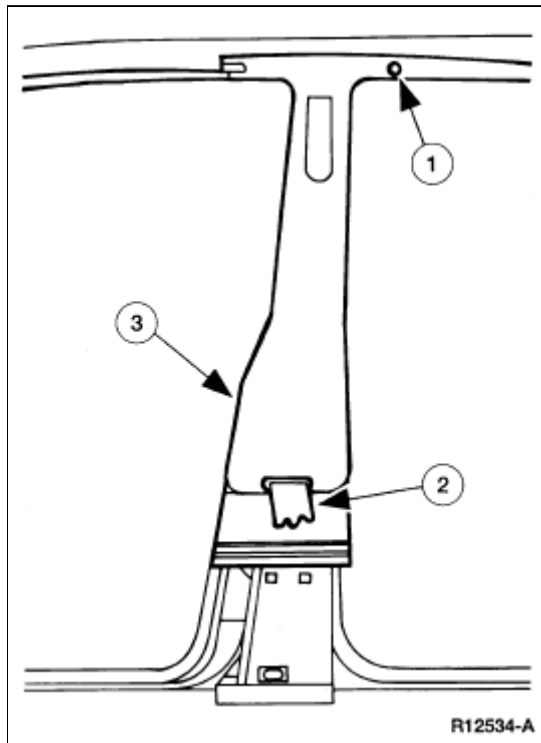
5. Using special tool, remove the front safety belt guide bolt.



6. Use Safety Belt Bolt Bit to remove the front safety belt anchor bolt.

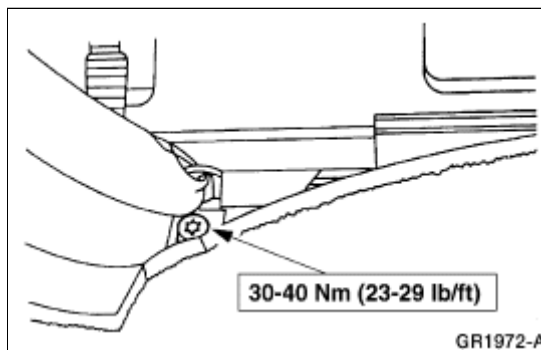


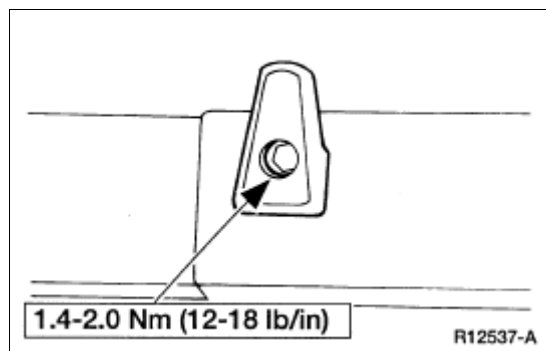
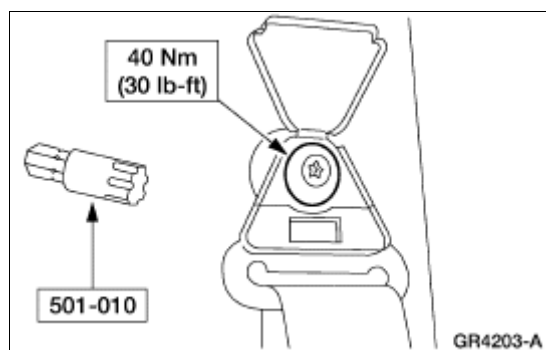
7. Remove the B-pillar trim panel.
 1. Remove the pin-type retainer.
 2. Feed the safety belt webbing through the opening.
 3. Remove the B-pillar trim panel.



Installation

1. To install, reverse the removal procedure.



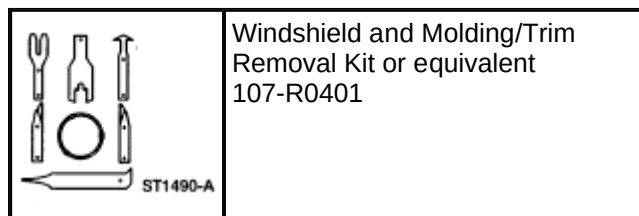


SECTION 501-05: Interior Trim and Ornamentation
REMOVAL AND INSTALLATION

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Trim Panel —Cowl Side

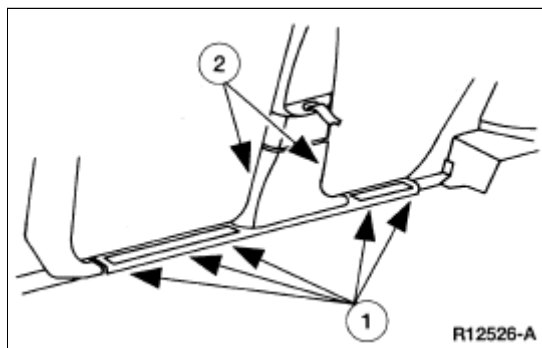
Special Tool(s)



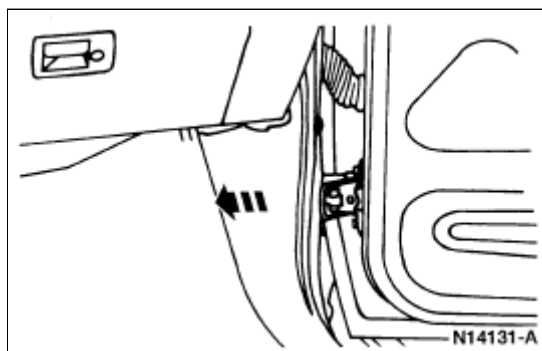
Removal

NOTE: 4-door shown, 2-door similar.

1. Remove the front door scuff plate (13208).
 1. Starting at one end and working along the front door scuff plate, use Windshield and Molding/Trim Removal Kit to remove the front door scuff plate.
 2. Remove the front door scuff plate from the B-pillar.



2. Remove the cowl side trim panel (02345) by pulling outward to disengage the pin-type retainers.



Installation

1. To install, reverse the removal procedure.



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REMOVAL AND INSTALLATION

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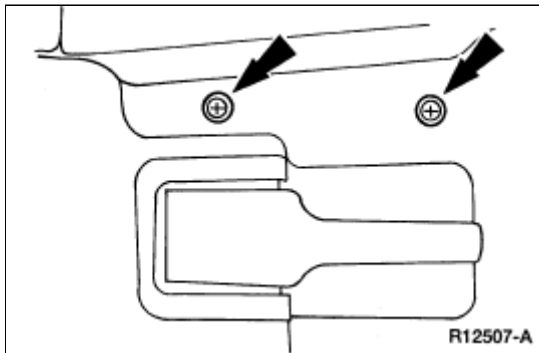
Trim Panel —Front Door

Removal

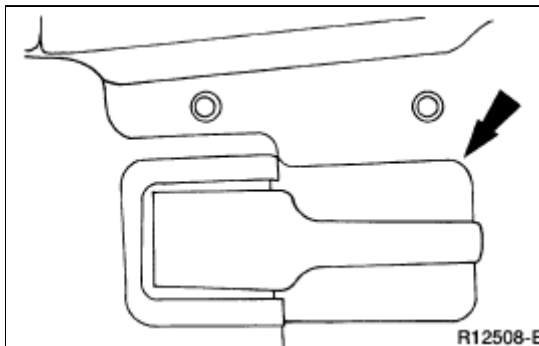
NOTE: High series shown, low series similar.

NOTE: The window must be completely down to remove the front door trim panel.

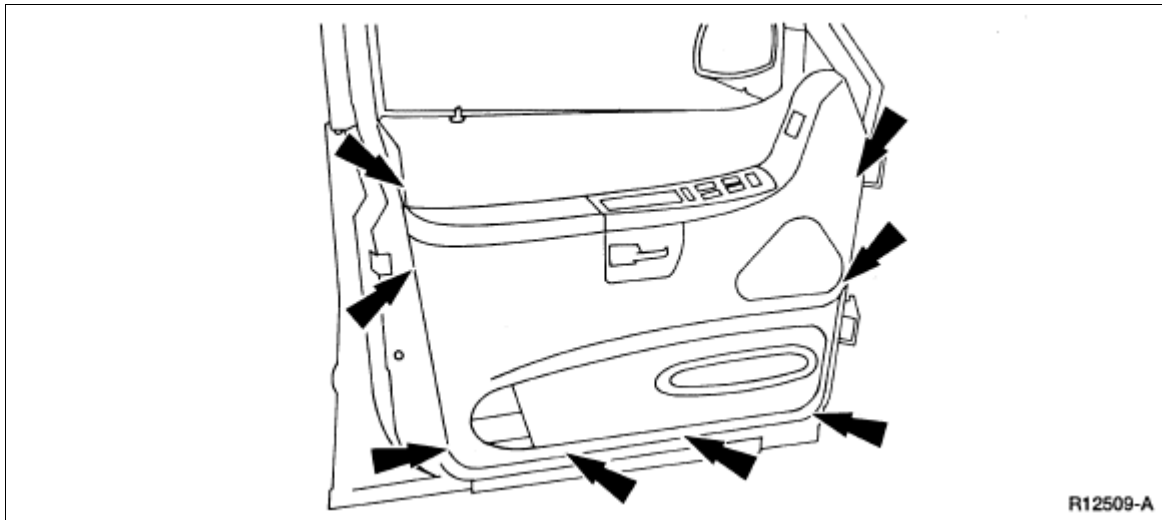
1. On high series front door trim panel, disconnect the battery ground cable (14301).
2. Remove the screws.



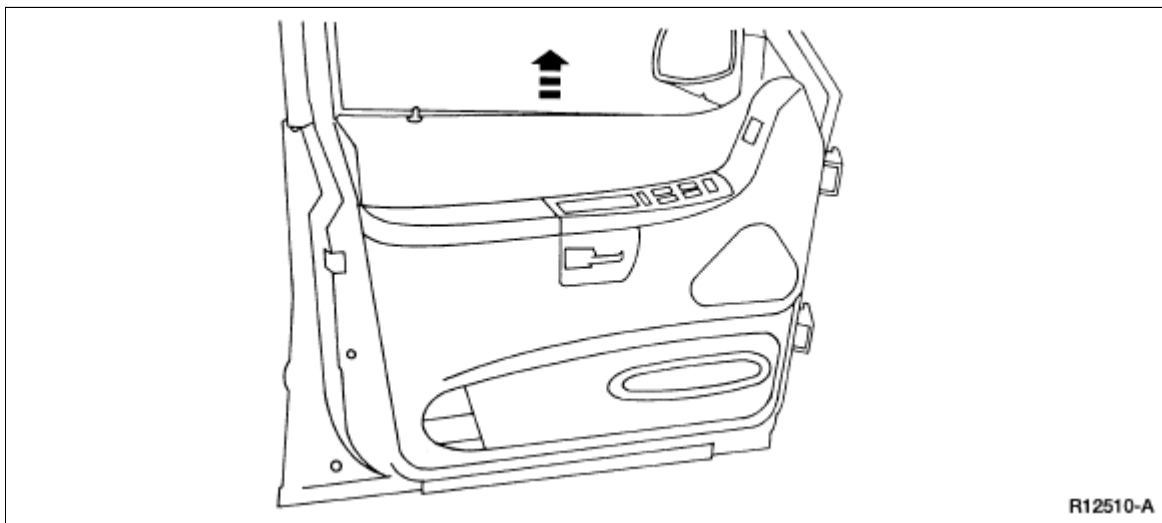
3. Remove the inside door handle cup (22634).



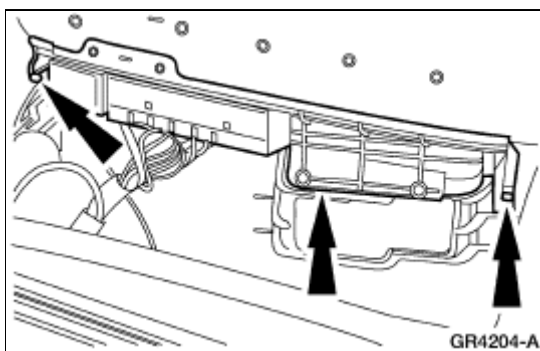
4. On low series front door trim panel, remove the screw and the window regulator handle.
5. Start in a lower corner and work around the panel and separate the front door trim panel (23942) from the front door (20124) to disengage the pin-type retainers.



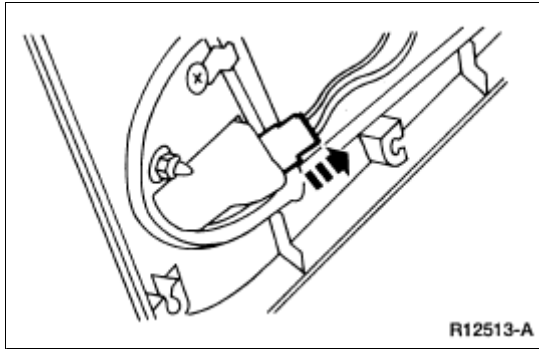
6. Lift the front door trim panel to disengage the top lip from the weatherstrip.



7. Position the front door trim panel aside.
8. Separate the power window switch finish panel from the door trim panel.
 - Release the locking tabs.



9. If equipped, remove the courtesy lamp bulb from the lens and remove the front door trim panel.



Installation

1. **NOTE:** When the battery (10653) is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

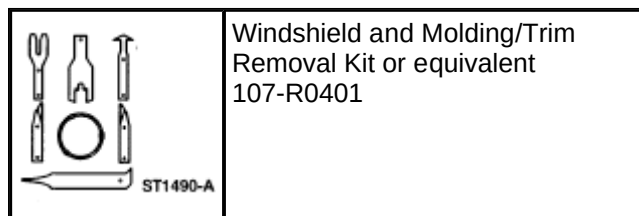
To install, reverse the removal procedure.

SECTION 501-05: Interior Trim and Ornamentation
REMOVAL AND INSTALLATION

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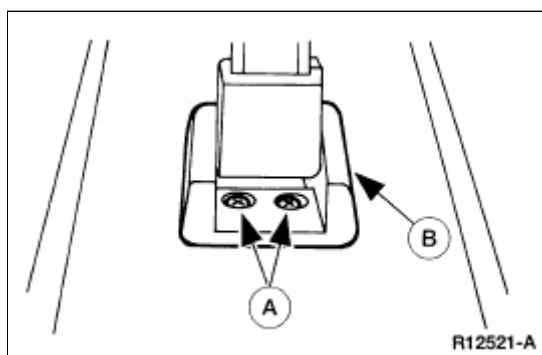
Trim Panel —Liftgate Door

Special Tool(s)

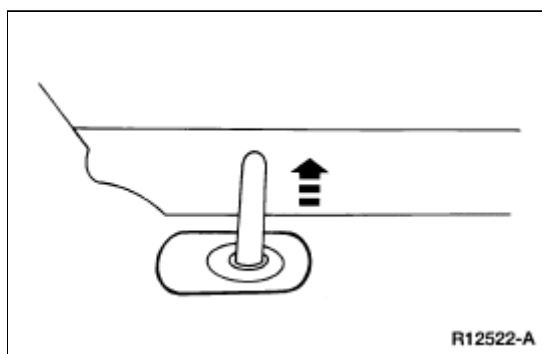


Removal

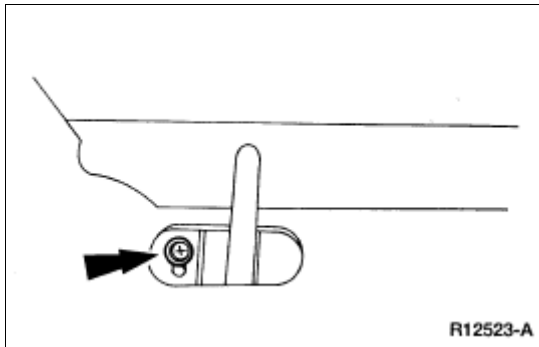
1. Remove the (A) liftgate handle to liftgate screws and the (B) liftgate handle.



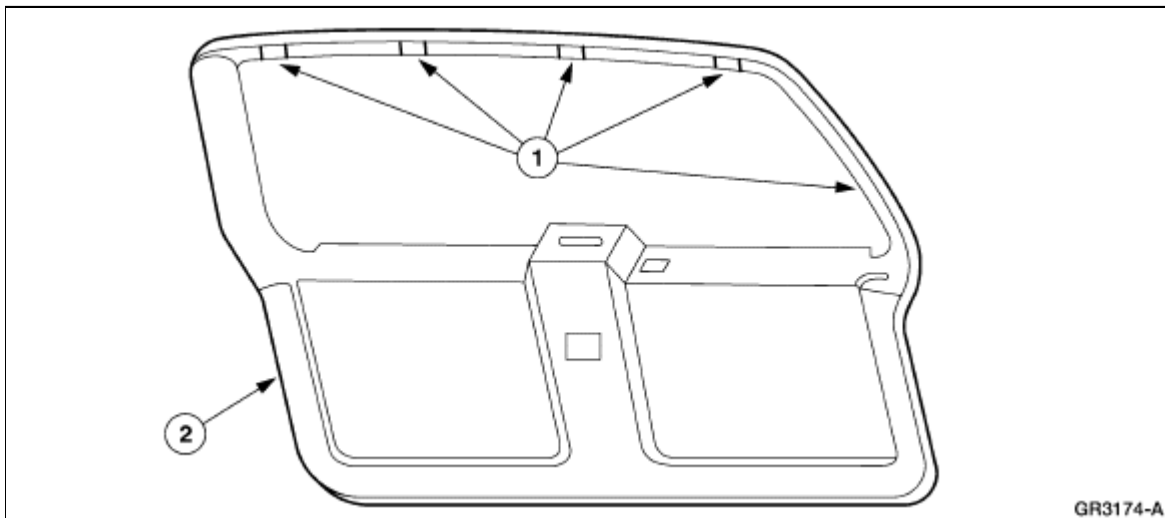
2. Remove the liftgate trim panel screw access plug.



3. Remove the screw.

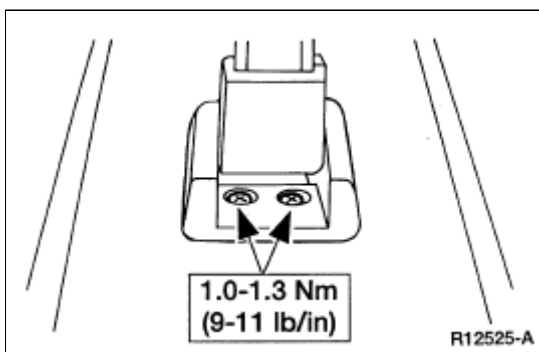


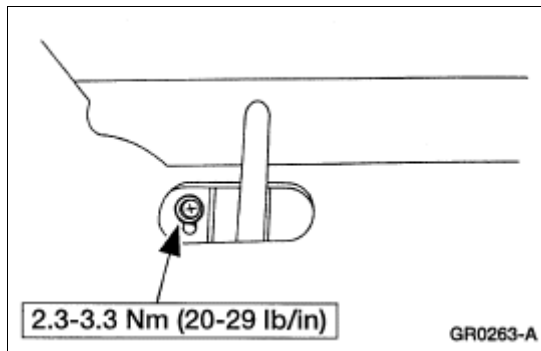
4. Remove the liftgate door trim panel.
 1. Use Windshield and Molding/Trim Removal Kit to remove the liftgate door trim panel from the liftgate window opening.
 2. Push the liftgate door trim panel toward the top of the liftgate and remove the liftgate trim panel.



Installation

1. To install, reverse the removal procedure.



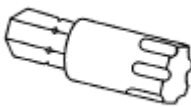
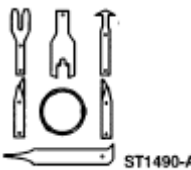


SECTION 501-05: Interior Trim and Ornamentation
REMOVAL AND INSTALLATION

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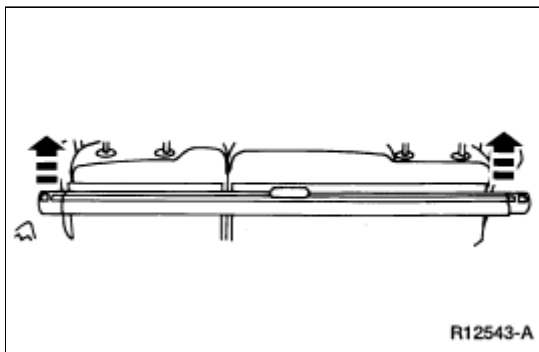
Trim Panel —Quarter, Four Door

Special Tool(s)

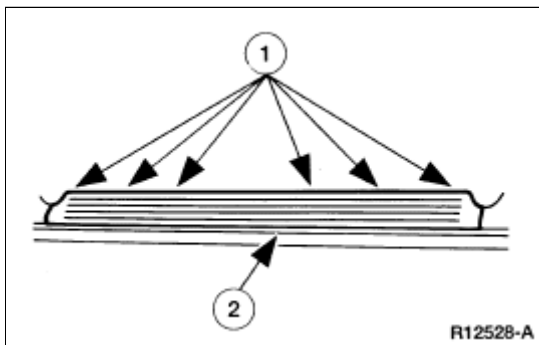
 ST1181-A	Safety Belt Bolt Bit 501-010 (T77L-2100-A)
 ST1490-A	Windshield and Molding/Trim Removal Kit or equivalent 107-R0401

Removal

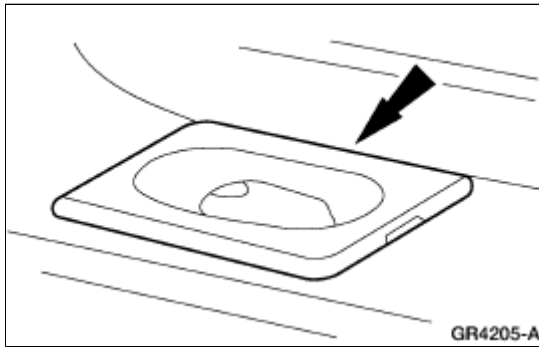
1. If equipped, remove the retractable cargo cover.



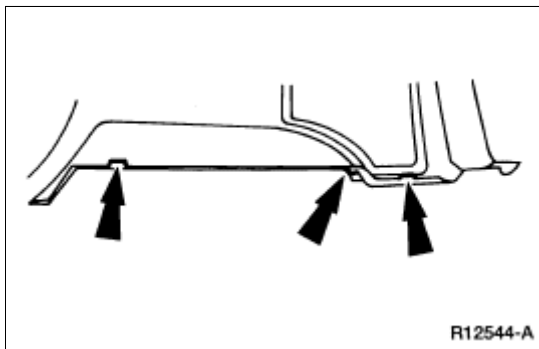
2. Remove the liftgate scuff plate (13144).
 1. Starting at either end and working along the liftgate scuff plate, use Windshield and Molding/Trim Removal Kit to remove the scuff plate.
 2. Remove the liftgate scuff plate.



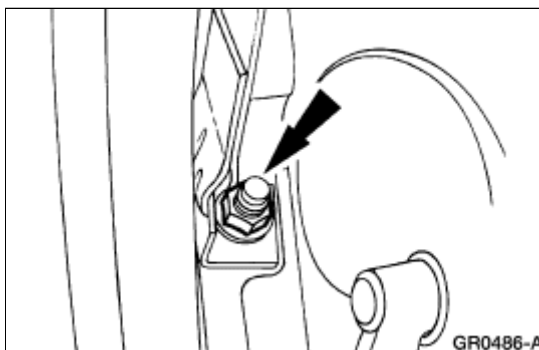
3. If equipped, remove the rear power lock switch assembly.
 - Disconnect the electrical connector.



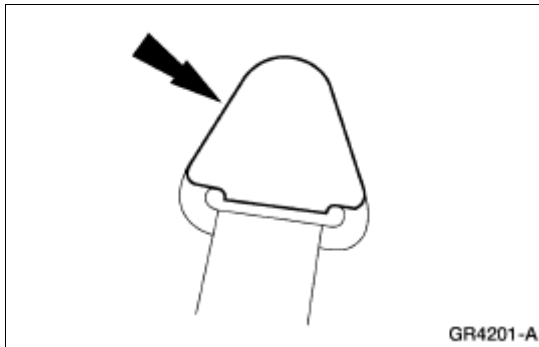
4. Remove the B-pillar trim panel. For additional information, refer to [Trim Panel—B-Pillar](#).
5. Remove the three rear quarter trim panel screws.
 - Position the carpet aside to gain access to the screws.



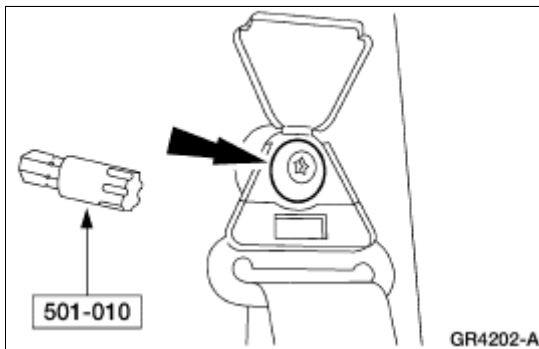
6. Remove the rear safety belt anchor nut.



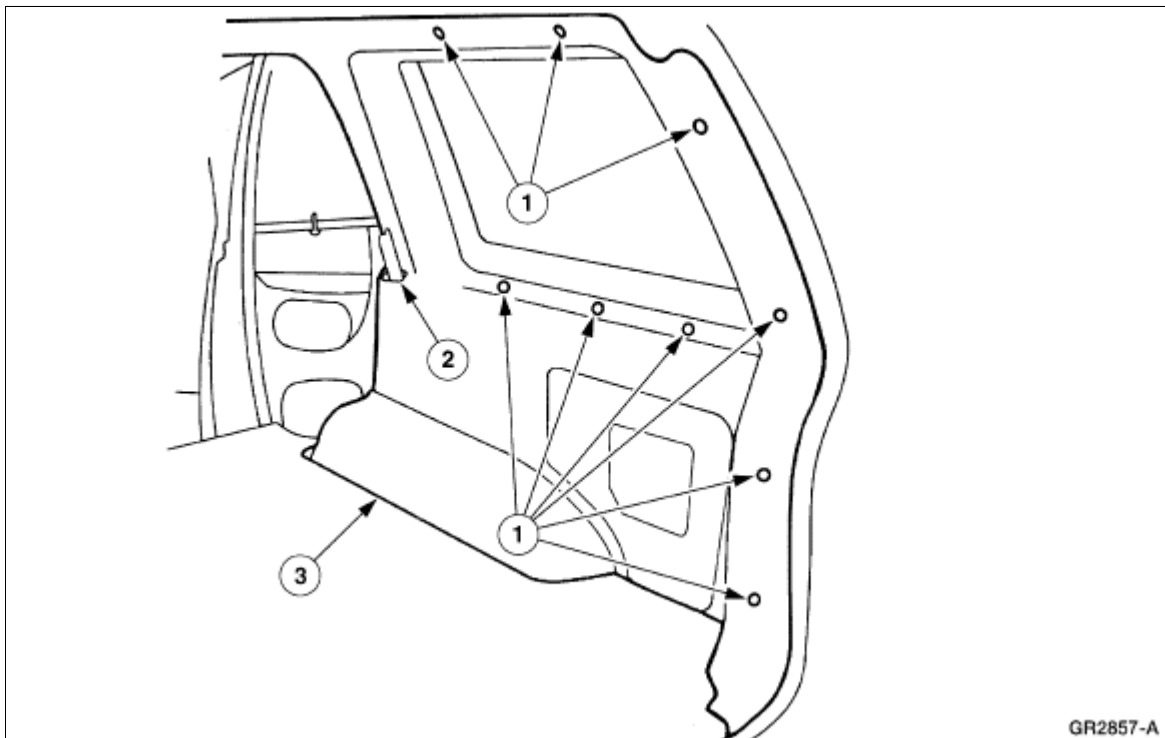
7. Open the rear safety belt guide bolt cover.



8. Using the special tool, remove the rear safety belt guide bolt.

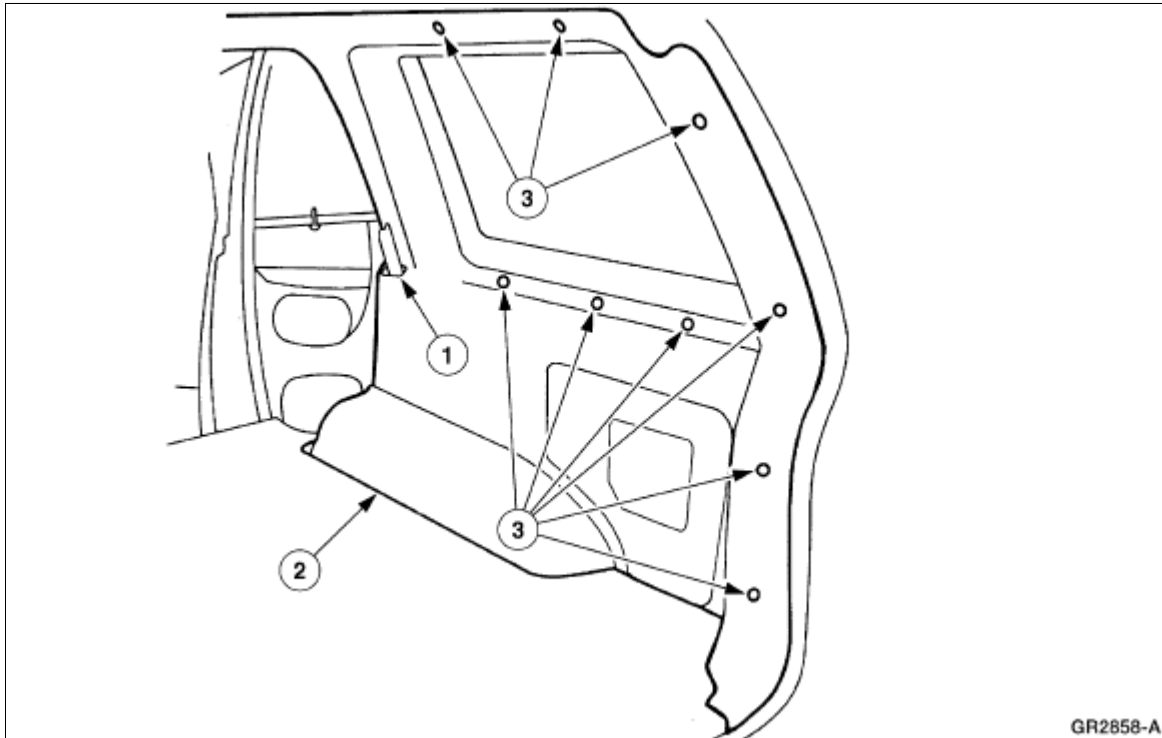


9. Remove the quarter trim panel (31012).
1. Remove the pin-type retainers.
 2. Feed the safety belt webbing through the opening in the quarter trim panel.
 3. Remove the quarter trim panel.

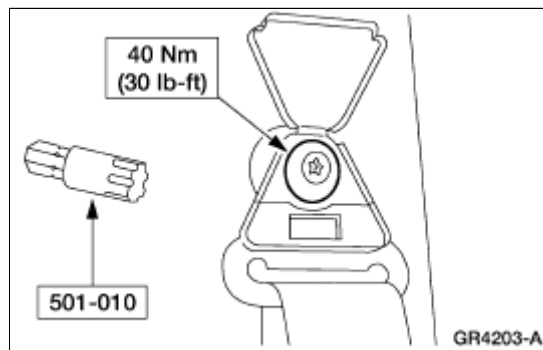


Installation

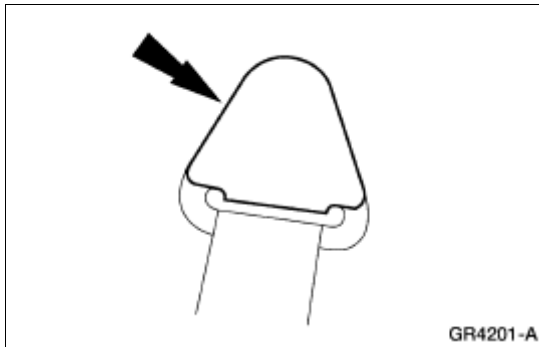
1. Install the quarter trim panel.
 1. Feed the safety belt webbing through the opening in the quarter trim panel.
 2. Position the quarter trim panel.
 3. Install the pin-type retainers.



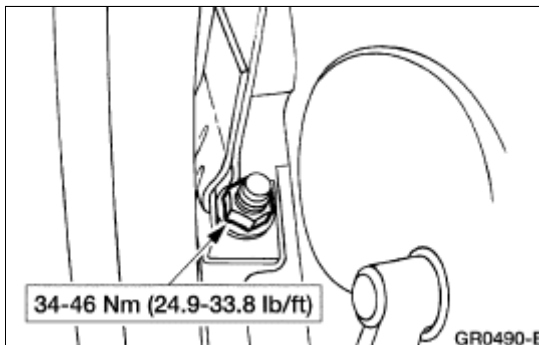
2. Using the special tool, install the rear safety belt guide bolt.



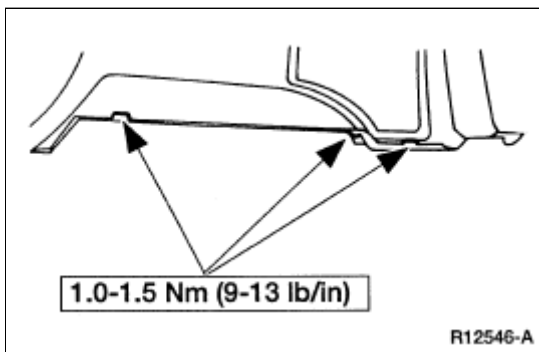
3. Close the rear safety belt guide bolt cover



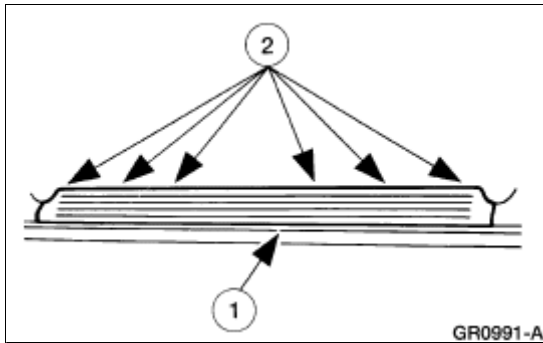
4. Install the rear safety belt anchor nut.



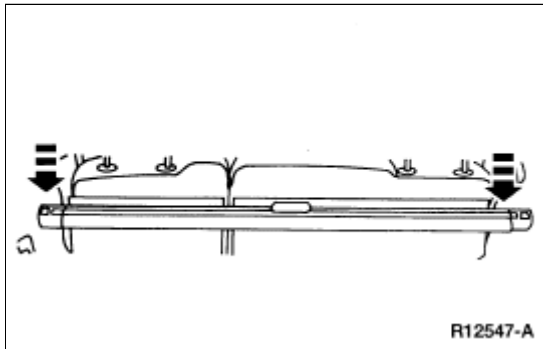
5. Install the three rear quarter trim panel screws.



6. Install the B-pillar trim panel. For additional information, refer to [Trim Panel—B-Pillar](#).
7. Install the liftgate scuff plate.
 1. Position the liftgate scuff plate.
 2. Start at either end and work along the liftgate scuff plate, pushing it into the floor panel.



8. If equipped, install the retractable cargo cover.



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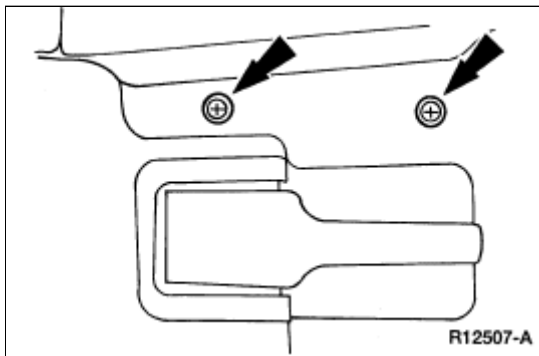
Trim Panel —Rear Door

Removal

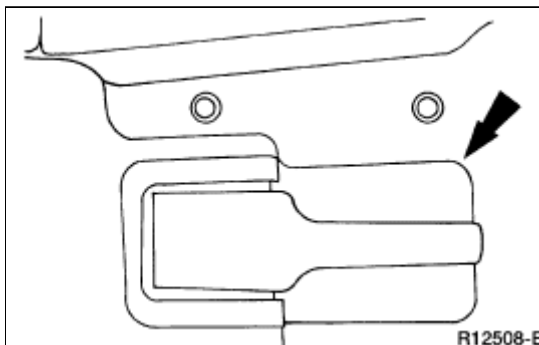
NOTE: High series shown, low series similar.

NOTE: The window glass must be completely down to remove the rear door trim panel.

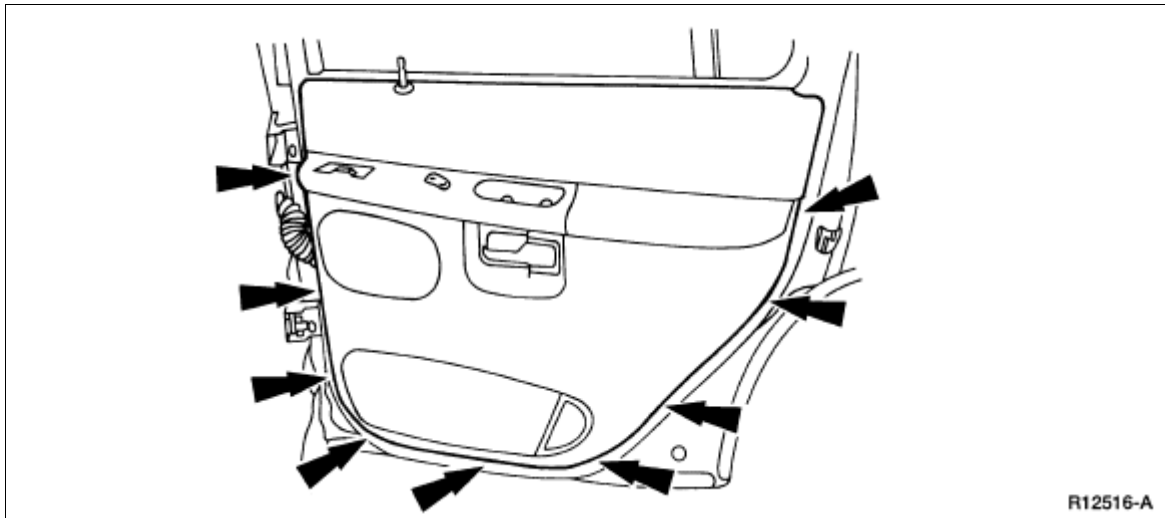
1. Remove the screws.



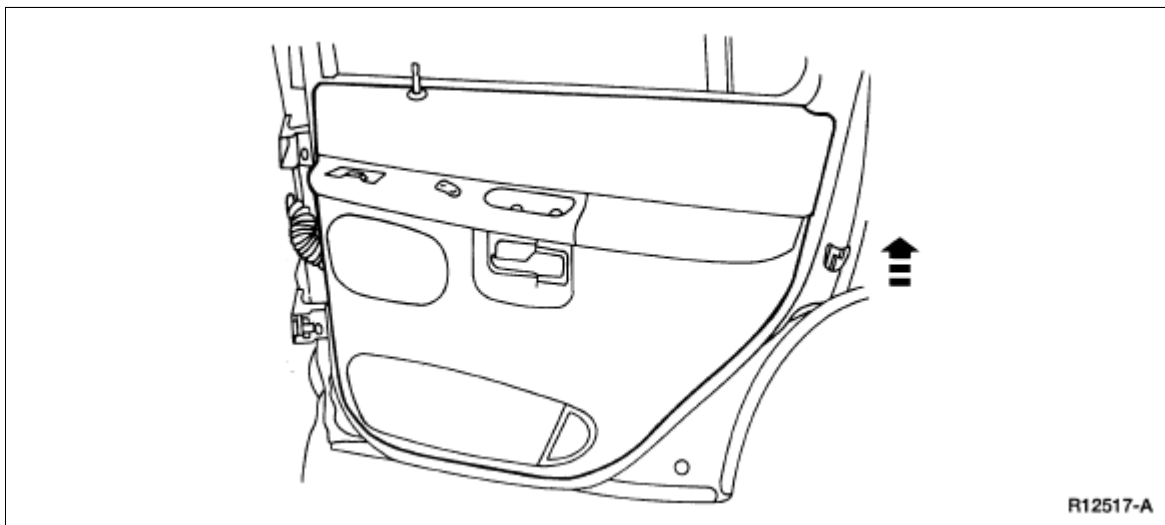
2. Remove the inside door handle cup.



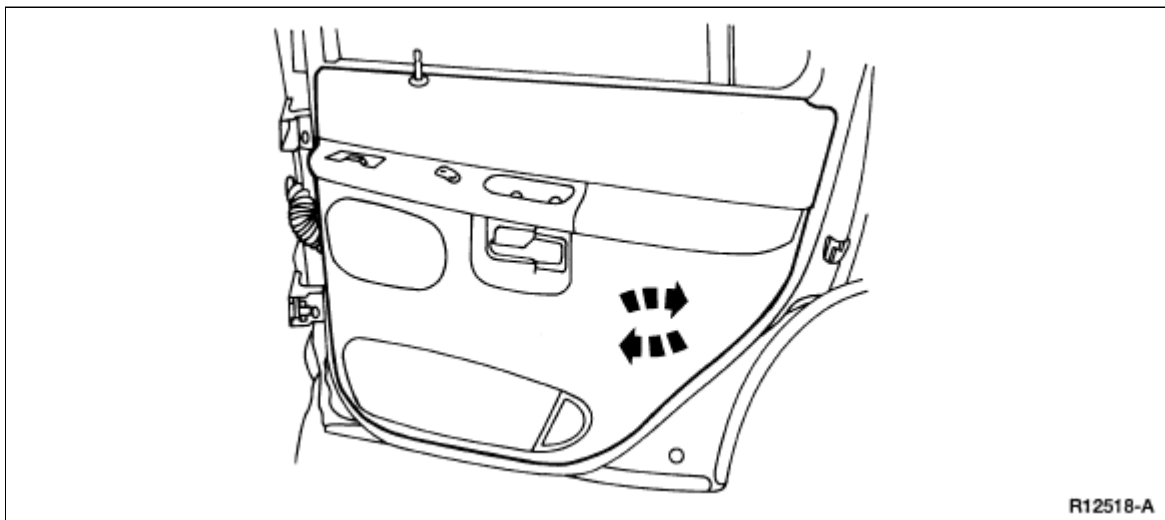
3. On low series rear door trim panel, remove the window regulator handle.
 - Remove the screw.
4. Start in a lower corner and work around the panel and separate the rear door trim panel from the rear door to disengage the pin-type retainers.



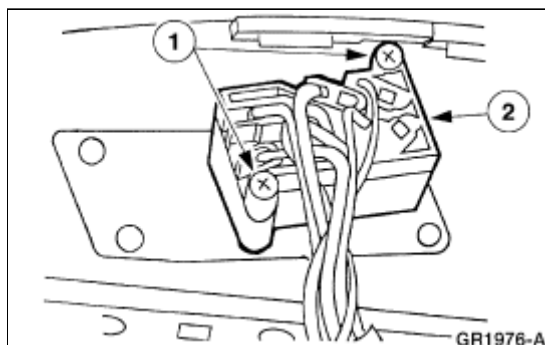
5. Remove the rear door trim panel by lifting to disengage the top lip from the weatherstrip.



6. Turn the rear door trim panel over.



7. Disconnect the power window switch electrical connector.
 1. Remove the screws.
 2. Disconnect the electrical connector.



Installation

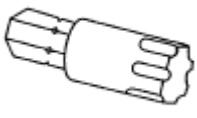
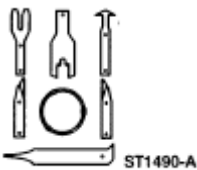
1. To install, reverse the removal procedure.
-

SECTION 501-05: Interior Trim and Ornamentation
REMOVAL AND INSTALLATION

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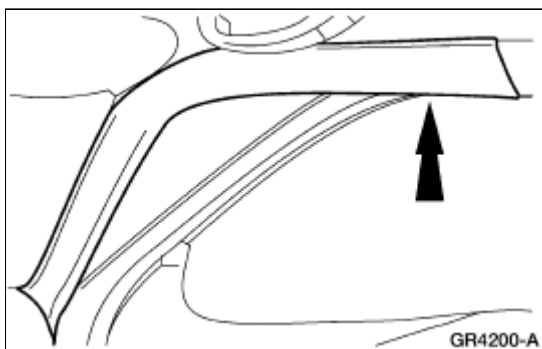
Trim Panel —Quarter, Two Door

Special Tool(s)

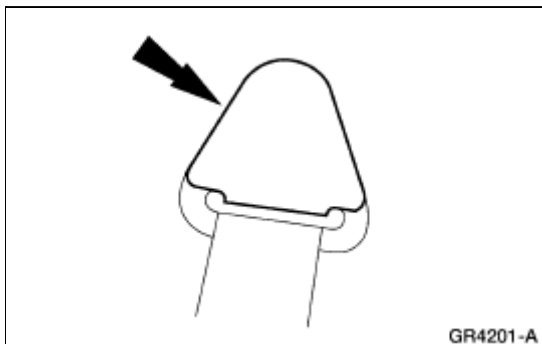
 ST1181-A	Safety Belt Bolt Bit 501-010 (T77L-2100-A)
 ST1490-A	Windshield and Molding/Trim Removal Kit or equivalent 107-R0401

Removal

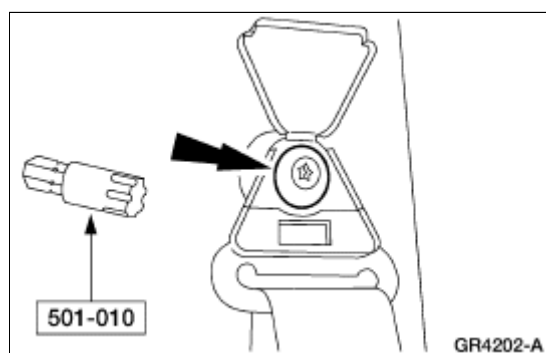
1. Remove the windshield side garnish moulding (03598).



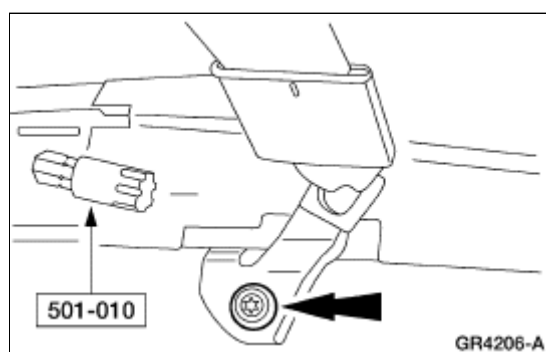
2. Remove the front door scuff plate.
3. Remove the front safety belt guide bolt cover.



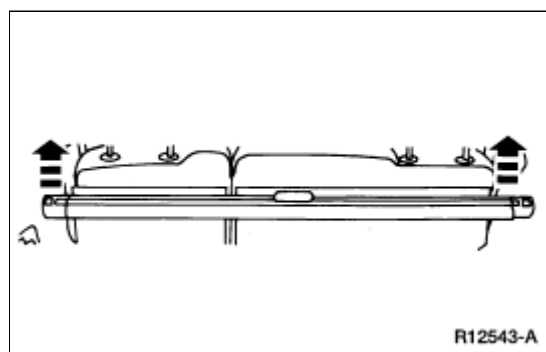
4. Using the special tool, remove the front safety belt guide bolt.



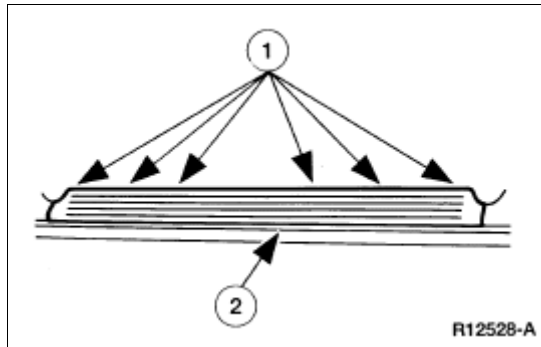
5. Using the special tool, remove the front safety belt anchor bolt.



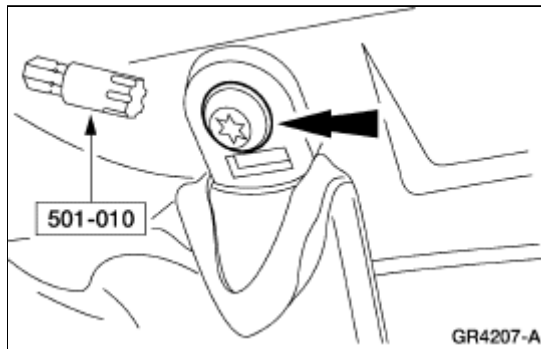
6. If equipped, remove the retractable cargo cover.



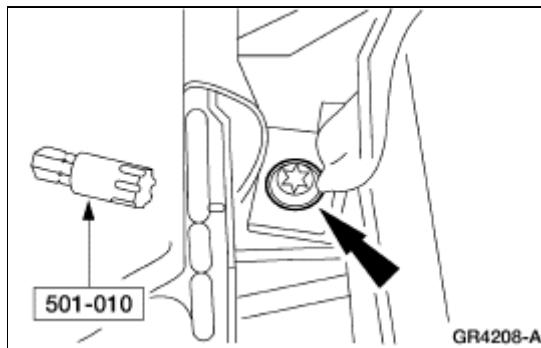
7. Remove the liftgate scuff plate (13144).
 1. Starting at either end and working along the liftgate scuff plate, use Windshield and Molding/Trim Removal Kit to remove the scuff plate.
 2. Remove the liftgate scuff plate.



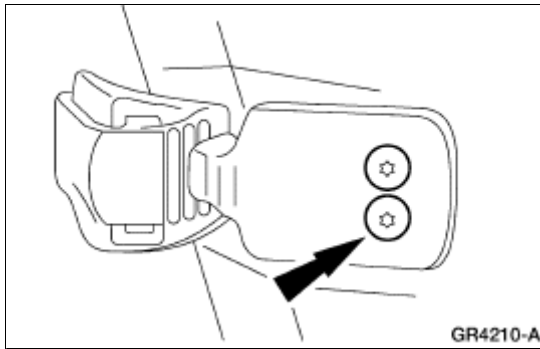
8. Fold the rear seat into the load floor position.
9. Using the special tool, remove the rear safety belt guide bolt.
 - Position the rear safety belt guide cover aside.



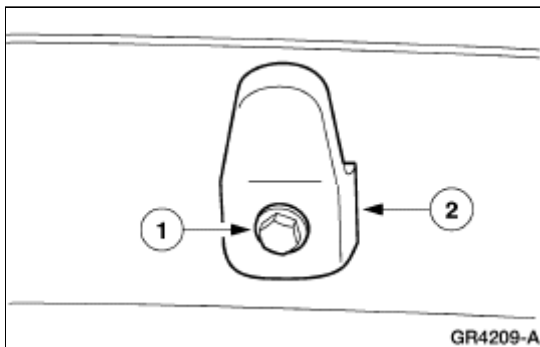
10. Using the special tool, remove the rear safety belt anchor bolt.



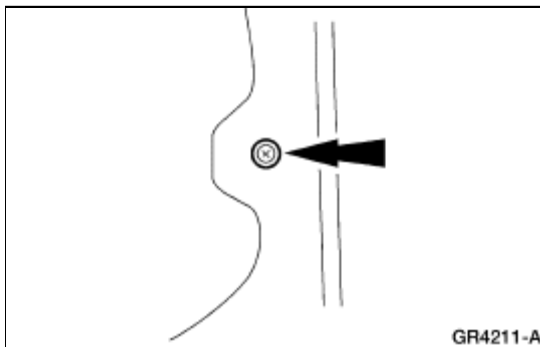
11. Remove the two rear quarter window latch screws.



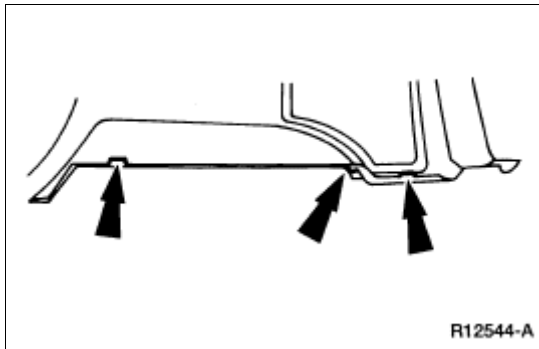
12. Remove the coat hook.
 1. Remove the screw.
 2. Remove the coat hook.



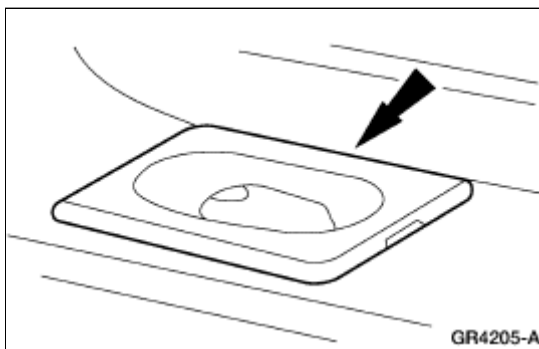
13. Remove the quarter trim panel front screw.
 - Position the carpet aside to gain access to the screw.



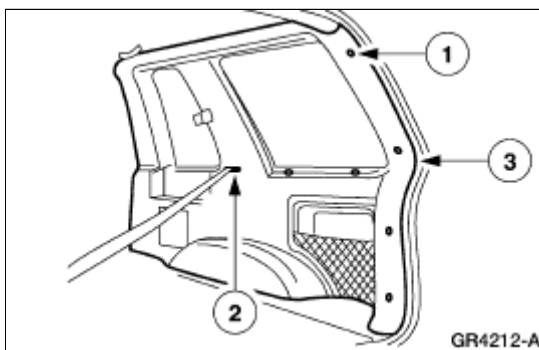
14. Remove the three quarter trim panel rear screws.
 - Position the carpet aside to gain access to the screws.



15. If equipped, remove the rear power lock switch assembly.
- Disconnect the electrical connector.

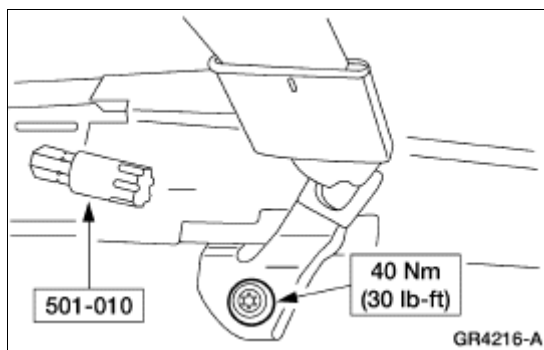
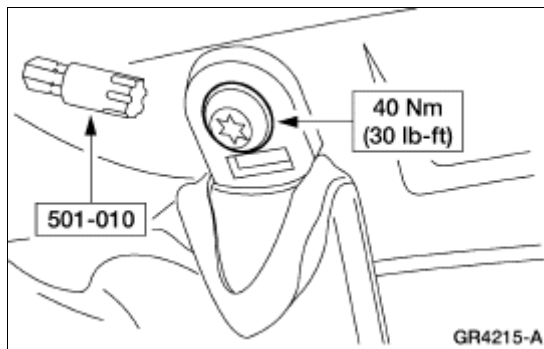
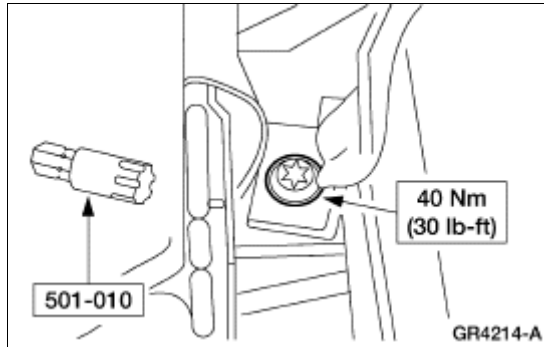
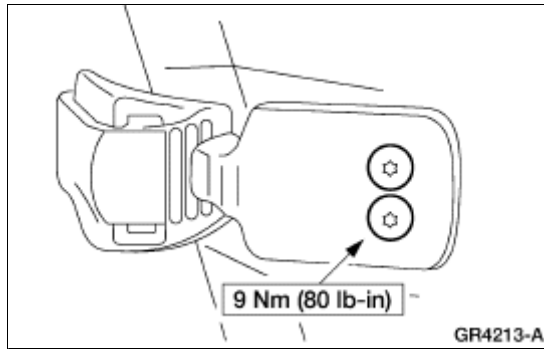


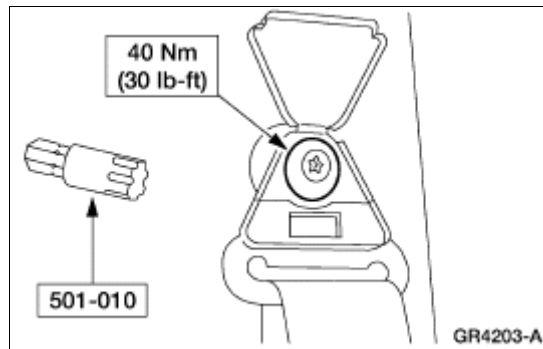
16. Remove the quarter trim panel.
1. Remove the eight pin-type retainers.
 2. Feed the safety belt webbing through the opening in the quarter trim panel.
 3. Remove the quarter trim panel.



Installation

1. To install, reverse the removal procedure.





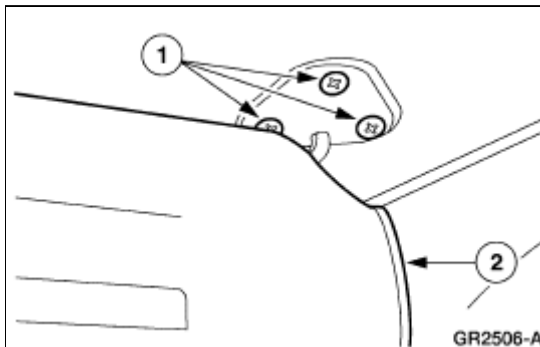
SECTION 501-05: Interior Trim and Ornamentation
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

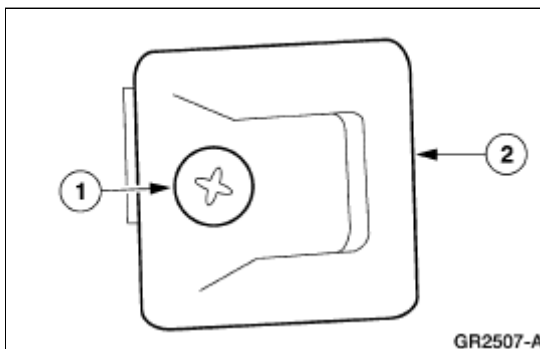
Headliner

Removal

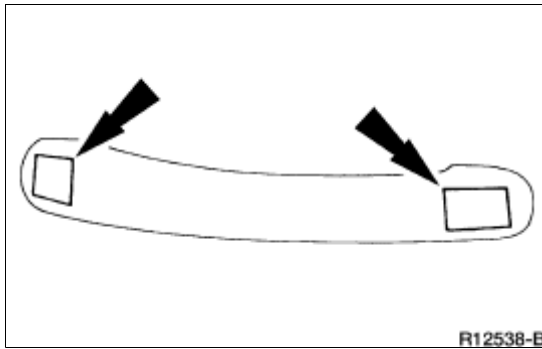
1. Disconnect the battery ground cable (14301).
2. Remove the quarter trim panel (31012) . For additional information, refer to [Trim Panel—Quarter, Four Door](#) or [Trim Panel—Quarter, Two Door](#) .
3. If equipped, remove the overhead console. For additional information, refer to [Section 501-12](#) .
4. Remove the interior lamps. For additional information, refer to [Section 417-02](#) .
5. Remove the sun visors.
 1. Remove the six screws.
 2. Remove the sun visors.
 - If equipped, disconnect the electrical connectors.



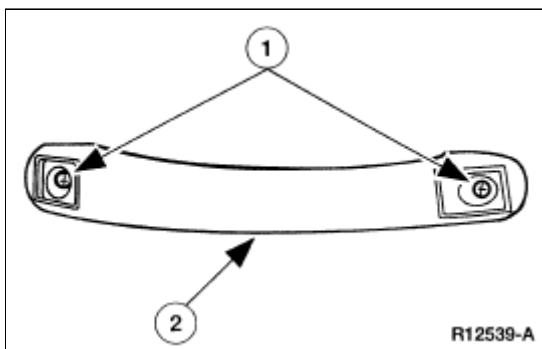
6. Remove the sun visor brackets.
 1. Remove the two screws.
 2. Remove the sun visor brackets.



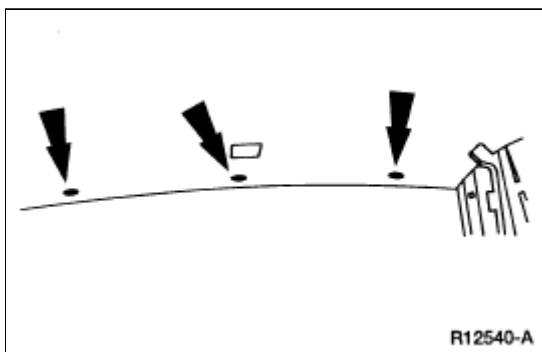
7. Remove the assist handle bolt covers.



8. Remove the assist handles.
 1. Remove the bolts.
 2. Remove the assist handles.



9. Remove the headliner pin-type retainers.



10. Remove the six remaining pin-type retainers.
11. Remove the headliner.

Installation

1. **NOTE:** When the battery (10653) is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

To install, reverse the removal procedure.



SECTION 501-08: Exterior Trim and Ornamentation
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

Torque Specifications

Description	Nm	lb-in
Radiator Grille Screws	1.6-2.2	14-20
Front Upper Sight Shield Bolts	6-8	54-70
Running Board Bolts	9-13	81-115
Running Board Nuts	2.5-3.5	23-30
Running Board Screws	0.9-1.3	8-11

SECTION 501-08: Exterior Trim and Ornamentation
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Exterior Trim and Ornamentation

The exterior trim components for the Explorer consist of the following:

- luggage rack
- side moulding
- side trim moulding
- running boards
- rear emblem
- rear liftgate trim moulding
- radiator grille
- trim level emblem
- optional step bar

The exterior trim components for the Mountaineer consist of the following:

- luggage rack
 - side moulding
 - side trim moulding
 - trim level emblem
 - rear emblem
 - radiator grille
 - running boards
 - rear liftgate trim moulding
-

SECTION 501-08: Exterior Trim and Ornamentation
REMOVAL AND INSTALLATION

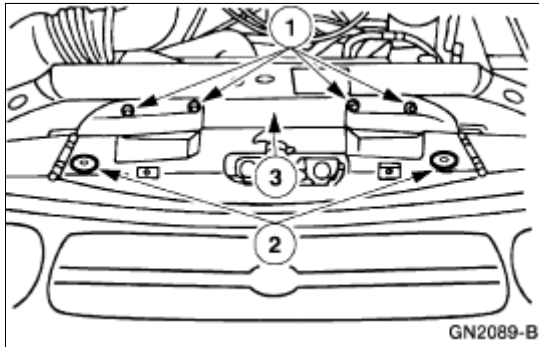
2000 Explorer/Mountaineer Workshop Manual

Radiator Grille

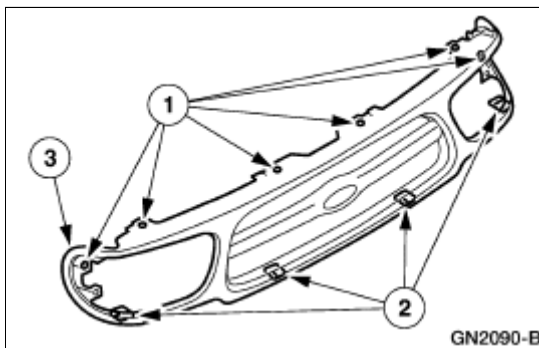
Removal

NOTE: Explorer shown; Mountaineer similar.

1. Raise and support the hood (16612).
2. Remove the front upper radiator upper sight shield (8C291).
 1. Remove the bolts.
 2. Remove the pin type retainers.
 3. Remove the radiator upper sight shield.



3. Remove the parking lamps; for additional information refer to [Section 417-01](#).
4. Remove the radiator grille (8200).
 1. Remove the screws.
 2. Release the clips.
 3. Remove the radiator grille.

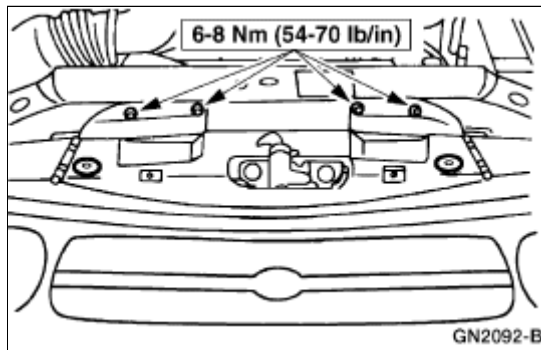
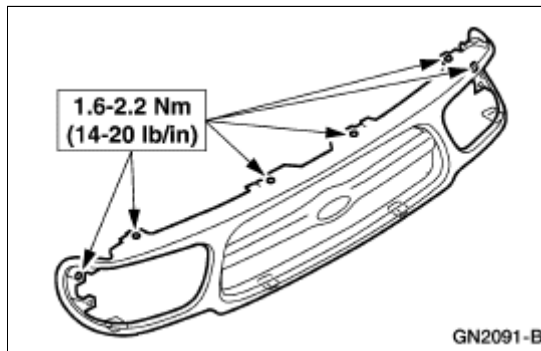


Installation

NOTE: Explorer shown; Mountaineer similar.

1. **NOTE:** Insert the locating tabs before installing the radiator grille screws.

To install, reverse the removal procedure.



SECTION 501-09: Rear View Mirrors
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

Torque Specifications

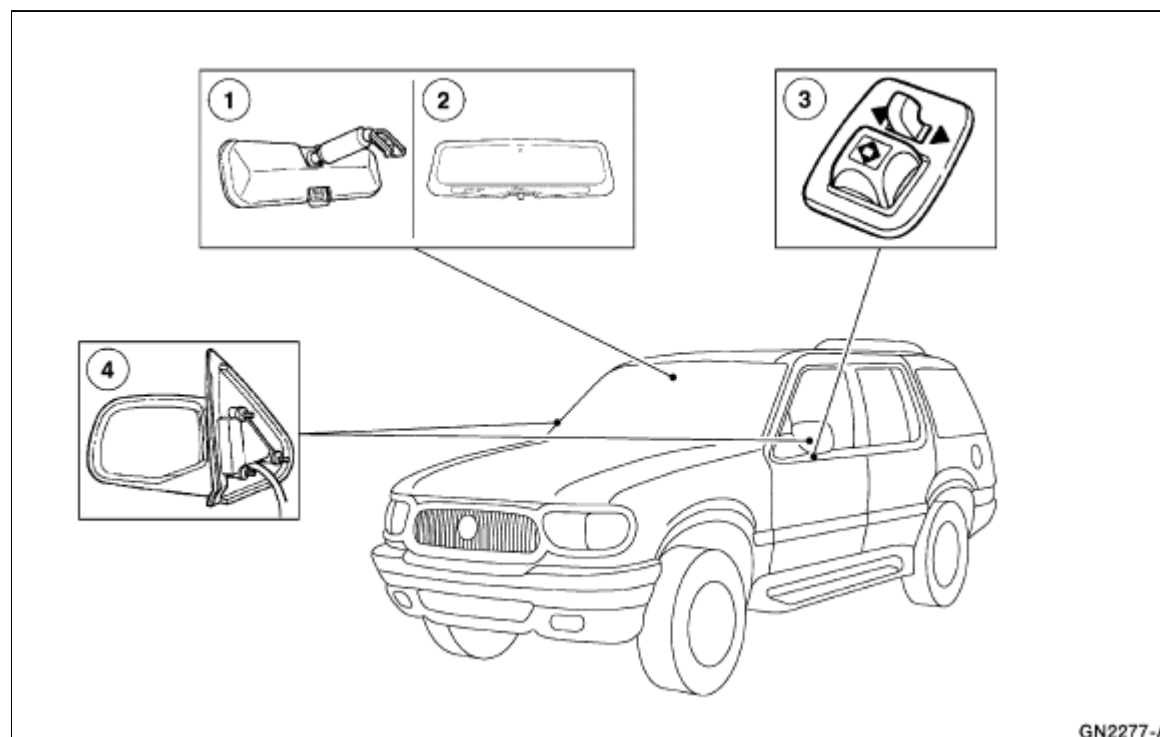
Description	Nm	lb-in
Battery Ground Cable Screw	7-10	62-89
Outside Rear View Mirror Nuts	6-8	54-71

SECTION 501-09: Rear View Mirrors
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Rear View Mirrors

Rear View Mirror Components



GN2277-A

Item	Part Number	Description
1	17700	Inside Rear View Mirror
2	17E678	Electrochromic Inside Rear View Mirror (Optional)
3	17B676	Outside Rear View Mirror Control— (LH and RH)
4	17682	Outside Rear View Mirror (LH and RH)

Outside Rear View Mirrors

Both LH and RH outside rear view mirrors are controlled and adjusted from the outside rear view mirror switch. The outside rear view mirrors can also be folded in or manually adjusted. The outside rear view mirrors can also house the optional ground illumination lamps. The mirrors can have the optional heated function when the heated back window glass is actuated.

The heated power mirror contains a grid that is provided power by the rear window defrost relay.

Pressing the rear window defrost switch begins the ten-minute cycle and activates the rear window defrost relay.

Pressing the rear window defrost switch at anytime during the timing cycle will deactivate the function and deactivate the rear window defrost relay. If the switch is NOT pressed during the ten-minute cycle, power remains applied to the rear window defrost relay until the timer interval has expired.

Inside Rear View Mirror — Electrochromic

The electrochromic inside rear view mirror has three features:

- Automatic dimming.
- Autolamp delay; refer to [Section 417-01](#).
- Automatic lock-in normal view state, when vehicle is placed in REVERSE (R).

The automatic dimming feature darkens the inside rear view mirror whenever the front ambient light sensor detects low outside light and glare reaches the light sensor (photocell), located inside the mirror. The electrochromic inside rear view mirror starts to return to the normal view once glare goes away.

SECTION 501-09: Rear View Mirrors
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop Manual

Rear View Mirrors

Refer to Wiring Diagrams Cell [124](#), Power Mirrors for schematic and connector information.

Refer to Wiring Diagrams Cell [125](#), Automatic Day/Night Mirrors for schematic and connector information.

Refer to Wiring Diagrams Cell [56](#), Rear Window Defrost/Mirror Defrost for schematic and connector information.

Special Tool(s)

 ST1137-A	73 Digital Multimeter or equivalent 105-R0051

Inspection and Verification

1. Verify the customer concern by operating the outside/inside rear view mirrors.
2. Visually inspect for the following obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
• Mirror • Switch	• Fuse(s) • Wiring harness • Loose or corroded connections

3. If the concern is not visually evident, determine the symptom and proceed to Symptom Chart.

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
• The Mirrors Are Inoperative	• Fuse. • Circuitry. • Outside rear view mirror switch.	• GO to Pinpoint Test A.

• A Single Mirror Is Inoperative	• Circuitry. • Outside rear view mirror motor.	• GO to Pinpoint Test B.
• A Single Mirror Does Not Function With Switch Logic	• Outside rear view mirror control. • Outside rear view mirror motor. • Circuitry.	• GO to Pinpoint Test C.
• The Auto Dimming Mirror Does Not Operate Properly	• Fuse. • Inside rear view mirror. • Circuitry.	• GO to Pinpoint Test D.
• The Heated Outside Mirror Does Not Defrost — Both Power/Heated Mirrors	• Fuse. • Power/heated mirror. • Circuitry.	• GO to Pinpoint Test E.
• The Heated Outside Mirror Does Not Defrost — Left Power/Heated Mirror	• Left power heated mirror. • Circuitry.	• GO to Pinpoint Test F.
• The Heated Outside Mirror Does Not Defrost — Right Power/Heated Mirror	• Right power/heated mirror. • Circuitry.	• GO to Pinpoint Test G.

Pinpoint Tests

PINPOINT TEST A: THE MIRRORS ARE INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
A1 CHECK FUSE JUNCTION PANEL FUSE 1 (7.5A)	
1  2  Fuse 1 (7.5A)	• Is the fuse OK? → Yes GO to A2. → No REPLACE the fuse. TEST the system for normal operation. If the fuse fails again,

CHECK for a short to ground, REPAIR as necessary.

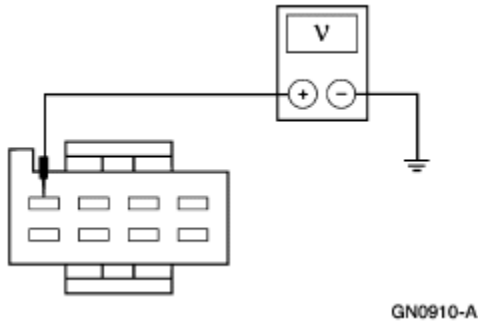
A2 CHECK THE VOLTAGE TO THE POWER MIRROR SWITCH — CIRCUIT 956 (O/LG)

1



Outside Rear View Mirror Switch C507

2



2

Measure the voltage between outside rear view mirror switch C507-1, circuit 956 (O/LG), and ground.

• Is the voltage greater than 10 volts?

→ **Yes**

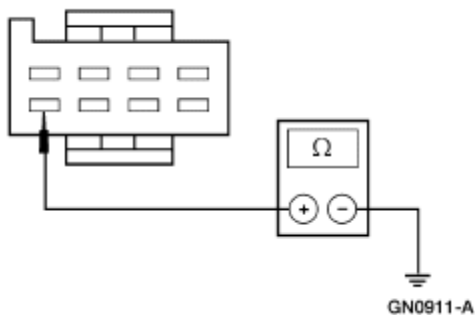
GO to [A3](#).

→ **No**

REPAIR circuit 956 (O/LG). TEST the system for normal operation.

A3 CHECK CIRCUIT 57 (BK) FOR OPEN

1



1

Measure the resistance between outside rear view mirror switch C507-5, circuit 57 (BK), and ground.

• Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the outside rear view mirror switch. TEST the system for normal operation.

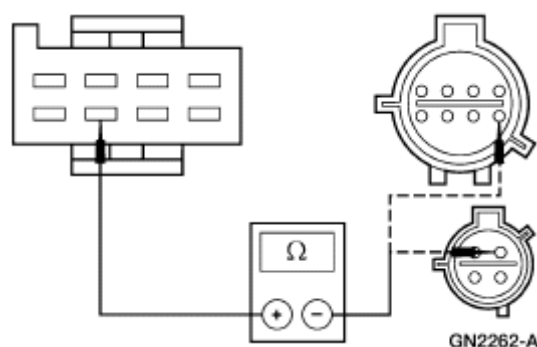
→ **No**

REPAIR circuit 57 (BK). TEST the system for

normal operation.

PINPOINT TEST B: SINGLE MIRROR INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS																									
B1 CHECK THE OUTSIDE REAR VIEW MIRROR CONTROL																										
1  Outside Rear View Mirror Switch C507	2 Use the table to check for continuity between the given terminals of the outside rear view mirror switch for the side that is not operating correctly. Outside Rear View Mirror <table><tr><th>Direction</th><th colspan="2">LH Mirror</th><th colspan="2">RH Mirror</th></tr><tr><td>Up</td><td>1 and 7</td><td>5 and 6</td><td>1 and 8</td><td>5 and 6</td></tr><tr><td>Down</td><td>1 and 6</td><td>5 and 7</td><td>1 and 6</td><td>5 and 8</td></tr><tr><td>Left</td><td>1 and 4</td><td>5 and 6</td><td>1 and 3</td><td>5 and 6</td></tr><tr><td>Right</td><td>1 and 6</td><td>4 and 5</td><td>1 and 6</td><td>3 and 5</td></tr></table> • Is the resistance between given terminals less than 5 ohms only for the given sets of terminals in each direction? → Yes GO to B2. → No REPLACE the outside rear view mirror switch. TEST the system for normal operation.	Direction	LH Mirror		RH Mirror		Up	1 and 7	5 and 6	1 and 8	5 and 6	Down	1 and 6	5 and 7	1 and 6	5 and 8	Left	1 and 4	5 and 6	1 and 3	5 and 6	Right	1 and 6	4 and 5	1 and 6	3 and 5
Direction	LH Mirror		RH Mirror																							
Up	1 and 7	5 and 6	1 and 8	5 and 6																						
Down	1 and 6	5 and 7	1 and 6	5 and 8																						
Left	1 and 4	5 and 6	1 and 3	5 and 6																						
Right	1 and 6	4 and 5	1 and 6	3 and 5																						
B2 CHECK CIRCUIT 542 (Y) FOR OPEN																										
1  Inoperative Outside Rear View Mirror C509 or C606 (C505 or C605 two door)	2 Measure the resistance between outside rear																									



view mirror switch, circuit 542 (Y), and inoperative outside rear view mirror using the chart below:

	LH Mirror	RH Mirror
2 DOOR	C505-1	C605-1
4 DOOR	C509-5	C606-6
OUTSIDE REAR VIEW MIRROR SWITCH	C507-6	C507-6

- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the inoperative rear view mirror. TEST the system for normal operation.

→ **No**

REPAIR circuit 542 (Y). TEST the system for normal operation.

PINPOINT TEST C: A SINGLE MIRROR DOES NOT FUNCTION WITH SWITCH LOGIC

CONDITIONS	DETAILS/RESULTS/ACTIONS
C1 CHECK THE MIRROR MOVEMENT (LEFT/RIGHT)	
	1 Operate the LH and RH outside rear view mirrors in the left and right direction. • Do the outside rear view mirrors move left and right? → Yes GO to C2. → No GO to C3.
C2 CHECK MIRROR MOVEMENT (UP/DOWN)	
	1 Operate the LH and RH outside rear view mirrors in the up and down direction. • Do the outside rear view mirrors move up and down? → Yes System is OK.

→ **No**
GO to [C4](#).

C3 CHECK THE VOLTAGE TO THE INOPERATIVE MIRROR

1

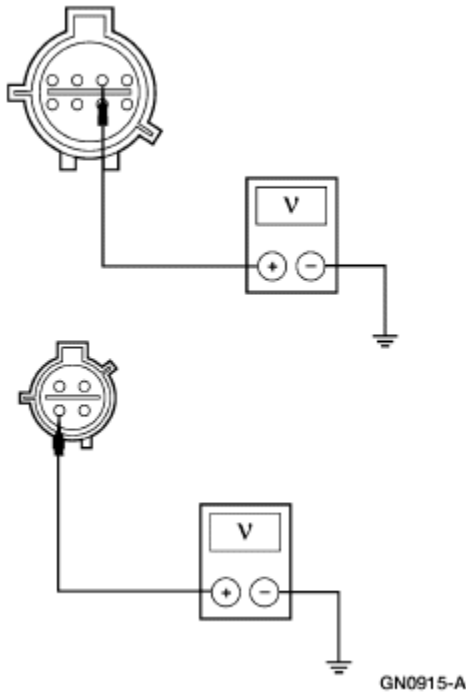


2



Inoperative Outside Rear View Mirror C509 or C606 (C505 or C605 two door)

3



3 While operating the outside rear view mirror switch, measure the voltage between circuit 543 (DG) [RH] or circuit 540 (R) [LH], and ground. Refer to the chart below.

	LH Mirror	RH Mirror
2 DOOR	C505-4	C605-4
R DOOR	C509-2	C606-2

• Is the voltage greater than 10 volts?

→ **Yes**
REPLACE the outside rear view mirror in question. TEST the system for normal operation.

→ **No**
GO to [C5](#).

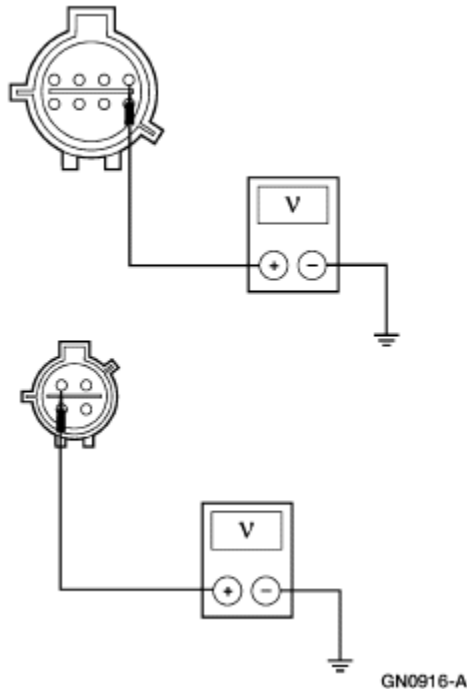
C4 CHECK THE VOLTAGE TO THE INOPERATIVE MIRROR

1



Inoperative Outside Rear View Mirror C509 or C606 (C505 or C605 two door)

2



2

While operating the outside rear view mirror switch, measure the voltage between circuit 544 (P) [RH] or circuit 541 (DB) [LH], and ground. Refer to the chart below.

	LH Mirror	RH Mirror
2 DOOR	C505-2	C605-2
4 DOOR	C509-1	C606-1

- Is the voltage greater than 10 volts?

→ Yes

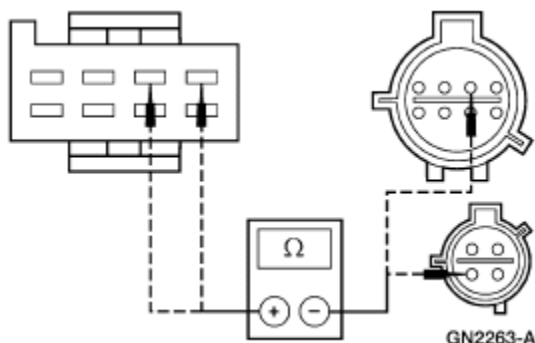
REPLACE the outside rear view mirror in question. TEST the system for normal operation.

→ No

GO to [C6](#).

C5 CHECK CIRCUIT 540 (R) AND CIRCUIT 543 (DG) FOR OPEN

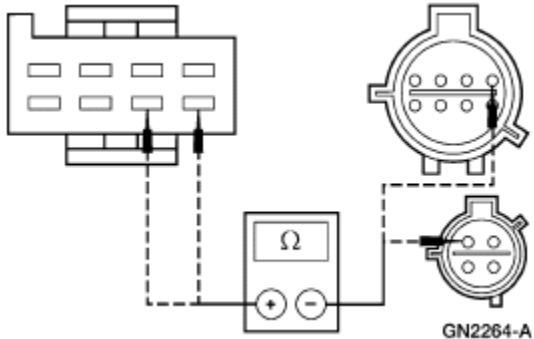
1



1

Measure the resistance between outside rear view mirror switch circuit 543 (DG) [RH], or circuit 540 (R) [LH] and inoperative outside rear view mirror. Refer to the charts below.

	LH Mirror	RH Mirror
2 DOOR	C505-4	C605-4
4 DOOR	C509-2	C606-2
OUTSIDE REAR VIEW MIRROR	C507-4	C507-3

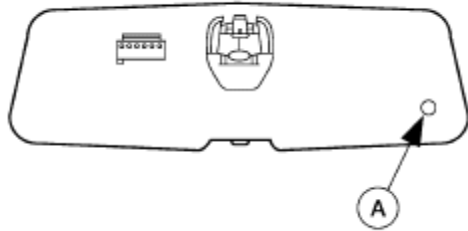
	<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px;">SWITCH</td> <td style="width: 33%;"></td> <td style="width: 33%;"></td> </tr> </table>	SWITCH											
SWITCH													
	Is the resistance less than 5 ohms? → Yes REPLACE the outside rear view mirror switch. TEST the system for normal operation. → No REPAIR circuit 540 (R) or circuit 543 (DG). TEST the system for normal operation.												
C6 CHECK CIRCUIT 541 (DB) AND CIRCUIT 544 (P) FOR OPEN													
1 	1 Measure the resistance between outside rear view mirror switch circuit 541 (DB) [LH], or circuit 544 (P) [RH] and inoperative outside rear view mirror. Refer to the charts below. <table border="1" style="margin: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 20%;">LH Mirror</th> <th style="width: 20%;">RH Mirror</th> </tr> </thead> <tbody> <tr> <td>2 DOOR</td> <td>C505-2</td> <td>C605-2</td> </tr> <tr> <td>4 DOOR</td> <td>C509-1</td> <td>C606-1</td> </tr> <tr> <td>OUTSIDE REAR VIEW MIRROR SWITCH</td> <td>C507-7</td> <td>C507-8</td> </tr> </tbody> </table> Is the resistance less than 5 ohms? → Yes REPLACE the outside rear view mirror switch. TEST the system for normal operation. → No REPAIR circuit 541 (DB) or circuit 544 (P). TEST the system for normal operation.		LH Mirror	RH Mirror	2 DOOR	C505-2	C605-2	4 DOOR	C509-1	C606-1	OUTSIDE REAR VIEW MIRROR SWITCH	C507-7	C507-8
	LH Mirror	RH Mirror											
2 DOOR	C505-2	C605-2											
4 DOOR	C509-1	C606-1											
OUTSIDE REAR VIEW MIRROR SWITCH	C507-7	C507-8											

PINPOINT TEST D: THE AUTO DIMMING MIRROR DOES NOT OPERATE PROPERLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
NOTE: If the transmission range sensor is malfunctioning so that the backup lamps are on, the electrochromic inside rear view mirror will not darken.	
D1 CHECK INSIDE REAR VIEW MIRROR OPERATION	
2	1 Perform the Inside Rear View Mirror — Self Test. Refer to Component Tests.

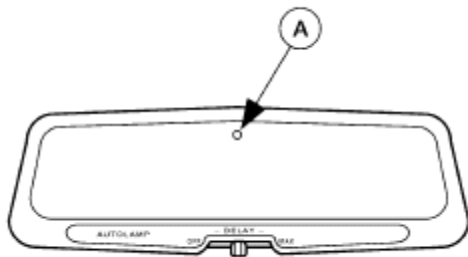


3



GN0320-A

4



GN0321-A

3

Cover the (A) back sensor with a dark cloth or dark tape.

4

With a flashlight, shine the light on the (A) sensor located in the upper center area of the inside rear view mirror.

- Does the inside rear view mirror glass darken to the non-reflective state?

→ Yes

The inside rear view mirror is OK. REVIEW the inside rear view mirror operations with the customer.

→ No

REMOVE the cloth or tape. GO to [D2](#).

D2 CHECK FOR VOLTAGE TO THE INSIDE REAR VIEW MIRROR

1



2

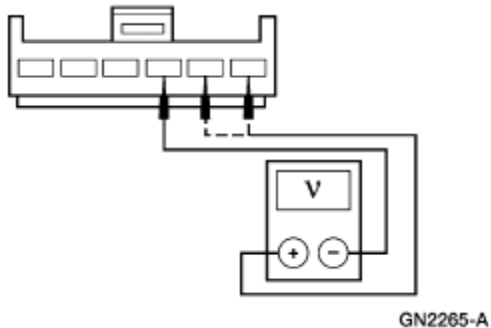


Inside Rear View Mirror C341

3



4



4

Measure the voltage between the inside rear view mirror C341-6, circuit 640 (R/Y), C341-5, circuit 54 (LG/Y), and inside rear view mirror C341-4, circuit 57 (BK).

- Are the voltages greater than 10 volts?

→ Yes

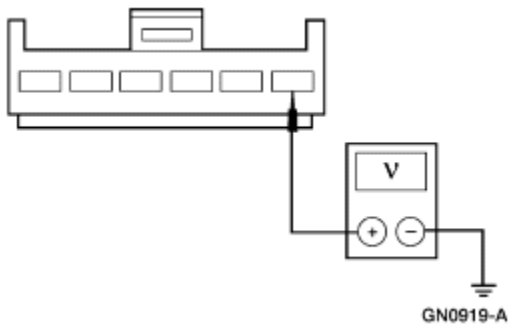
REPLACE the inside rear view mirror. REFER to Mirror — Inside Rear View, Electrochromic. TEST the system for normal operation.

→ No

GO to [D3](#).

D3 CHECK CIRCUIT 640 (R/Y) FOR VOLTAGE

1



1

Measure the voltage between inside rear view mirror C341-6, circuit 640 (R/Y), and ground.

- Is the voltage greater than 10 volts?

→ Yes

GO to [D4](#).

→ No

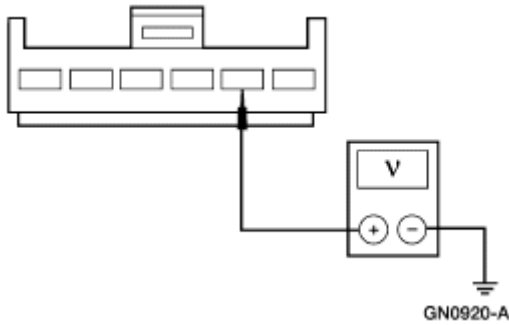
REPAIR circuit 640 (R/Y). TEST the system for normal operation.

D4 CHECK CIRCUIT 54 (LG/Y) FOR VOLTAGE

1

1

Measure the voltage between inside rear view mirror C341-5, circuit 54 (LG/Y), and ground.



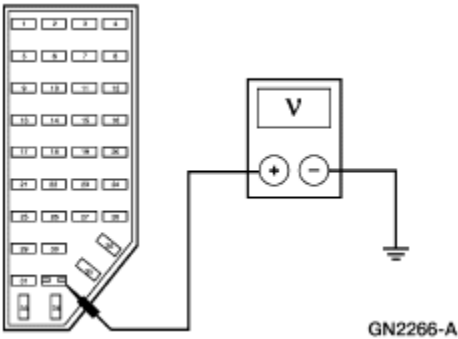
- Is the voltage greater than 10 volts?

→ **Yes**
REPAIR circuit 57 (BK). TEST the system for normal operation.

→ **Yes**
REPAIR circuit 54 (LG/Y). TEST the system for normal operation.

PINPOINT TEST E: THE HEATED OUTSIDE MIRROR DOES NOT DEFROST — BOTH POWER/HEATED MIRRORS

CONDITIONS	DETAILS/RESULTS/ACTIONS
E1 CHECK THE HEATED REAR WINDOW SWITCH OPERATION	
1	2 Place the heated rear window switch in the ON position. • Does the heated rear window switch illuminate? → Yes REFER to Section 501-11. → No GO to E2.
E2 CHECK FUSE JUNCTION PANEL FUSE 32 (7.5A)	
1 Fuse 32 (7.5A)	

	• Is the fuse OK? → Yes GO to E3. → No REPLACE the fuse. TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.
E3 CHECK FUSE JUNCTION PANEL FUSE 32 (7.5A) FOR VOLTAGE	
1 	1 Verify the heated rear window switch in illuminated. 2 Measure the voltage between fuse junction panel fuse 32 (7.5A), pin 2, and ground. • Is the voltage greater than 10 volts? → Yes REPAIR circuit 59 (DG/P). TEST the system for normal operation. → No REPAIR circuit 186 (BR/LB). TEST the system for normal operation.

PINPOINT TEST F: THE HEATED OUTSIDE MIRROR DOES NOT DEFROST — LEFT POWER/HEATED MIRROR

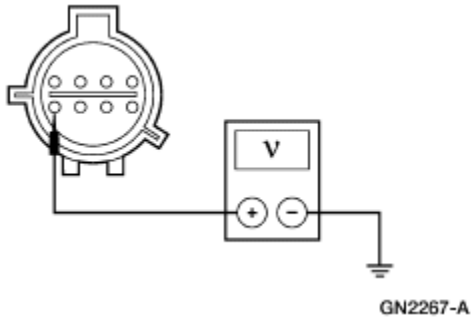
CONDITIONS	DETAILS/RESULTS/ACTIONS
F1 CHECK CIRCUIT 59 (DG/P) FOR VOLTAGE	
1  2 	

Left Power/Heated Mirror C509

3



4



4

Measure the voltage between left power/heated mirror C509-8, circuit 59 (DG/P), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [F2](#).

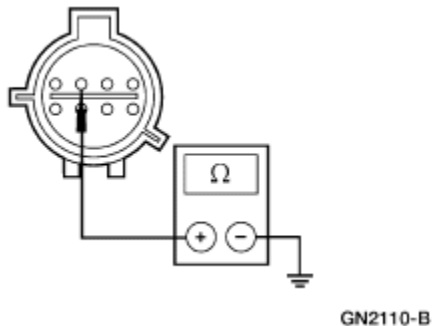
→ **No**
REPAIR circuit 59 (DG/P). TEST the system for normal operation.

F2 CHECK CIRCUIT 57 (BK) FOR OPEN

1



2



2

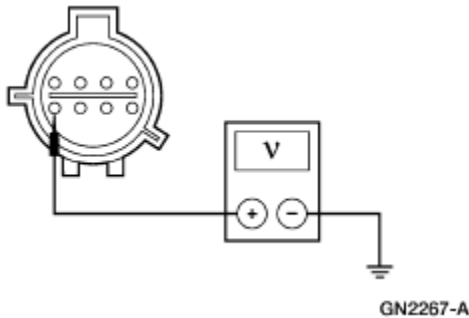
Measure the resistance between left power/heated mirror C509-6, circuit 57 (BK), and ground.

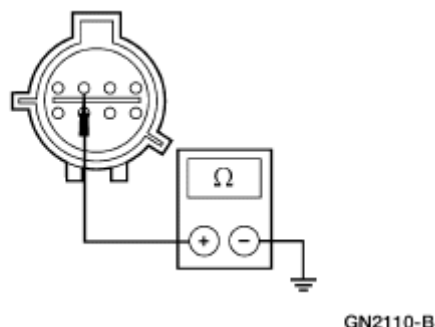
- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the left power/heated mirror;
REFER to Mirror — Outside Rear View. TEST the system for normal operation.

→ **No**
REPAIR circuit 57 (BK). TEST the system for normal operation.

PINPOINT TEST G: THE HEATED OUTSIDE MIRROR DOES NOT DEFROST — RIGHT POWER/HEATED MIRROR INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
G1 CHECK CIRCUIT 59 (DG/P) FOR VOLTAGE	
1  2  Right Power/Heated Mirror C606 3  4  GN2267-A	4 Measure the voltage between right power/heated mirror C606-8, circuit 59 (DG/P), and ground. • Is the resistance less than 5 ohms? → Yes GO to G2. → No REPAIR circuit 59 (DG/P). TEST the system for normal operation.
G2 CHECK CIRCUIT 57 (BK) FOR OPEN	
1	1 Measure the resistance between right power/heated mirror C606-6, circuit 57 (BK), and ground.



- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the right power/heated mirror;
REFER to Mirror — Outside Rear View. TEST
the system for normal operation.

→ **No**

REPAIR circuit 57 (BK). TEST the system for
normal operation.

Component Tests

Inside Rear View Mirror — Self Test

NOTE: This diagnostic test is applicable to late build models equipped with electrochromic inside rear view mirrors.

1. Place the ignition switch in the OFF position.
2. Place the autolamp in the OFF (slide control at the far left [detent]) position.
3. Using a ball-point pen or paper clip, press and hold the mode switch located at the bottom of the mirror. After three seconds, the headlamps and parking lights will illuminate. If the headlamps do not illuminate, check inside rear view mirror C341-2, circuit 218 (W/P), for an open or a short, or check for a defective parklamp relay. The autolamp status LED will illuminate.
4. Release the mode switch. If the headlamp or status LED does not illuminate then check inside rear view mirror C341-5, circuit 54 (LG/Y), and inside rear view mirror C341-4, circuit 57 (BK), for a short or an open.
5. Place the ignition switch in the ON position. The headlamps and parking lights will extinguish. The inside rear view mirror will dim. The autolamp status indicator and headlamps will extinguish and the inside rear view mirror will darken. If the autolamps remain ON and/or the inside rear view mirror does not darken, check inside rear view mirror C341-6, circuit 640 (R/Y), for an open; or check inside rear view mirror C341-3, circuit 140 (BK/PK), for battery voltage.
6. **NOTE:** This procedure must be started within ten seconds or the mirror will default to the power-up state.

The mirror will reset to the power-on state (mirror bright, lamps off). Once the inside rear view mirror is dark, place the gear shift lever in the REVERSE position. If the mirror does not return to full bright,

check inside rear view mirror C341-3, circuit 140 (BK/PK), for an open.

7. Place the gear shift lever in the PARK position.
 8. Place the ignition switch in the OFF position.
-

SECTION 501-09: Rear View Mirrors
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

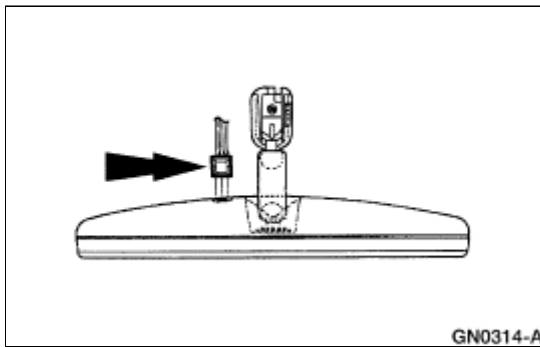
Mirror —Inside Rear View, Electrochromic

Removal

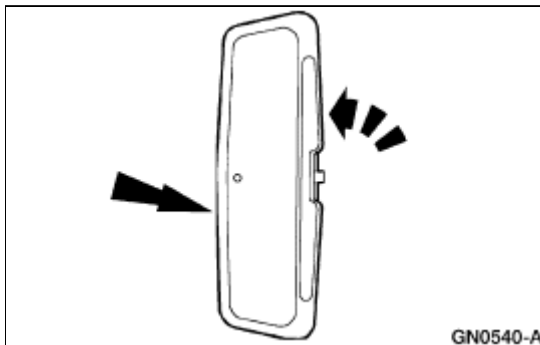


CAUTION: Do not use tools or other objects to pry the mount or mirror away from the windshield. Use of tools may damage the mirror mount.

1. Disconnect the inside rear view mirror electrical connector.



2. Turn the inside rear view mirror to the vertical position.



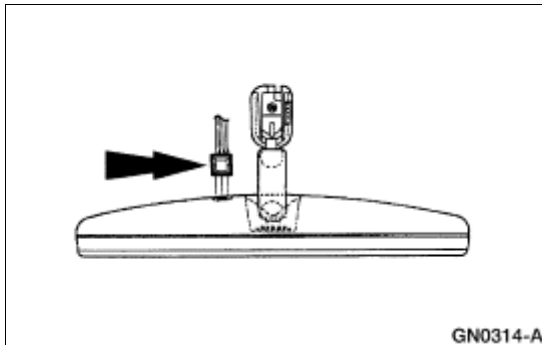
3. Remove the inside rear view mirror.
 - Twist the mirror horizontally until the tube assembly bottoms out and the spring releases off the mounting button.

Installation

1. Position the inside rear view mirror onto the mounting button.
2. **NOTE:** Make sure the inside rear view mirror remains parallel to the windshield glass.

Slide the inside rear view mirror onto the mounting button while applying holding force against the button until a click is heard.

3. Connect the inside rear view mirror electrical connector.



4. **NOTE:** The mirror mount is designed to detach from the button during air bag deployment. Excessive force or adjustment can cause the mirror to detach from the windshield.

Check the inside rear view mirror for normal operation.

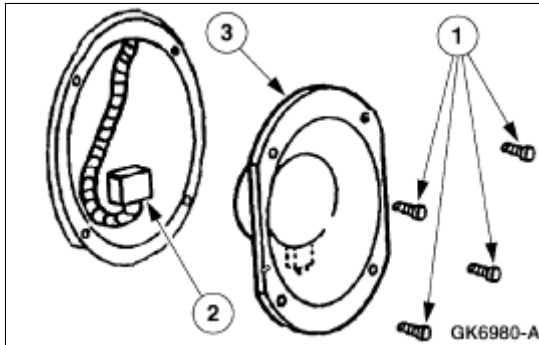
SECTION 501-09: Rear View Mirrors
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

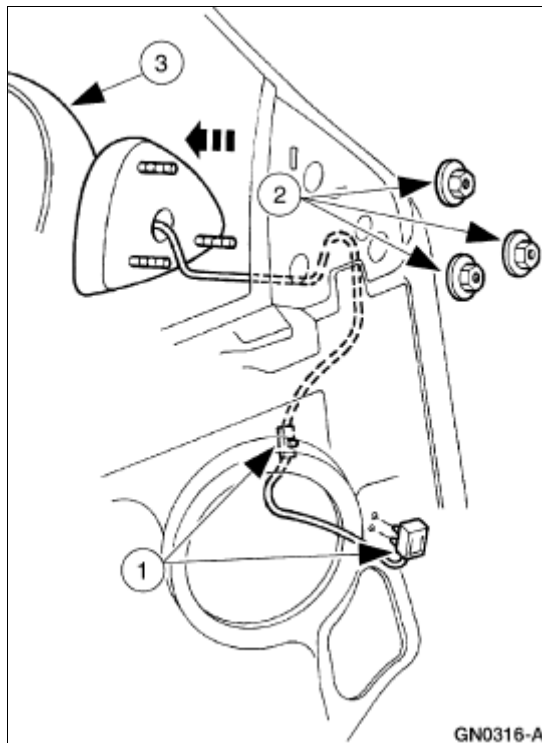
Mirror —Outside Rear View

Removal

1. Disconnect the battery ground cable (14301).
2. Remove the front door trim panel; refer to [Section 501-05](#).
3. Remove the speaker.
 1. Remove the screws.
 2. Disconnect the electrical connector.
 3. Remove the speaker.



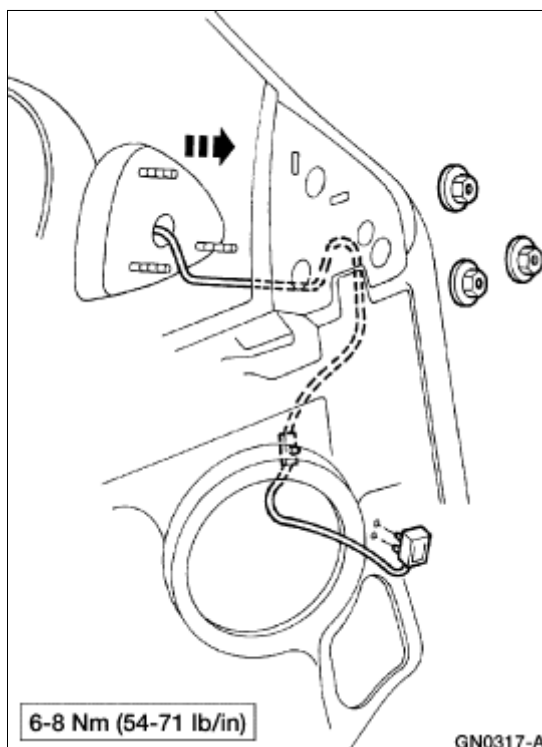
4. Remove the outside rear view mirror (17682).
 1. Disconnect the power mirror wiring clips.
 2. Remove the outside rear view mirror nuts.
 3. Remove the outside rear view mirror.
 - Feed the power mirror wiring through the opening in the front door (20124).



Installation

1. **NOTE:** When the battery (10655) is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

To install, reverse the removal procedure.





SECTION 501-10: Seating
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

Torque Specifications

Description	Nm	lb-ft	lb-in
Adjuster latch/pivot cover screw	1.6-2.2	—	15-19
Battery ground cable bolt	7-10	—	62-89
Center occupant safety belt bolt	30-40	22-30	—
Driver seat module screws	12	9	—
Front/rear seat backrest latch bolts	47-63	34-46	—
Front seat back pad adjusting pump bolt	11-14	8-10	—
Front seat cushion side cover screws	1.6-2.2	—	15-19
Front seat inboard pivot bolt	19-26	14-19	—
Front seat track to floor bolts	21-28	15-21	—
Inboard safety belt bracket bolt	38-44	28-32	—
Latch handle screws	1.6-2.2	—	15-19
Link arm nut	30-40	22-30	—
Rear outboard bolt	30-40	22-30	—
Rear outboard nut	30-40	22-30	—
Rear seat back inboard/outboard pivot bolts	38-44	28-32	—
Rear seat riser to floor nuts	30-40	22-30	—
Rear seat riser pivot bolts	38-44	28-32	—
Rear seat link bolt	30-40	22-30	—
Rear seat to floor bolts	30-40	22-30	—
Safety belt buckle bracket to floor nuts	34-46	25-34	—
Seat cushion to adjuster latch bolts, rear seat	38-44	28-32	—
Seat track to seat cushion bolts	17-23	13-17	—
Side air bag nuts	8	—	71
Slide bar to floor bolt	40	30	—
Slide bar to seat track bolt	7.5-10.5	—	66.4-92.9
Slide bar to seat track nut	7.5-10.5	—	66.4-92.9
40% seat inboard pivot bolts	23-32	17-24	—
50% seat cushion to seat hinge bolts	7-11	—	62-97
50/50 seat back latch bolt	30-46	22-33	—
60% front seat armrest bolt	30-35	22-26	—
60% seat cushion outboard side bolster screw	1.6-2.2	—	15-19
60% seat inboard pivot cover bolt	1.6-2.2	—	15-19



SECTION 501-10: Seating
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

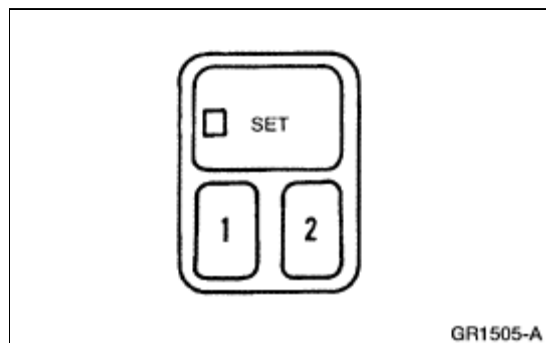
Seats

The seat options consist of:

- Captain's Chair (cloth)
- Eddie Bauer Sport Bucket (leather, standard power driver, optional power passenger, optional heated, optional side air bag)
- Limited Seat (leather, optional heated, optional side air bag)
- Sport Bucket (cloth, optional side air bag)
- Sport Bucket (driver, cloth, optional power, optional side air bag)
- Sport Bucket (leather, optional power, optional side air bag)
- Vinyl Bucket
- 60/40 Front Bench (vinyl, cloth)
- 50/50 Rear Seat (vinyl, cloth, leather)
- 60/40 Rear Seat (vinyl, cloth, leather)

Programmable Seat, Explorer Limited

Programmable Seat Switch



This system allows automatic positioning of the driver seat to three programmable positions.

- To program position one, move the driver seat to the desired position using the seat regulator control switch. Depress the set button. Within five seconds, depress button one.
- To program position two, repeat the previous procedure using button two.
- To program position three, repeat the previous procedure but depress buttons one and two simultaneously
- To recall position one, depress button one. To recall position two, depress button two. To recall position three, depress button one and two simultaneously.

A position can only be recalled when the transmission selector is in PARK or NEUTRAL. A position may be programmed at any time.

Heated Seat

This system allows the electrical heating of the front seats on passenger demand.

The components of the system are:

- The seat heating elements located in the seat cushion and backrest.
- The heated seat module located on the seat cushion frame.
- The heated seat control switch, located on the seat side trim panel.
- Temperature sensors located in the seat heating elements.

Side Air Bag

Driver and passenger side air bags are attached to the seat backrest frame. For diagnostic information or if the side air bag has been deployed, refer to [Section 501-20B](#).

Front seat backrest trim covers installed on seats with side air bags cannot be repaired. The front seat backrest trim covers are to be installed new. Cleaning is permissible.

If a side air bag deployment took place the seat back pad, trim cover and side air bag module must be replaced. Replace the seat back frame if necessary.

SECTION 501-10: Seating
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop Manual

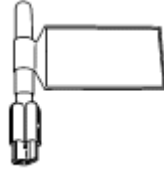
Seats

Refer to Wiring Diagrams Cell [120](#), Power Seats for schematic and connector information.

Refer to Wiring Diagrams Cell [122](#), Power Lumbar Seats for schematic and connector information.

Refer to Wiring Diagrams Cell [123](#), Memory Seats for schematic and connector information.

Special Tool(s)

 ST1137-A	73III Automotive Meter or equivalent 105-R0057
 ST1253-B	Passenger Car Pressure Tester or equivalent 014-R1052
 ST2332-A	Worldwide Diagnostic System (WDS) 418-F224, New Generation STAR (NGS) Tester 418-F052, or equivalent scan tool
 ST2506-A	Air Bag Simulator (Restraints System Diagnostic Tool) 418-F088 (105-R0012) or equivalent

Restraint System Diagnostic Tool Warning



WARNING: This tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Inspection and Verification

1. Verify the customer concern by operating the power seat(s).

2. Visually inspect for obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
• Switch(s) • Seat tracks obstructed or damaged • Hose(s) • Pad adjuster	• Fuse(s) • Wiring harness • Loose or corroded connections • Motor(s) • Adjusting pump



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

3. If the concern remains after the inspection connect the scan tool to the data link connector (DLC) located beneath the instrument panel and select the vehicle to be tested from the scan tool menu. If the scan tool does not communicate with the vehicle:
 - check that the program card is correctly installed.
 - check the connections to the vehicle.
 - check the ignition switch position.
4. If the scan tool still does not communicate with the vehicle, refer to the scan tool manual.
5. Perform the DATA LINK DIAGNOSTIC TEST. If the scan tool responds with:
 - CKT914, CKT915 or CKT70 = ALL ECUS NO RESP/NOT EQUIP, refer to [Section 418-00](#).
 - NO RESP/NOT EQUIP for DSM, [Go To Pinpoint Test K](#).
 - SYSTEM PASSED, retrieve and record the continuous diagnostic trouble codes (DTCs), erase the continuous DTCs and perform self test diagnostics for the driver seat module (DSM).
6. If the DTCs retrieved are related to the concern, go to DSM Diagnostic Trouble Code (DTC) Index to continue diagnostics.

7. If no DTCs related to the concern are retrieved, proceed to Symptom Chart to continue diagnostics.

DSM Diagnostic Trouble Code (DTC) Index

DSM Diagnostic Trouble Code (DTC) Index

DTC	Description	DTC Caused By	Action
B1342	ECU is Defective	DSM	INSTALL a new DSM. REFER to Seat Module—Driver, 6-Way Power . TEST the system for normal operation.
B1529	Memory SET Switch Circuit Short to Power	DSM	Go To Pinpoint Test H .
B1533	Memory 1 Switch Circuit Short to Power	DSM	Go To Pinpoint Test H .
B1537	Memory 2 Switch Circuit Short to Power	DSM	Go To Pinpoint Test H .
B1663	Seat Driver Front Up/Down Motor Stalled	DSM	REFER to Symptom Chart for customer concern, then Go To Pinpoint Test G or Go To Pinpoint Test H .
B1664	Seat Driver Rear Up/Down Motor Stalled	DSM	REFER to Symptom Chart for customer concern, then Go To Pinpoint Test G or Go To Pinpoint Test H .
B1665	Seat Driver Forward/Backward Motor Stalled	DSM	REFER to Symptom Chart for customer concern, then Go To Pinpoint Test G or Go To Pinpoint Test H .
B1676	Battery Power Out of Range	DSM	REFER to Section 414-00 .
B1711	Seat Driver Front Up Switch Circuit Short to Power	DSM	Go To Pinpoint Test G .
B1715	Seat Driver Down Switch Circuit Short to Power	DSM	Go To Pinpoint Test G .
B1719	Seat Driver Forward Switch Circuit Short to Power	DSM	Go To Pinpoint Test G .
B1723	Seat Driver Rearward Switch Circuit Short to Power	DSM	Go To Pinpoint Test G .
B1727	Seat Driver Rear Up Switch Circuit Short to Power	DSM	Go To Pinpoint Test G .
B1731	Seat Driver Rear Down Switch Circuit Short to Power	DSM	Go To Pinpoint Test G .
B1950	Seat Rear Up/Down Potentiometer Feedback Circuit Failure (Possible Open or Short to Ground Condition)	DSM	Go To Pinpoint Test H .
B1952	Seat Rear Up/Down Potentiometer Feedback Circuit Short to Power	DSM	Go To Pinpoint Test H .
B1954	Seat Front Up/Down Potentiometer Feedback Circuit Failure (Possible Open or Short to Ground Condition)	DSM	Go To Pinpoint Test H .
B1956	Seat Front Up/Down Potentiometer Feedback Circuit Short to Power	DSM	Go To Pinpoint Test H .

B1962	Seat Horizontal Fwd/Rwd Potentiometer Feedback Circuit Failure (Possible Open or Short to Ground Condition)	DSM	Go To Pinpoint Test H.
B1964	Seat Horizontal Fwd/Rwd Potentiometer Feedback Circuit Short to Power	DSM	Go To Pinpoint Test H.

DSM Parameter Identification (PID) Index

DSM Parameter Identification (PID) Index

PID	Description	Expected Values
CCNT_DS	Number of Continuous DTCs in Module	One Count Per Bit
P/N SW	Park/Neutral Switch	P/N, not P/N
SFWD_MT	Driver Seat Forward/Rearward Motor	SENSED, NOTSEN
SREARMT	Driver Seat Rear Motor	SENSED, NOTSEN
SFNT_MT	Driver Seat Front Motor	SENSED, NOTSEN
MEM2_SW	Memory Recall Switch 2	OFF, ON
MEM1_SW	Memory Recall Switch 1	OFF, ON
MEMS_SW	Memory SET Switch	OFF, ON
SFNT_SW	Power Seat Switch — Front	SHORT, UP, DOWN, OFF
SREARSW	Power Seat Switch — Rear	SHORT, UP, DOWN, OFF
SFWD_SW	Power Seat Switch — Forward/Rearward	SHORT, RWD, FWD, OFF
SFWD_P	Driver Seat Position % Forward	% of Full Forward
SFNT_P	Driver Seat Front Position % Up	% of Full Up
SREAR_P	Driver Seat Rear Position % Up	% of Full Up
VBATVDM	Battery Voltage	Volts
PMIR_H	Passenger Side Mirror Horizontal Motor	SENSED, notSEN
PMIR_V	Passenger Side Mirror Vertical Motor	SENSED, notSEN
DMIR_H	Driver Side Mirror Horizontal Motor	SENSED, notSEN
DMIR_V	Driver Side Mirror Vertical Motor	SENSED, notSEN
MIR_SEL	Power Mirror Select Switch	PSSNGR, DRIVER
MIRV_SW	Power Mirror Position Switch — Vertical	SHORT, DOWN, UP, OFF
MIRH_SW	Power Mirror Position Switch — Horizontal	SHORT, RIGHT, LEFT, OFF
DMIR_R	Driver Mirror Position % Right	% of Full Right
DMIR_UP	Driver Mirror Position % Up	% of Full Up
PMIR_R	Passenger Mirror Position % Right	% of Full Right
PMIR_UP	Passenger Mirror Position % Up	% of Full Up

DSM Active Command Index

DSM Active Command Index

Active Command	Display	Action
PID LATCH	PID LATCH	ON, OFF
MEMORY SET LED CONTROL	LED STATE	ON, OFF
SEAT CONTROL	FRONT UP	ON, OFF
	FRONT DWN	ON, OFF
	REAR UP	ON, OFF
	REAR DWN	ON, OFF
	HORZ FWD	ON, OFF
	HORZ RWD	ON, OFF

Symptom Chart

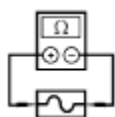
Symptom Chart

Condition	Possible Sources	Action
The power seat is inoperative	- Fuse. - Circuitry. - Front seat regulator control switch (14A701) .	Go To Pinpoint Test A . If equipped with memory seat, Go To Pinpoint Test G .
The power seat moves but is noisy	Seat track.	Go To Pinpoint Test B .
The power seat moves but is loose	- Fastening hardware. - Seat track.	Go To Pinpoint Test C .
The power seat does not make full travel	- Track obstructed. - Seat track.	Go To Pinpoint Test D .
The power seat does not move horizontally/vertically	- Front seat regulator motors (14547) . - Circuitry. - Front seat regulator control switch .	Go To Pinpoint Test E . If equipped with memory seat, Go To Pinpoint Test G .
The power lumbar is inoperative	- Circuitry. - Fuse. - Seat control switch (14C715) . - Front seatback pad adjusting pump (65530) . - Front seatback pad adjusting hose (65528) . - Front seatback pad adjuster (65500) .	Go To Pinpoint Test F .

The memory seat is inoperative	- Seat regulator control switch. - Circuitry. - DSM.	Go To Pinpoint Test G.
The memory seat does not operate correctly — does not operate using the memory SET switch	- Memory SET switch. - DSM. - Circuitry.	Go To Pinpoint Test H.
The memory seat does not operate correctly — the seat moves in one second intervals	- DSM. - Circuitry.	Go To Pinpoint Test H.
The memory seat does not operate correctly — the seat does not move to the correct memory position	- DSM. - Circuitry. - Memory SET switch. - Memory seat.	Go To Pinpoint Test H.
The memory seat does not operate correctly — does not operate using the remote transmitter	- Circuitry. - Keyless entry transmitter. - RAP module. - DSM.	Go To Pinpoint Test J.
No communication with the module — unable to perform on-demand self-test with the driver seat module	- DSM. - Circuitry.	Go To Pinpoint Test K.
The heated seat is inoperative	- Fuse. - Circuitry. - Heated seat switch. - Heated seat module. - Seat heater and temperature sensor.	Go To Pinpoint Test L.
The heated seat is inoperative— seat does heat but the heated seat switch illuminates when pressed.	- Circuitry. - Heated seat module. - Seat heater and temperature sensor.	Go To Pinpoint Test M.
The heated seat is inoperative— seat does heat but the heated seat switch does not illuminate when pressed.	- Circuitry. - Heated seat module. - Heated seat switch.	Go To Pinpoint Test N.

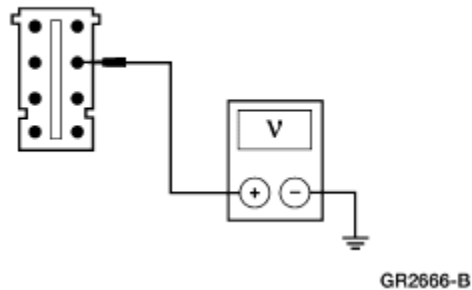
Pinpoint Tests

PINPOINT TEST A: THE POWER SEAT IS INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
A1 CHECK FUSE JUNCTION PANEL FUSE 18 (25A)	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle. NOTE: Before disconnecting the battery, raise the seat to its highest position, then move and tilt the seat to its most forward position.	
  Fuse 18 (25A)	 Deactivate the supplemental restraint system. Refer to Section 501-20B. • Is the fuse OK? → Yes GO to A2. → No INSTALL a new Fuse 18 (25A). TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.
A2 CHECK THE VOLTAGE TO THE SEAT REGULATOR CONTROL SWITCH — CIRCUIT 171 (BK/W)	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	

violation of vehicle safety standards.**1**

Inoperative Power Seat Regulator Control Switch

2**2**

Measure the voltage between seat regulator control switch C349M-2 (driver) or C355M-2 (passenger), Circuit 171 (BK/W), and ground.

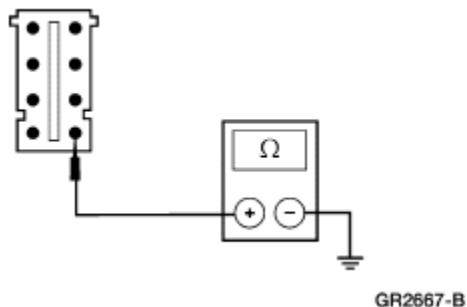
- Is the voltage greater than 10 volts?

→ **Yes**
GO to [A3](#).

→ **No**
REPAIR Circuit 171 (BK/W). TEST the system for normal operation. REPAIR as necessary. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

A3 CHECK CIRCUIT 57 (BK) FOR OPEN

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1**1**

Measure the resistance between power seat regulator control switch C349M-4 (driver) or C355M-4 (passenger), Circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**
INSTALL a new seat regulator control switch .
REFER to [Switch—6-Way Power Seat](#).

	Limited or Switch—6-Way Power Seat, Sport Bucket. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B. → No REPAIR Circuit 57 (BK). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.

PINPOINT TEST B: THE POWER SEAT MOVES BUT IS NOISY

CONDITIONS	DETAILS/RESULTS/ACTIONS
B1 CHECK THE TRACK ALIGNMENT	 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle. NOTE: Before disconnecting the battery, raise the seat to its highest position, then move and tilt the seat to its most forward position. 1 Deactivate the supplemental restraint system. Refer to Section 501-20B. 2 Check the alignment of the track to the floor and the track to the seat. • Is the track out of alignment? → Yes ALIGN the track to the seat and the floor. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B. → No INSTALL a new seat track assembly. REFER to Seat—Track, Limited and 6-Way Power. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.

PINPOINT TEST C: THE POWER SEAT MOVES BUT IS LOOSE

CONDITIONS	DETAILS/RESULTS/ACTIONS
C1 CHECK THE FASTENING HARDWARE	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle. NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.	
	1 Deactivate the supplemental restraint system. Refer to Section 501-20B. 2 Check the hardware fastening the seat. • Is the fastening hardware loose? → Yes TIGHTEN all the fastening hardware to specifications. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B. → No INSTALL a new seat track assembly. REFER to Seat—Track, Limited and 6-Way Power. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.

PINPOINT TEST D: THE POWER SEAT DOES NOT MAKE FULL TRAVEL

CONDITIONS	DETAILS/RESULTS/ACTIONS
D1 CHECK THE SEAT TRACK FOR OBSTRUCTIONS	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate	

car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.

	1 Deactivate the supplemental restraint system. Refer to Section 501-20B. 2 Remove the driver seat. Refer to Seat—Front Bucket. • Are there any obstructions in the seat track? → Yes REMOVE the obstruction(s) and grease the track(s). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B. → No INSTALL a new seat track assembly. REFER to Seat—Track, Limited and 6-Way Power. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.

PINPOINT TEST E: THE POWER SEAT DOES NOT MOVE HORIZONTALLY/VERTICALLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
E1 DETERMINE WHICH DIRECTION HAS FAILED	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual.	
NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector.	
NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.	
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.	

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.

2



1 Deactivate the supplemental restraint system. Refer to [Section 501-20B](#).

3 Push the driver or passenger seat regulator control switch to the front and rear.

- Does the power seat move to the front and rear?

→ **Yes**
GO to [E2](#).

→ **No**
GO to [E9](#).

E2 DETERMINE POWER SEAT TILTING FAILURE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1 Verify the power seat tilting feature.

- Can the power seat be tilted forward and backward?

→ **Yes**
If only the forward tilting operates, GO to [E3](#).

If only the rearward tilting operates, GO to [E6](#).

→ **No**
INSTALL a new seat regulator control switch. REFER to [Switch—6-Way Power Seat, Limited](#) or [Switch—6-Way Power Seat, Sport Bucket](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

E3 CHECK THE VOLTAGE TO THE REAR HEIGHT MOTOR



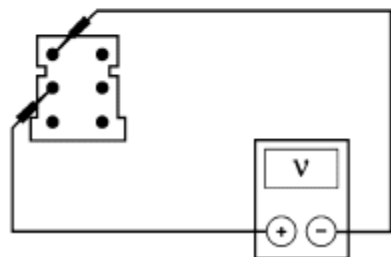
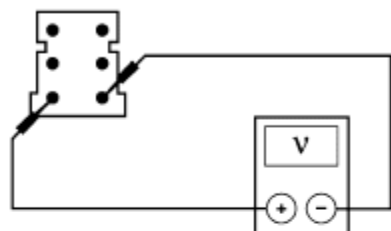
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



Front Seat Regulator Motors in Question

2



GR2988-B

2

Measure the voltage between driver front seat regulator motor C353M-1, Circuit 978 (Y/LB), and C353M-4, Circuit 980 (Y/W); or between passenger front seat regulator motor C357M-3, Circuit 987 (R/W), and C357M-2, Circuit 985 (R/LB), while pushing the driver or passenger seat regulator control rear height switch up and down.

- Is the voltage greater than 10 volts when the seat regulator control rear height switch is in the up position, greater than negative (-) 10 volts when the seat regulator control rear height switch is in the down position and 0 volts when the seat regulator control rear height switch is in the neutral position?

→ Yes

INSTALL a new seat track assembly in question. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ No

GO to [E4](#).

E4 CHECK CIRCUIT 978 (Y/LB) DRIVER OR 987 (R/W) PASSENGER FOR OPEN



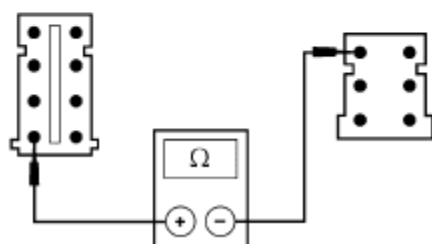
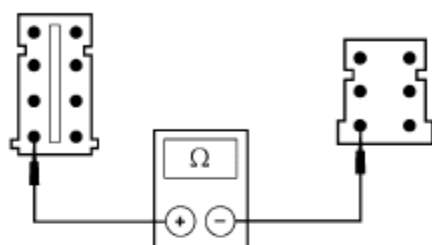
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



Seat Regulator Control Switch in Question

2



GR2989-B

2

Measure the resistance between the driver seat regulator control switch C349M-1, Circuit 978 (Y/LB), and driver front seat regulator motor C353M-1, Circuit 978 (Y/LB); or between passenger seat regulator control switch C355M-1, Circuit 987 (R/W), and passenger front seat regulator motor C357M-3, Circuit 987 (R/W).

- Is the resistance less than 5 ohms?

→ Yes

GO to [E5](#).

→ No

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

E5 CHECK CIRCUIT 980 (Y/W) DRIVER OR 985 (R/LB) PASSENGER FOR OPEN

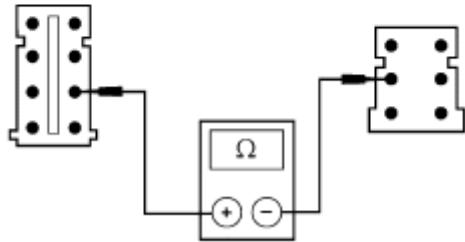
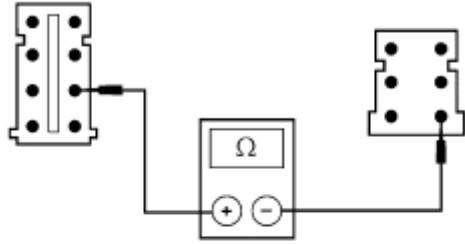


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

1

Measure the resistance between driver seat regulator control switch C349M-6, Circuit 980 (Y/W), and driver front seat regulator motor C353M-4, Circuit 980 (Y/W); or between passenger seat regulator control switch C355M-6, Circuit 985 (R/LB), and passenger front seat regulator motor C357M-2, Circuit



GR2990-B

985 (R/LB).

- Is the resistance less than 5 ohms?

→ **Yes**

INSTALL a new seat regulator control switch in question. REFER to [Switch—6-Way Power Seat, Limited](#) or [Switch—6-Way Power Seat, Sport Bucket](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

E6 CHECK THE VOLTAGE TO THE FRONT HEIGHT MOTOR

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

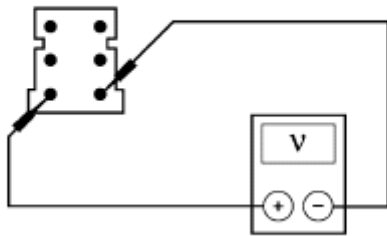
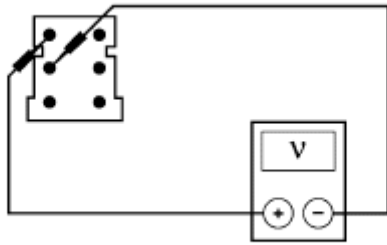


Front Seat Regulator Motor in Question

2

2

Measure the voltage between driver front seat regulator motor C353M-2, Circuit 979 (R/LB), and C353M-3, Circuit 981 (R/W); or between



GR2992-B

passenger front seat regulator motor C357M-4, Circuit 986 (Y/W), and C357M-1, Circuit 984 (Y/LB), while pushing the driver or passenger power seat regulator control front height switch up and down.

- Is the voltage greater than 10 volts when the seat regulator control front height switch is in the up position, greater than negative (-) 10 volts when the seat regulator control front height switch is in the down position and 0 volts when the seat regulator control front height switch is in the neutral position?

→ **Yes**

INSTALL a new seat track assembly in question. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

GO to [E7](#).

E7 CHECK CIRCUIT 979 (R/LB) DRIVER OR 986 (Y/W) PASSENGER FOR OPEN



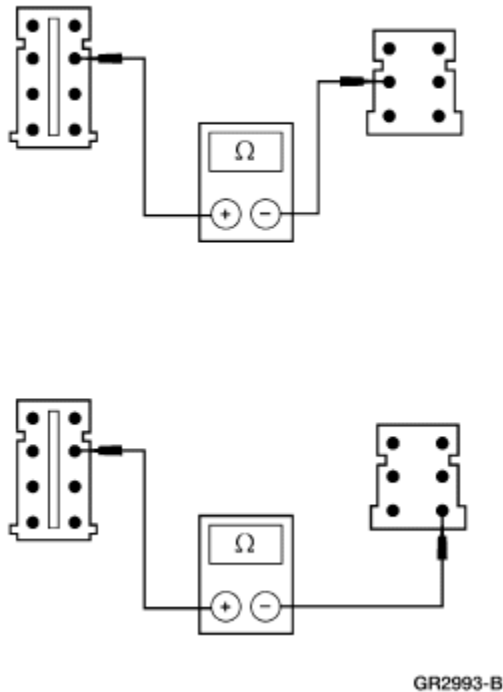
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



Seat Regulator Control Switch in Question

2



2

Measure the resistance between driver seat regulator control switch C349M-7, Circuit 979 (R/LB), and driver front seat regulator motor C353M-2, Circuit 979 (R/LB); or between passenger seat regulator control switch C355M-7, Circuit 986 (Y/W), and passenger front seat regulator motor C357M-4, Circuit 986 (Y/W).

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [E8](#).

→ **No**
REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

E8 CHECK CIRCUIT 981 (R/W) DRIVER OR 984 (Y/LB) PASSENGER FOR OPEN

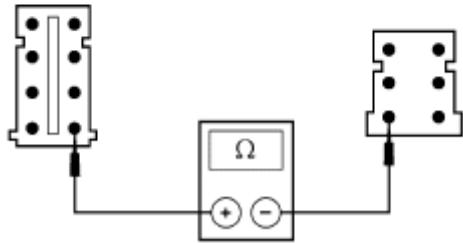
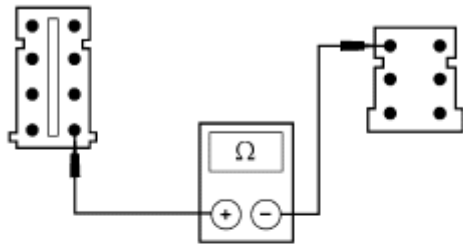


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

1

Measure the resistance between driver seat regulator control switch C349M-5, Circuit 981 (R/W), and front seat regulator motor C353M-3, Circuit 981 (R/W); or between passenger seat regulator control switch C355M-5, Circuit 984 (Y/LB), and passenger front seat regulator motor C357M-1, Circuit 984 (Y/LB).



GR2994-B

- Is the resistance less than 5 ohms?

→ **Yes**

INSTALL a new seat regulator control switch in question. REFER to [Switch—6-Way Power Seat, Limited](#) or [Switch—6-Way Power Seat, Sport Bucket](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

E9 CHECK THE VOLTAGE TO THE FORWARD/REARWARD MOTOR



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

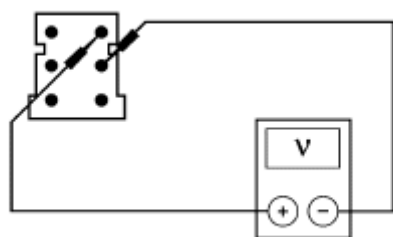


Front Seat Regulator Motor in Question

2

2

Measure the voltage between driver front seat regulator motor C353M-6, Circuit 982 (Y/LG), and C353M-5, Circuit 983 (R/LG); or between



GR2995-A

passenger front seat regulator motor C357-6, Circuit 988 (Y/LG), and C357-5, Circuit 989 (R/LG), while pushing the driver or passenger seat regulator control switch forward and rearward.

- Is the voltage greater than 10 volts when the seat regulator control switch is in the forward position, greater than negative (-) 10 volts when the seat regulator control switch is in the rearward position and 0 volts when the seat regulator control switch is in the neutral position?

→ **Yes**

INSTALL a new seat track assembly in question. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

GO to [E10](#).

E10 CHECK CIRCUIT 982 (Y/LG) DRIVER OR 988 (Y/LG) PASSENGER FOR OPEN



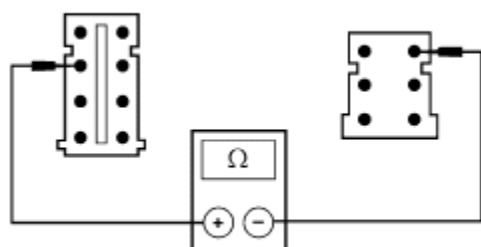
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



Seat Regulator Control Switch in Question

2

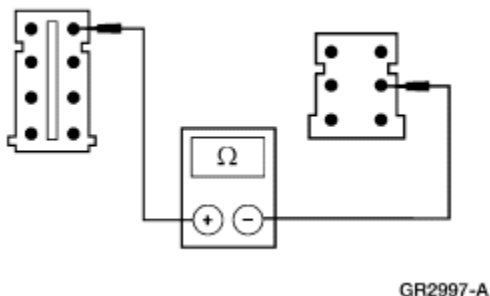


GR2996-A

2

Measure the resistance between seat regulator control switch C349M-3, Circuit 982 (Y/LG), and driver front seat regulator motor C353M-6, Circuit 982 (Y/LG); or between passenger seat regulator control switch C355M-3, Circuit 988 (Y/LG), and passenger front seat regulator motor C357-6, Circuit 988 (Y/LG).

- Is the resistance less than 5 ohms?

	→ Yes GO to E11. → No REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.
E11 CHECK CIRCUIT 983 (R/LG) DRIVER OR 989 (R/LG) PASSENGER FOR OPEN	
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
1  GR2997-A	1 Measure the resistance between driver seat regulator control switch C349M-8, Circuit 983 (R/LG), and driver front seat regulator motor C353M-5, Circuit 983 (R/LG); or between passenger seat regulator control switch C355M-8, Circuit 989 (R/LG), and passenger front seat regulator motor C357M-5, Circuit 989 (R/LG). • Is the resistance less than 5 ohms? → Yes INSTALL a new seat regulator control switch in question. Refer to Switch—6-Way Power Seat, Limited or Switch—6-Way Power Seat, Sport Bucket. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B. → No REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.

PINPOINT TEST F: THE POWER LUMBAR IS INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
F1 CHECK FRONT SEATBACK ADJUSTING PUMP	
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system	

must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.

2



1 Deactivate the supplemental restraint system. Refer to [Section 501-20B](#).

3 Press and hold the driver or passenger lumbar seat control switch (+) button.

- Does the driver or passenger front seatback pad adjusting pump run?

→ **Yes**
GO to [F7](#).

→ **No**
GO to [F2](#).

F2 CHECK OPERATION OF POWER SEAT(S)

NOTE: Do not press the front lumbar seat control switch.

1 Verify the operation of the power seat(s).

- Does the driver or passenger power seat(s) operate?

→ **Yes**
GO to [F3](#).

→ **No**
If the power lumbar in question is part of the driver memory seat, GO to [Pinpoint Test G](#).

If equipped with power seat(s), GO to [Pinpoint Test A](#).

F3 CHECK THE VOLTAGE TO THE LUMBAR SEAT CONTROL SWITCH



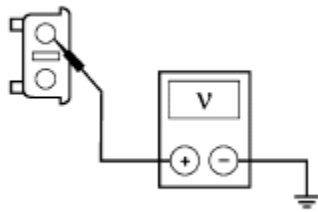
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



Lumbar Seat Control Switch

2



GR0429-A

2

Measure the voltage between lumbar seat control switch C348M-2 (driver), or C356M-2 (passenger), Circuit 171 (BK/W) [driver and passenger power seats], or Circuit 170 (R/LB) [driver memory seat], and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

GO to [F4](#).

→ **No**

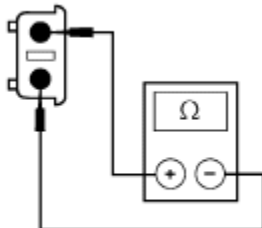
REPAIR Circuit 171 (BK/W) and/or Circuit 170 (R/LB). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

F4 CHECK THE LUMBAR SEAT CONTROL SWITCH OPERATION



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



GR3314-A

1

Measure the resistance between the driver or passenger lumbar seat control switch terminals.

2

While holding the driver or passenger lumbar seat control switch (-) button, measure the resistance between the driver or passenger

front lumbar seat control switch terminals.

- ③ While holding the driver or passenger lumbar seat control switch (+) button, measure the resistance between the driver or passenger front seat control switch terminals.

- Is the resistance less than 5 ohms while holding the driver or passenger seat control (+) button and greater than 10,000 ohms at all other times?

→ **Yes**

RECONNECT the driver or passenger lumbar seat control switch. GO to [F5](#).

→ **No**

INSTALL a new driver or passenger lumbar seat control switch. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

F5 CHECK THE VOLTAGE TO THE FRONT SEATBACK PAD ADJUSTING PUMP — CIRCUIT 490 (R)



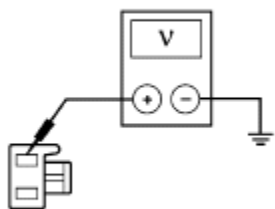
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

①



Front Seatback Pad Adjusting Pump

②



GR1393-A

- ② While holding the lumbar seat control switch (+) button, measure the voltage between front seatback adjusting pump C347-1 (driver) or C354-1 (passenger), Circuit 490 (R), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

GO to [F6](#).

→ **No**

REPAIR Circuit 490 (R). TEST the system for

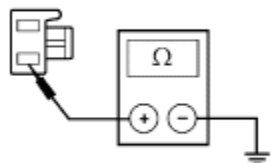
normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

F6 CHECK CIRCUIT 57 (BK) FOR OPEN



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



GR1394-A

1

Measure the resistance between front seatback pad adjusting pump C347-2 (driver) or C354-2 (passenger), Circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**

INSTALL a new driver or passenger front seatback pad adjusting pump. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR Circuit 57 (BK). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

F7 CHECK FRONT SEATBACK PAD ADJUSTING SYSTEM

1

Press and hold the driver or passenger lumbar seat control switch (+) button.

2

Observe the driver or passenger front seatback pad adjuster .

- Does the driver or passenger front seatback pad adjuster inflate?

→ **Yes**

GO to [F13](#).

→ **No**

GO to [F8](#).

F8 CHECK FRONT SEATBACK PAD ADJUSTER



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

- 1 Gain access to the driver or passenger front seatback pad adjuster .
 - 2 Inspect the driver or passenger front seatback pad adjuster.
- **Is there any visible damage to the driver or passenger front seatback pad adjuster ?**
- **Yes**
REPAIR or INSTALL a new driver or passenger front seatback pad adjuster. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#) .
- **No**
GO to [F9](#) .

F9 CHECK AIR FLOW AT FRONT SEATBACK PAD ADJUSTING PUMP



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

- 1 Remove the driver or passenger front seatback pad adjusting hose at the driver or passenger front seatback pad adjusting pump .
 - 2 Press and hold the driver or passenger lumbar seat control switch (+) button.
 - 3 Check the driver or passenger front seatback pad adjusting pump opening for air flow.
- **Was air felt coming from the front seatback pad adjusting pump opening?**
- **Yes**
GO to [F10](#) .
- **No**
INSTALL a new driver or passenger front seatback pad adjusting pump. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#) .

F10 CHECK AIR FLOW COMING TO THE SEAT CONTROL SWITCH



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

- 1 Reconnect the driver or passenger front seatback pad adjusting hose at the driver or passenger front seatback pad adjusting pump .
- 2 Remove the driver or passenger front seatback pad adjusting hose coming from the driver or passenger front seatback pad adjusting pump at the driver or passenger lumbar seat control switch.
- 3 Press and hold the driver or passenger lumbar seat control switch (+) button.
- 4 Check the driver or passenger front seatback pad adjusting hose opening for air flow.

- **Was air felt coming from the driver or passenger front seatback pad adjusting hose opening?**

→ **Yes**
GO to [F11](#).

→ **No**
REPAIR or INSTALL a new driver or passenger front seatback pad adjusting hose. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

F11 CHECK AIR FLOW COMING FROM THE SEAT CONTROL SWITCH

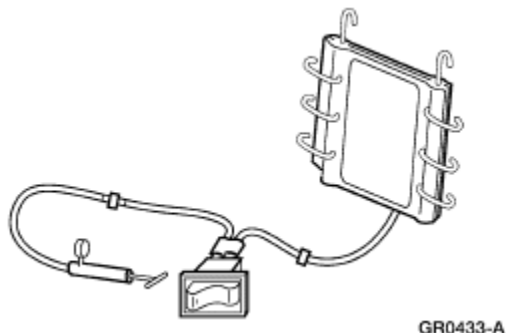


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

- 1 Reconnect the driver or passenger front seatback pad adjusting hose coming from the driver or passenger front seatback pad adjusting pump at the driver or passenger lumbar seat control switch.
- 2 Remove the driver or passenger front seatback pad adjusting hose going to the driver or passenger front seatback pad adjuster at the driver or passenger lumbar seat control switch.
- 3 Press and hold the driver or passenger lumbar seat control switch (+) button.
- 4 Check the driver or passenger lumbar seat control switch opening for air flow.

	• Was air felt coming from the driver or passenger lumbar seat control switch opening? → Yes GO to F12. → No INSTALL a new driver or passenger lumbar seat control switch. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.
F12 CHECK AIR FLOW AT FRONT SEATBACK PAD ADJUSTER	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Reconnect the driver or passenger front seatback pad adjusting hose at the driver or passenger lumbar seat control switch. 2 Remove the driver or passenger front seatback pad adjusting hose at the driver or passenger front seatback pad adjuster . 3 Press and hold the driver or passenger lumbar seat control switch (+) button. 4 Check the driver or passenger front seatback pad adjusting hose opening for air flow. • Was air felt coming from the driver or passenger front seatback pad adjusting hose opening? → Yes GO to F13. → No REPAIR or INSTALL a new driver or passenger front seatback pad adjusting hose. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.
F13 CHECK THE SYSTEM FOR LEAKS	
	1 Reconnect the driver or passenger front seatback pad adjusting hose at the driver or passenger front seatback pad adjuster . 2 Remove the driver or passenger front seatback pad adjusting hose at the driver or passenger front seatback pad adjusting

3



pump .

- 3 Insert a hand pump into the driver or passenger front seatback pad adjusting hose at the driver or passenger front seatback pad adjusting pump .

- 4 Press and hold the driver or passenger lumbar seat control switch (+) button while inflating the driver or passenger front seatback pad adjuster to 34.47 kPa (5 psi).

- 5 Check the system pressure after three hours.

- After three hours, is the reading 32.41 kPa (4.7 psi) or more?

→ **Yes**
System OK.

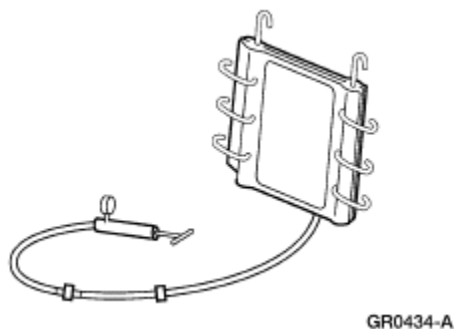
→ **No**
GO to [F14](#).

F14 CHECK FRONT SEATBACK PAD ADJUSTER FOR LEAKS



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

3



- 1 Remove the in-line pressure.
- 2 Remove the driver or passenger front seatback pad adjusting hose at the driver or passenger front seatback pad adjuster .
- 3 Insert a hand pump into the driver or passenger front seatback pad adjuster.

- 4 Inflate the driver or passenger front seatback pad adjuster to 34.47 kPa (5 psi).

	5 Check the system pressure after three hours. • After three hours, is the reading 32.41 kPa (4.7 psi) or more? → Yes INSTALL a new driver or passenger lumbar seat control switch and/or driver or passenger front seatback pad adjusting hose. TEST the system for normal operation. → No INSTALL a new driver or passenger front seatback pad adjuster. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.

PINPOINT TEST G: THE MEMORY SEAT IS INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
G1 RETRIEVE THE DTCS	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle. NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.	
2 	1 Deactivate the supplemental restraint system. Refer to Section 501-20B.

3



4



Scan Tool

5



Retrieve Continuous DTCs

6



7



Clear Continuous DTCs

8



DSM On-Demand Self-Test

6

Document any continuous DTCs.

- Are any DTCs retrieved?

→ Yes

If DTC B1663, B1664, and B1665 are all set, GO to [G10](#).

If DTC B1529, GO to [Pinpoint Test H](#).

If DTC B1533, GO to [Pinpoint Test H](#).

If DTC B1537, GO to [Pinpoint Test H](#).

If DTC B1663, GO to [G22](#).

If DTC B1664, GO to [G25](#).

If DTC B1665, GO to [G28](#).

If DTC B1711, GO to [G3](#).

If DTC B1715, GO to [G3](#).

	If DTC B1719, GO to G3. If DTC B1723, GO to G3. If DTC B1727, GO to G3. If DTC B1731, GO to G3. If DTC B1952, GO to Pinpoint Test J. If DTC B1954, GO to Pinpoint Test J. If DTC B1956, GO to Pinpoint Test J. If DTC B1962, GO to Pinpoint Test J. If DTC B1964, GO to Pinpoint Test J. If DTC B1342, REPLACE the DSM. REFER to Seat Module—Driver, 6-Way Power. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B. → No GO to G2.
G2 CHECK THE DSM FOR CORRECT SEAT REGULATOR CONTROL SWITCH INPUTS — MONITOR THE DSM PIDS SFNT_SW, SREARSW AND SFWS_SW	
1 	1 Monitor the DSM PIDs SFNT_SW, SREARSW and SFWS_SW while activating the seat switch. • Do the PID values agree with the switch positions? → Yes GO to G9. → No If fuse junction panel Fuse 18 (25A) fails while toggling the seat regulator control switch, GO to G7. If fuse junction panel Fuse 18 (25A) is OK, GO to G7.
G3 CHECK THE SEAT REGULATOR CONTROL SWITCH	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
1	



2



Seat Regulator Control Switch C349

3 Check the seat regulator control switch.

- Is the seat regulator control switch OK?

→ **Yes**
GO to [G4](#).

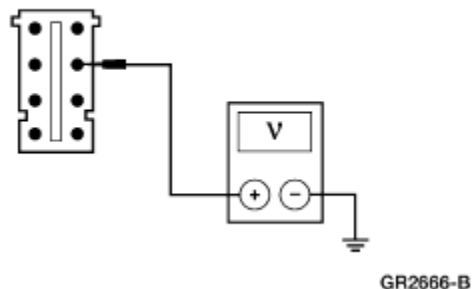
→ **No**
INSTALL a new seat regulator control switch. REFER to [Switch—6-Way Power Seat, Limited](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G4 CHECK FOR VOLTAGE TO THE SEAT REGULATOR CONTROL SWITCH — CIRCUIT 54 (LG/Y)



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



1 Measure the voltage between seat regulator control switch C349-2, Circuit 54 (LG/Y), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [G5](#).

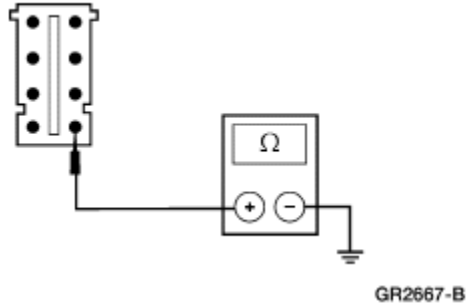
→ **No**
REPAIR Circuit 54 (LG/Y). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G5 CHECK CIRCUIT 57 (BK) FOR OPEN



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



1

Measure the resistance between seat regulator control switch C349-4, Circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [G6](#).

→ **No**

REPAIR Circuit 57 (BK). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G6 CHECK CIRCUITS 979 (R/LB), 980 (Y/W), 981 (R/W), 982 (Y/LG), 983 (R/LG), AND 990 (Y/LB) FOR SHORT TO POWER



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



DSM C335

2

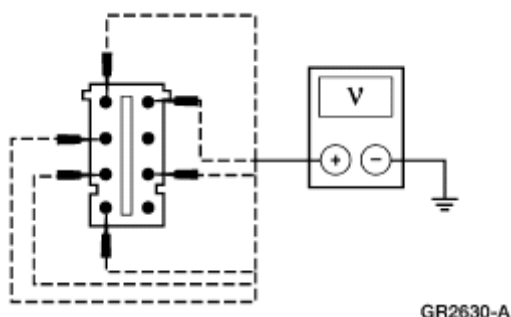


3

3

Measure the voltage between the following seat regulator control switch C349 pins, and ground.

Connector	Circuit
C349-5	990 (Y/LB)
C349-1	983 (R/LG)
C349-6	982 (Y/LG)



C349-7	979 (R/LB)
C349-3	981 (R/W)
C349-8	980 (Y/W)

- Is any voltage indicated?

→ **Yes**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

GO to [G7](#).

G7 CHECK CIRCUITS 979 (R/LB), 980 (Y/W), 981 (R/W), 982 (Y/LG), 983 (R/LG), AND 990 (Y/LB) FOR SHORT TO GROUND

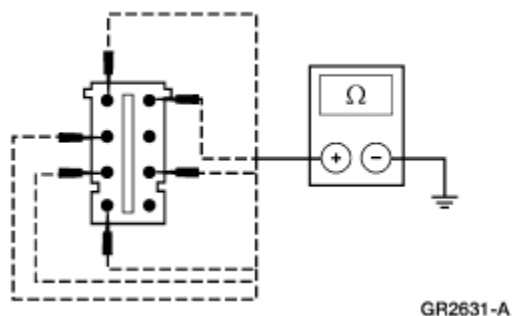


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



2

Measure the resistance between the following seat regulator control switch C349 pins, and ground.

Connector	Circuit
C349-5	990 (Y/LB)
C349-1	983 (R/LG)
C349-6	982 (Y/LG)
C349-7	979 (R/LB)
C349-3	981 (R/W)
C349-8	980 (Y/W)

- Are the resistances greater than 10,000 ohms?

→ **Yes**

REPAIR the circuit in question. TEST the

system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

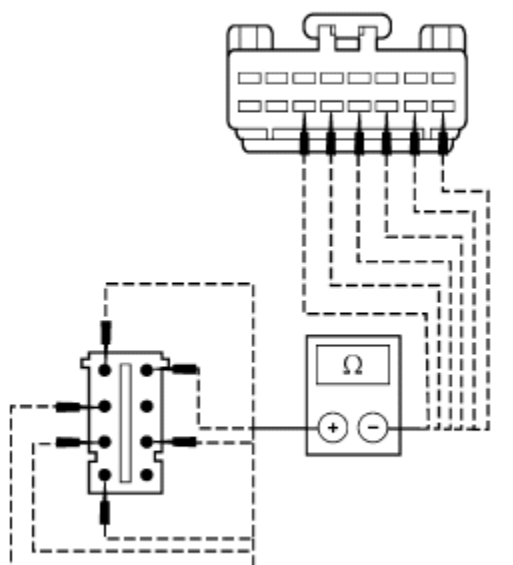
→ **No**
GO to [G8](#).

G8 CHECK CIRCUITS 979 (R/LB), 980 (Y/W), 981 (R/W), 982 (Y/LG), 983 (R/LG), AND 990 (Y/LB) FOR OPEN



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



GR2632-A

1

Measure the resistance between the following seat regulator control switch C349 pins, and DSM C335 pins.

Seat Regulator Control Switch	Circuit	DSM
C349-5	990 (Y/LB)	C335-11
C349-1	983 (R/LG)	C335-15
C349-6	982 (Y/LG)	C335-16
C349-7	979 (R/LB)	C335-10
C349-3	981 (R/W)	C335-13
C349-8	980 (Y/W)	C335-14

• Are the resistances less than 5 ohms?

→ **Yes**

INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G9 CHECK THE DSM FOR CORRECT OUTPUTS USING NGS TESTER ACTIVE COMMANDS



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



Trigger DSM Active Command FRONT UP, ON and OFF

2



Trigger DSM Active Command FRONT DWN, ON and OFF

3



Trigger DSM Active Command REAR UP, ON and OFF

4



Trigger DSM Active Command REAR DWN, ON and OFF

5



Trigger DSM Active Command HORZ FWD, ON and OFF

6



Trigger DSM Active Command HORZ RWD, ON and OFF

- Does the driver seat operate correctly

→ **Yes**

INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

If no seat movement, GO to [G10](#).

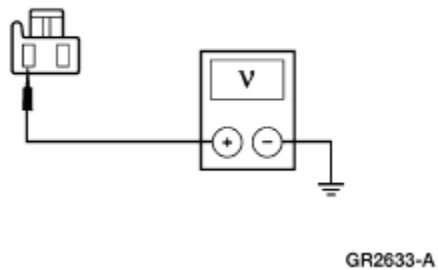
If no front vertical seat movement, GO to [G22](#).

If no rear vertical seat movement, GO to [G25](#).

If no horizontal seat movement, GO to [G28](#).

G10 CHECK THE DSM FOR VOLTAGE — CIRCUIT 170 (R/LB)**1****2**

DSM C350

3

3 Measure the voltage between DSM C350, Circuit 170 (R/LB), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [G14](#).

→ **No**
GO to [G11](#).

G11 CHECK FUSE JUNCTION PANEL FUSE 18 (25A)**1**

Fuse 18 (25A)

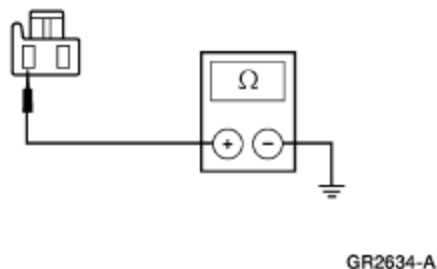
- Is the fuse OK?

→ **Yes**
GO to [G13](#).

→ **No**
GO to [G12](#).

G12 CHECK CIRCUIT 170 (R/LB) FOR SHORT TO GROUND

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1**1**

Measure the resistance between DSM C350, Circuit 170 (R/LB), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPAIR the power distribution box. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR Circuit 170 (R/LB). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G13 CHECK CIRCUIT 170 (R/LB) FOR OPEN

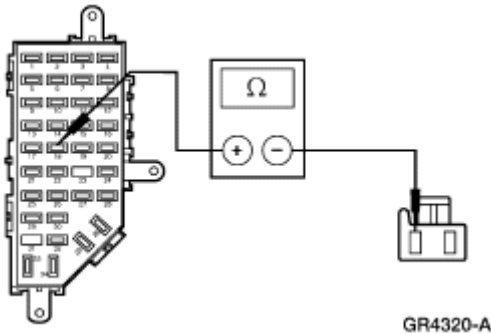
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

Fuse 4 (30A)

2**2**

Measure the resistance between DSM C350, Circuit 170 (R/LB), and fuse junction panel Fuse 18 (25A), pin 1.



- Is the resistance less than 5 ohms?

→ **Yes**
GO to [G14](#).

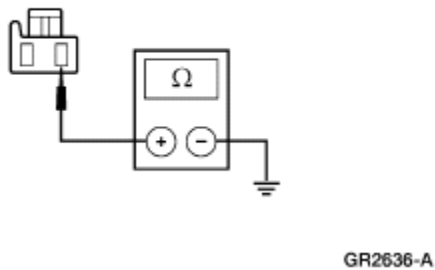
→ **No**
REPAIR Circuit 170 (R/LB). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G14 CHECK CIRCUIT 57 (BK) FOR OPEN



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



1 Measure the resistance between DSM C350, Circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [G15](#).

→ **No**
REPAIR Circuit 57 (BK). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

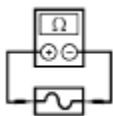
G15 CHECK THE DSM INTERNAL FUSE (30A)



WARNING: The restraint system diagnostic tool is for restraint system service only.

Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



DSM Internal Fuse (30A)

- Is the fuse OK?

→ **Yes**

GO to [G16](#).

→ **No**

INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

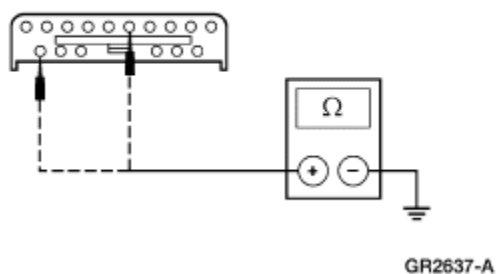
G16 CHECK CIRCUITS 979 (R/LB) AND 990 (Y/LB) FOR SHORT TO GROUND - MOTOR SIDE

1



DSM C351

2



2

Measure the resistance between DSM C351-11, Circuit 979 (R/LB), and ground; and between DSM C351-6, Circuit 990 (Y/LB), and ground.

- Are the resistances greater than 10,000 ohms?

→ **Yes**

GO to [G18](#).

→ **No**

GO to [G17](#).

G17 CHECK FRONT HEIGHT MOTOR FOR SHORT TO GROUND — CIRCUITS 979 (R/LB) AND 990 (Y/LB)



WARNING: The restraint system diagnostic tool is for restraint system service only.

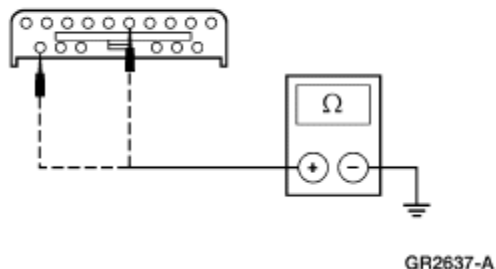
Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



Front Height Motor C353

2



2

Measure the resistance between DSM C351-11, Circuit 979 (R/LB), and ground; and between DSM C351-6, Circuit 990 (Y/LB), and ground.

- Are the resistances greater than 10,000 ohms?

→ **Yes**

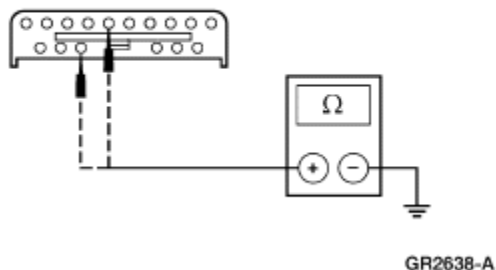
INSTALL a new seat track. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G18 CHECK CIRCUITS 983 (R/LG) AND 982 (Y/LG) FOR SHORT TO GROUND — MOTOR SIDE

1



1

Measure the resistance between DSM C351-5, Circuit 983 (R/LG), and ground; and between DSM C351-13, Circuit 982 (Y/LG), and ground.

- Are the resistances greater than 10,000 ohms?

- **Yes**
GO to [G20](#).
- **No**
GO to [G19](#).

G19 CHECK THE REAR HEIGHT MOTOR FOR SHORT TO GROUND — CIRCUITS 982 (Y/LG) AND 983 (R/LG)



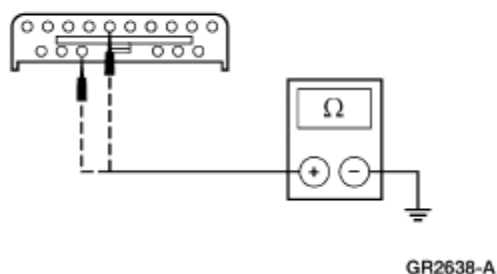
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



Rear Height Motor C353

2



- 2 Measure the resistance between DSM C351-13, Circuit 983 (R/LG), and ground; and between DSM C351-5, Circuit 982 (Y/LG), and ground.

- Are the resistances greater than 10,000 ohms?

- **Yes**
INSTALL a new seat track. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).
- **No**
REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

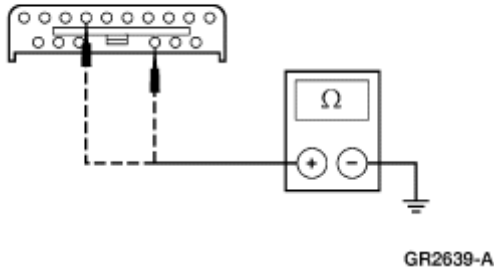
G20 CHECK CIRCUITS 980 (Y/W) AND 981 (R/W) FOR SHORT TO GROUND — MOTOR SIDE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

- 1 Measure the resistance between DSM C351-14, Circuit 980 (Y/W), and ground; and between DSM C351-4, Circuit 981 (R/W),



and ground.

- Are the resistances greater than 10,000 ohms?

→ **Yes**

INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

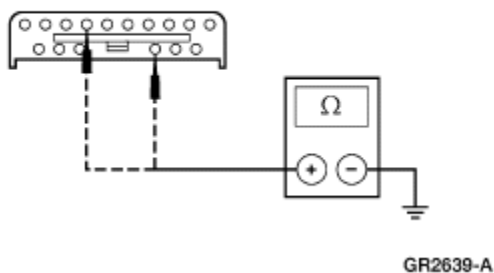
GO to [G21](#).

G21 CHECK THE HORIZONTAL MOTOR FOR SHORT TO GROUND — CIRCUITS 980 (Y/W) AND 981 (R/W)



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



1

Measure the resistance between DSM C351-14, Circuit 980 (Y/W), and ground; and between DSM C351-4, Circuit 981 (R/W), and ground.

- Are the resistances greater than 10,000 ohms?

→ **Yes**

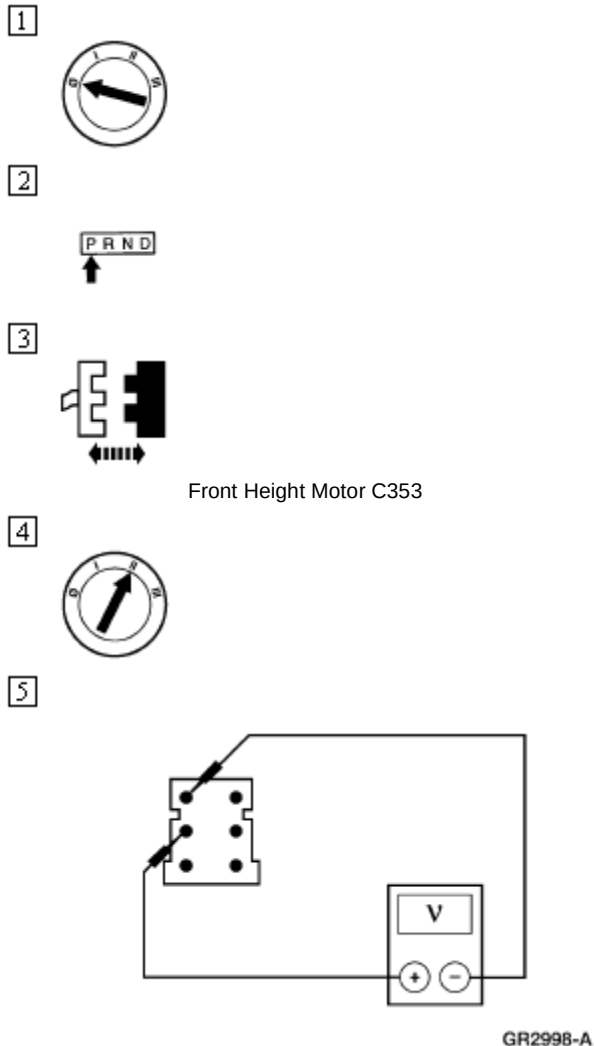
INSTALL a new seat track. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G22 CHECK THE FRONT HEIGHT MOTOR FOR CORRECT OPERATION

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



- 5 Measure the voltage between front height motor C353-2, Circuit 979 (R/LB), and C353-3, Circuit 990 (Y/LB) while triggering DSM active commands FRONT UP and FRONT DOWN ON and OFF.

- Does the voltage change from zero volts?

→ Yes

INSTALL a new seat track. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ No

GO to [G23](#).**G23 CHECK CIRCUITS 979 (R/LB) AND 990 (Y/LB) FOR SHORT TO POWER**

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2

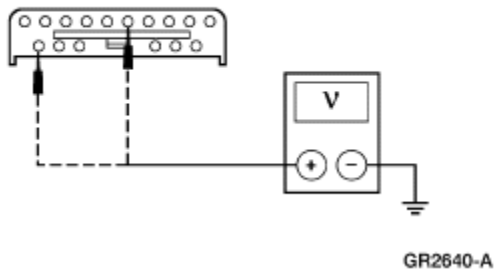


DSM Motor C351

3



4



4

Measure the voltage between DSM C351-11, Circuit 979 (R/LB), and ground; and between DSM C351-6, Circuit 990 (Y/LB), and ground.

- Is any voltage indicated?

→ **Yes**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

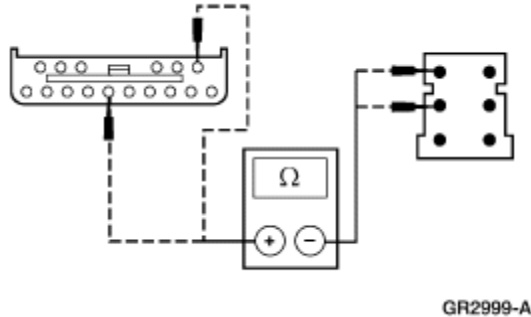
→ **No**GO to [G24](#).**G24 CHECK CIRCUITS 979 (R/LB) AND 990 (Y/LB) FOR OPEN**

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



2

Measure the resistance between DSM C351-11, Circuit 979 (R/LB), and front height motor C353-2, Circuit 979 (R/LB); and between DSM C351-6, Circuit 990 (Y/LB), and front height motor C353-3, Circuit 990 (Y/LB).

- Are the resistances less than 5 ohms?

→ Yes

INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ No

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G25 CHECK THE REAR HEIGHT MOTOR FOR PROPER OPERATION



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



3

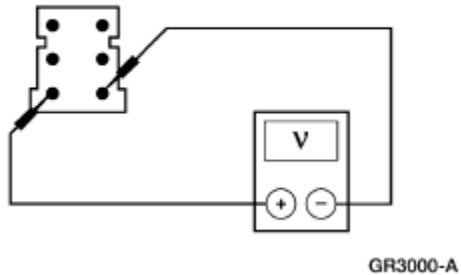


Rear Height Motor C353

4



5



5

Measure the voltage between rear height motor C353-1, Circuit 983 (R/LG), and C353-4, Circuit 982 (Y/LG), while triggering DSM active commands REAR UP and REAR DOWN ON and OFF.

- Does the voltage change from zero volts?

→ Yes

INSTALL a new seat track. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ No

GO to [G26](#).

G26 CHECK CIRCUITS 983 (R/LG) AND 982 (Y/LG) FOR SHORT TO POWER



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



DSM C351

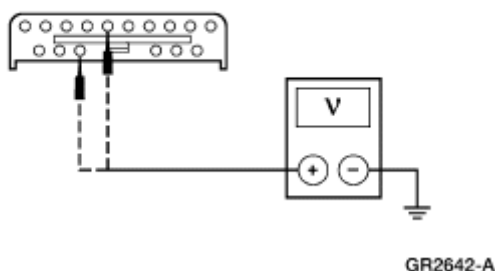
3



4

4

Measure the voltage between DSM C351-5, Circuit 983 (R/LG), and ground; and between DSM C351-13, Circuit 982 (Y/LG), and ground.



- Is any voltage indicated?

→ **Yes**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

GO to [G27](#).

G27 CHECK CIRCUITS 983 (R/LG) AND 982 (Y/LG) FOR OPEN

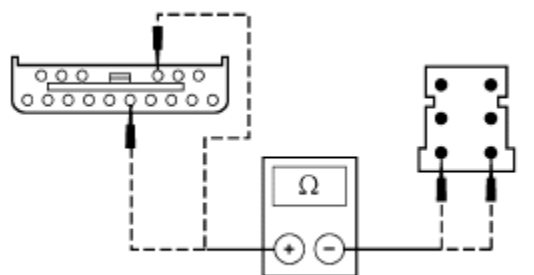


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



2

Measure the resistance between DSM C351-5, Circuit 983 (R/LG), and rear height motor C353-1, Circuit 983 (R/LG); and between DSM C351-13, Circuit 982 (Y/LG), and rear height motor C353-4, Circuit 982 (Y/LG).

- Are the resistances less than 5 ohms?

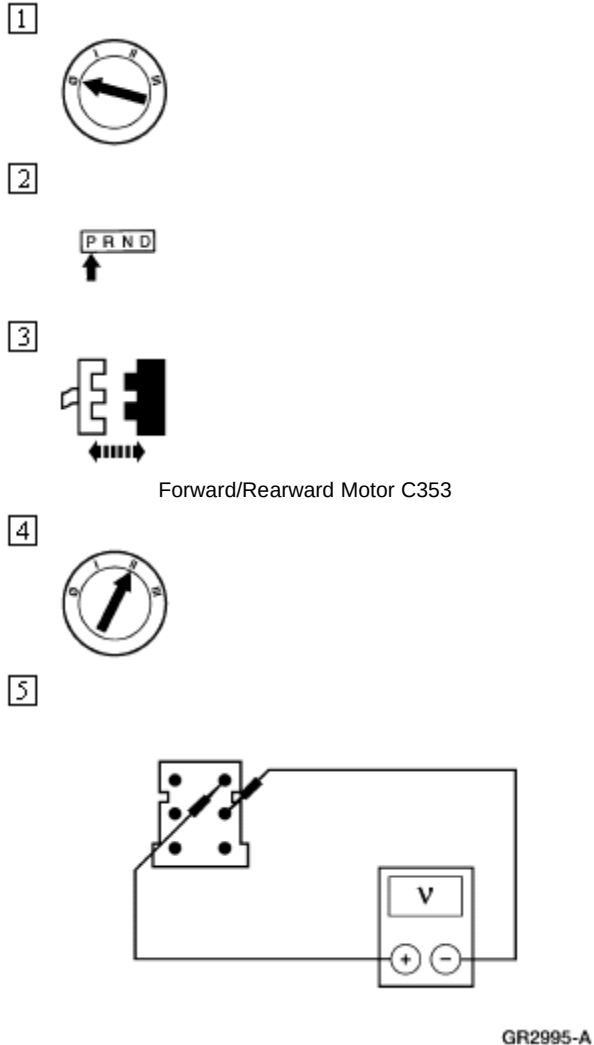
→ **Yes**

INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**
REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

G28 CHECK THE HORIZONTAL MOTOR FOR CORRECT OPERATION

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



5 Measure the voltage between forward/rearward motor C353-5, Circuit 980 (Y/W), and C353-6, Circuit 981 (R/W), while triggering DSM active commands HORZ FWD and HORZ RWD ON and OFF.

- Does the voltage change from zero volts?

→ **Yes**
INSTALL a new seat track. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**
GO to [G29](#).

G29 CHECK CIRCUITS 980 (Y/W) AND 981 (R/W) FOR SHORT TO POWER

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2

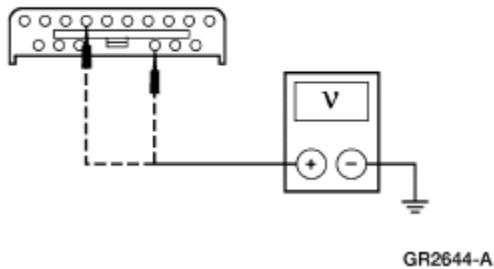


DSM C351

3



4



4 Measure the voltage between DSM C351-14, Circuit 980 (Y/W), and ground; and between DSM C351-4, Circuit 981 (R/W), and ground.

• Is any voltage indicated?

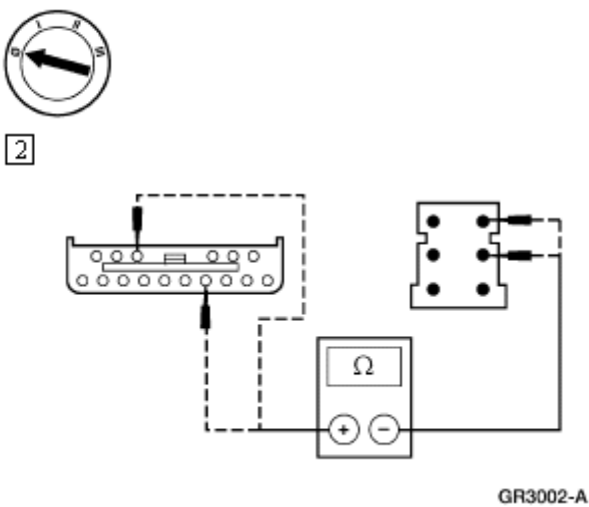
→ **Yes**
REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**
GO to [G30](#).

G30 CHECK CIRCUITS 980 (Y/W) AND 981 (R/W) FOR OPEN

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



GR3002-A

2 Measure the resistance between DSM C351-14, Circuit 980 (Y/W), and forward/rearward motor C353-5, Circuit 980 (Y/W); and between DSM C351-4, Circuit 981 (R/W), and forward/rearward motor C353-6, Circuit 981 (R/W).

- Are the resistances less than 5 ohms?

→ **Yes**
INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**
REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

PINPOINT TEST H: THE MEMORY SEAT DOES NOT OPERATE CORRECTLY — DOES NOT OPERATE USING THE MEMORY SET SWITCH

CONDITIONS	DETAILS/RESULTS/ACTIONS
H1 RETRIEVE THE DTCS	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the	

restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.

2



3



4



Scan Tool

5



Retrieve Continuous DTCs

7



Clear Continuous DTCs

8



DSM On Demand Self-Test

- 1 Deactivate the supplemental restraint system. Refer to [Section 501-20B](#).

- 6 Document any continuous DTCs.

- 8 **NOTE:** During the On-Demand Self-Test, document when the memory set LED illuminates and turns off.

- Are any DTCs retrieved or does the memory set LED fail to illuminate during the On-Demand Self-Test?

→ **Yes**

If the memory set LED fails to illuminate during the On-Demand Self-Test, GO to [H5](#).

If DTCs B1950, B1954, and B1962 are all retrieved, GO to [H9](#).

	If DTC B1529, GO to H3. If DTC B1533, GO to H3. If DTC B1537, GO to H3. If DTC B1663, GO to H10. If DTC B1664, GO to H13. If DTC B1665, GO to H16. If DTC B1950, GO to H13. If DTC B1952, GO to H13. If DTC B1954, GO to H10. If DTC B1956, GO to H10. If DTC B1962, GO to H16. If DTC B1964, GO to H16. If DTC B1342, INSTALL a new DSM. REFER to Seat Module—Driver, 6-Way Power. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B. → No GO to H2.
H2 CHECK THE DSM FOR CORRECT MEMORY SET SWITCH INPUTS — MONITOR THE DSM PIDS MEM1_SW, MEM2_SW AND MEMS_SW	
1 	1 Monitor the DSM PIDs MEM1_SW, MEM2_SW and MEMS_SW while pressing 1, 2, and SET on the memory set switch. • Do the PID values agree with the switch positions? → Yes GO to H9. → No If fuse junction panel Fuse 1 (7.5A) fails while toggling the memory set switch, GO to H7. If the fuse does not fail while toggling the memory seat switch, GO to H3.
H3 CHECK THE MEMORY SET SWITCH	



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



Memory Set Switch C511

3

Check the memory set switch. Refer to Switch - Memory Set.

- Is the memory set switch OK?

→ Yes

GO to [H4](#).

→ No

INSTALL a new memory set switch. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H4 CHECK FOR VOLTAGE TO THE MEMORY SET SWITCH — CIRCUIT 956 (O/LG)

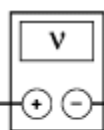
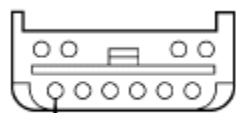


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



GR2677-A

2

Measure the voltage between memory set switch C511-6, Circuit 956 (O/LG), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [H5](#).

→ **No**
REPAIR Circuit 956 (O/LG). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

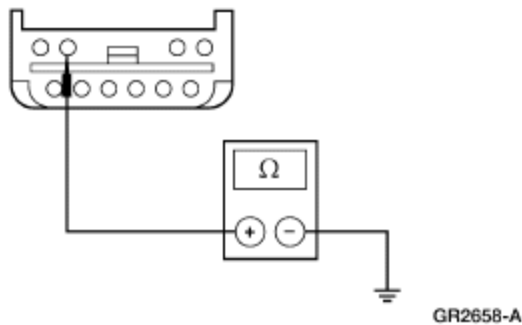
H5 CHECK CIRCUIT 57 (BK) FOR OPEN

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



2 Measure the resistance between memory set switch C511-9, Circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [H6](#).

→ **No**
REPAIR Circuit 57 (BK). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H6 CHECK CIRCUITS 267 (BR/LG), 268 (BK/O), 270 (BR/O), AND 272 (W/O) FOR SHORT TO POWER

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



DSM C337

2

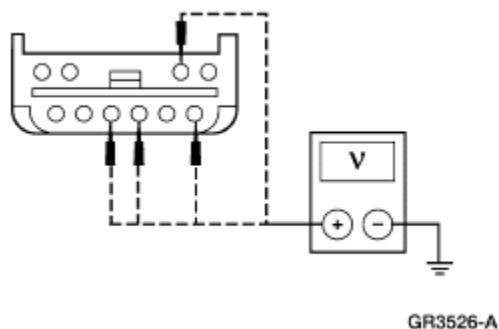


RAP Module C338

3



4



4

Measure the voltage between the following memory set switch C511 pins and ground.

Connector	Circuit
C511-4	267 (BR/LG)
C511-3	268 (BK/O)
C511-1	270 (BR/O)
C511-8	272 (W/O)

- Is any voltage indicated?

→ Yes

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ No

GO to [H7](#).

H7 CHECK CIRCUITS 267 (BR/LG), 268 (BK/O), 270 (BR/O), AND 272 (W/O) FOR SHORT TO GROUND



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

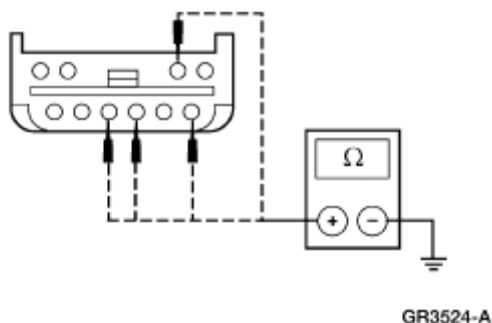


2

2

Measure the resistance between the following memory set switch C511 pins and ground.

Connector	Circuit
C511-4	267 (BR/LG)
C511-3	268 (BK/O)



C511-1	270 (BR/O)
C511-8	272 (W/O)

- Are the resistances greater than 10,000 ohms?

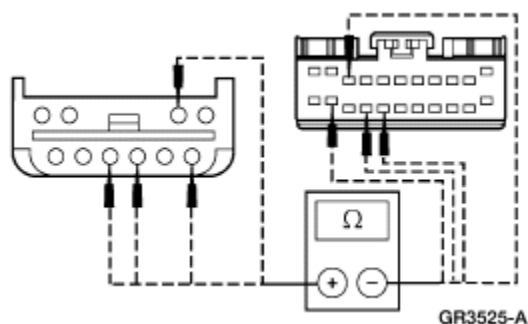
→ **Yes**
GO to [H8](#).

→ **No**
REPAIR the circuit(s) in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H8 CHECK CIRCUITS 267 (BR/LG), 268 (BK/O), 270 (BR/O), AND 272 (W/O) FOR OPEN

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



1 Measure the resistance between the following memory set switch C511 pins and DSM C337 pins.

Memory Set Switch	Circuit	DSM
C511-4	267 (BR/LG)	C337-16
C511-3	268 (BK/O)	C337-15
C511-1	270 (BR/O)	C337-3
C511-8	272 (W/O)	C337-13

- Are the resistances less than 5 ohms?

→ **Yes**
INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR the circuit(s) in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H9 CHECK THE DSM FOR CORRECT OUTPUTS — MONITOR THE DSM PIDS SFWD_P, SFNT_P, AND SREAR_P



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

2



3



4



1 Place the seat in a central position using the seat regulator control switch.

2 Monitor the DSM PID SFWD_P while operating the seat regulator control switch forward/rearward switch.

3 Monitor the DSM PID SFNT_P while operating the seat regulator control switch front up/down switch.

4 Monitor the DSM PID SREAR_P while operating the seat regulator control switch rear up/down switch.

- Does the PID (position % of travel) values increase with forward/down movement and decrease with rearward/up movement throughout entire travel?

→ **Yes**

INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

If the DSM PID SFWD_P values do not increase or decrease, GO to [H16](#).

If the DSM PID SFNT_P values do not increase or decrease, GO to [H10](#).

If the DSM PID SREAR_P values do not increase or decrease, GO to [H13](#).

H10 CHECK CIRCUITS 443 (LG/R), 447 (O/R) AND 446 (O/W) FOR SHORT TO POWER



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



DSM C351

3

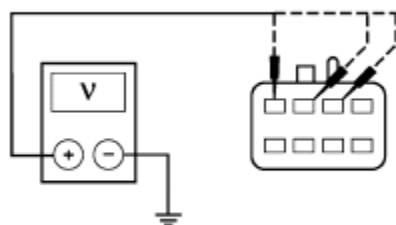


Front Height Position Sensor C359

4



5



GR3003-A

5

Measure the voltage between front height position sensor C359-2, Circuit 443 (LG/R), and ground; and between front height position sensor C359-3, Circuit 447 (O/R), and ground; and between front height position sensor C359-1, Circuit 446 (O/W), and ground.

- Is any voltage indicated?

→ Yes

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ No

GO to [H11](#).

H11 CHECK CIRCUITS 443 (LG/R), 447 (O/R) AND 446 (O/W) FOR SHORT TO GROUND

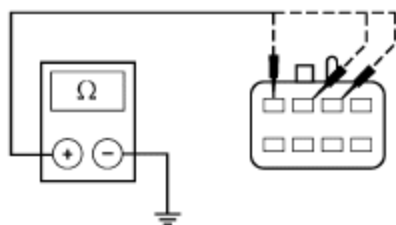


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



GR3004-A

2

Measure the resistance between front height position sensor C359-2, Circuit 443 (LG/R), and ground; and between front height position sensor C359-3, Circuit 447 (O/R), and ground; and between front height position sensor C359-1, Circuit 446 (O/W), and ground.

- Are the resistances greater than 10,000 ohms?

→ Yes

GO to [H12](#).

→ No

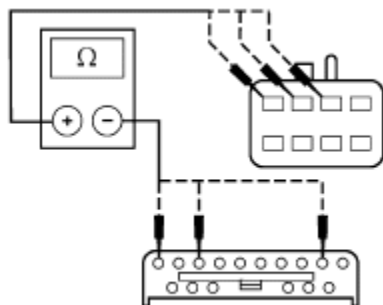
REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H12 CHECK CIRCUITS 443 (LG/R), 447 (O/R) AND 446 (O/W) FOR OPEN



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



GR3005-A

1

Measure the resistance between front height position sensor C359-2, Circuit 443 (LG/R), and DSM C351-9, Circuit 443 (LG/R); and between front height position sensor C359-3, Circuit 447 (O/R), and DSM C351-3, Circuit 447 (O/R); and between front height position sensor C359-1, Circuit 446 (O/W), and DSM C351-1, Circuit 446 (O/W).

- Are the resistances less than 5 ohms?

→ Yes

INSTALL a new seat track. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to

[Section 501-20B](#).

→ **No**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H13 CHECK CIRCUITS 444 (LG/BK), 447 (O/R) AND 446 (O/W) FOR SHORT TO POWER



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



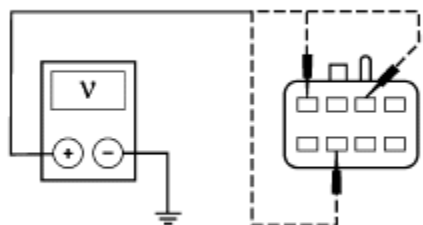
DSM C351

3



Rear Height Position Sensor C359

4



GR3006-A

4

Measure the voltage between rear height position sensor C359-6, Circuit 444 (LG/BK), and ground; and between rear height position sensor C359-3, Circuit 447 (O/R), and ground; and between rear height position sensor C359-1, Circuit 446 (O/W), and ground.

- Is any voltage indicated?

→ **Yes**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

GO to [H14](#).

H14 CHECK CIRCUITS 444 (LG/BK), 447 (O/R) AND 446 (O/W) FOR SHORT TO GROUND

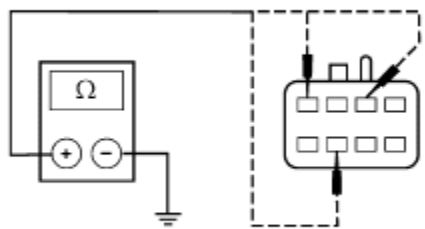


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



GR3007-A

2

Measure the resistance between rear height position sensor C359-6, Circuit 444 (LG/BK), and ground; and between rear height position sensor C359-3, Circuit 447 (O/R), and ground; and between rear height position sensor C359-1, Circuit 446 (O/W), and ground.

- Are the resistances greater than 10,000 ohms?

→ **Yes**
GO to [H15](#).

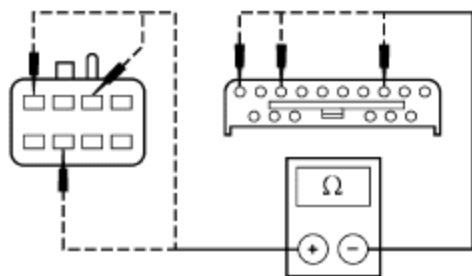
→ **No**
REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H15 CHECK CIRCUITS 444 (LG/BK), 447 (O/R) AND 446 (O/W) FOR OPEN



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



GR3008-A

1

Measure the resistance between rear height position sensor C359-6, Circuit 444 (LG/BK), and DSM C351-8, Circuit 444 (LG/BK); and between rear height position sensor C359-3, Circuit 447 (O/R), and DSM C351-3, Circuit 447 (O/R); and between rear height position sensor C359-1, Circuit 446 (O/W), and DSM C351-1, Circuit 446 (O/W).

- Are the resistances less than 5 ohms?

→ **Yes**

INSTALL a new seat track. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H16 CHECK CIRCUITS 442 (LG/O), 447 (O/R) AND 446 (O/W) FOR SHORT TO POWER



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



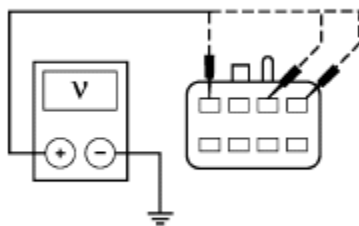
DSM C351

3



Forward/Rearward Position Sensor C359

4



GR3009-A

4

Measure the voltage between forward/rearward position sensor C359-4, Circuit 442 (LG/O), and ground; and between forward/rearward position sensor C359-3, Circuit 447 (O/R), and ground; and between forward/rearward position sensor C359-1, Circuit 446 (O/W), and ground.

- Is any voltage indicated?

→ **Yes**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**
GO to [H17](#).

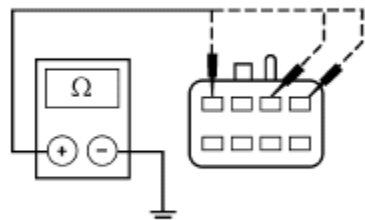
H17 CHECK CIRCUITS 442 (LG/O), 447 (O/R) AND 446 (O/W) FOR SHORT TO GROUND

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



GR3010-A

2 Measure the resistance between forward/rearward position sensor C359-4, Circuit 442 (LG/O), and ground; and between forward/rearward position sensor C359-3, Circuit 447 (O/R), and ground; and between forward/rearward position sensor C359-1, Circuit 446 (O/W), and ground.

- Are the resistances greater than 10,000 ohms?

→ **Yes**
GO to [H18](#).

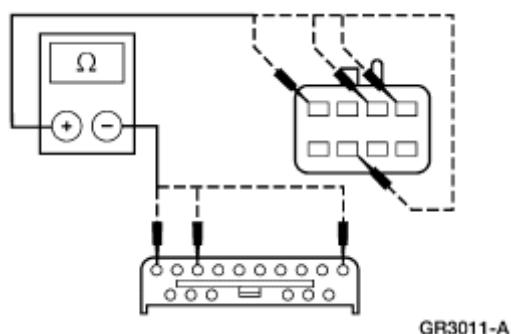
→ **No**
REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

H18 CHECK CIRCUITS 442 (LG/O), 447 (O/R) AND 446 (O/W) FOR OPEN

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

1 Measure the resistance between forward/rearward position sensor C359-4, Circuit 442 (LG/O), and DSM C351-10, Circuit 442 (LG/O); and between forward/rearward position sensor C359-3, Circuit 447 (O/R), and DSM C351-3, Circuit 447 (O/R); and between forward/rearward position sensor C359-1, Circuit 446 (O/W), and DSM C351-1, Circuit 446 (O/W).



- Are the resistances less than 5 ohms?

→ **Yes**

INSTALL a new seat track. REFER to [Seat—Track, Limited and 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

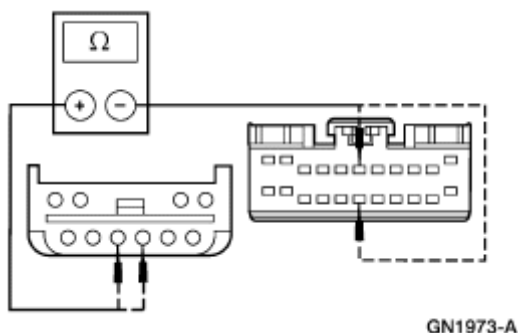
→ **No**

REPAIR the circuit in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

PINPOINT TEST J: THE MEMORY SEAT DOES NOT OPERATE CORRECTLY — DOES NOT OPERATE USING THE REMOTE TRANSMITTER

CONDITIONS	DETAILS/RESULTS/ACTIONS
J1 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCS)	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle. NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.	

2  3  4  Scan Tool 5  Retrieve Continuous DTCs 7  Clear Continuous DTCs 8  DSM On-Demand Self-Test	1 Deactivate the supplemental restraint system. Refer to Section 501-20B. 6 Document any continuous DTCs. Are any DTCs retrieved? → Yes REFER to DSM Diagnostic Trouble Code (DTC) Index. → No GO to J2.
J2 CHECK CIRCUITS 267 (BR/LG) AND 268 (BK/O) FOR OPEN	
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
1	1 Measure the resistance between memory set



switch C511-4, Circuit 267 (BR/LG), and RAP module C338-6, Circuit 267 (BR/LG); and between memory set switch C511-3, Circuit 268 (BK/O), and RAP module C338-18, Circuit 268 (BK/O).

- Are the resistances less than 5 ohms?

→ **Yes**

REFER to [Section 501-14B](#).

→ **No**

REPAIR the circuit(s) in question. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

PINPOINT TEST K: NO COMMUNICATION WITH THE MODULE — UNABLE TO PERFORM ON-DEMAND SELF-TEST WITH THE DRIVER SEAT MODULE

CONDITIONS	DETAILS/RESULTS/ACTIONS
K1 CHECK VEHICLE FOR MEMORY SEAT/MIRROR OPTION	
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle. NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.	
	1 Deactivate the supplemental restraint system. Refer to Section 501-20B.

	2 NOTE: Driver seat modules are only used on vehicles with memory seat/mirror option. Check vehicle for memory seat/mirror option. • Is the vehicle equipped with memory seat/mirror option? → Yes GO to K2. → No System is OK. TEST the system for normal operation.
K2 VERIFY THE ABILITY TO MONITOR DSM PID P/N_SW	
1  2  3 	3 Monitor the DSM PID P/N_SW. • Does the NGS display: — UNABLE TO PERFORM TEST/FUNCTION — MODULE NOT RESPONDING: DSM — CHECK IGNITION STATUS — VERIFY CABLE REQUIREMENTS — CHECK CABLE CONNECTIONS? → Yes GO to K3. → No GO to K8.
K3 CHECK FUSE JUNCTION PANEL FUSE 18 (25A)	
1	



2



Fuse 18 (25A)

- Is Fuse 18 (25A) OK?

→ **Yes**
GO to [K4](#).

→ **No**
GO to [K5](#).

K4 CHECK FOR VOLTAGE AT FUSE JUNCTION PANEL FUSE 9 (7.5A)

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



GR3221-A

- 2 Measure the voltage between fuse junction panel Fuse 9 (7.5A) pin 1 and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [K6](#).

→ **No**
REPAIR or INSTALL a new fuse junction panel. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

K5 CHECK CIRCUIT 54 (LG/Y) FOR SHORT TO GROUND



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



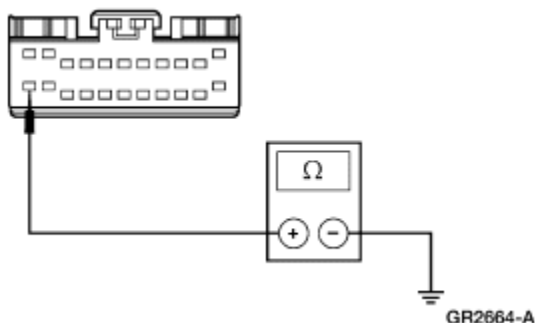
Fuse 9 (7.5A)

3



DSM C337

4



4

Measure the resistance between DSM C337-12, Circuit 54 (LG/Y), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**

RECONNECT DSM C337. REPLACE Fuse 9 (7.5A) in fuse junction box. TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

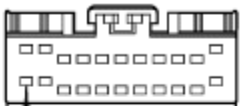
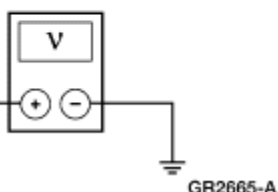
→ **No**

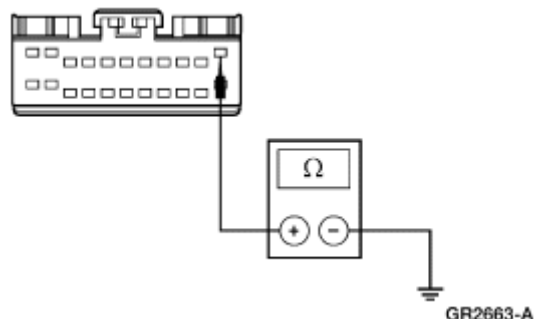
REPAIR Circuit 54 (LG/Y). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

K6 CHECK CIRCUIT 54 (LG/Y) FOR VOLTAGE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1  2  DSM C337 3  4  	4 Measure the voltage between DSM C337-12, Circuit 54 (LG/Y), and ground. Is the voltage greater than 10 volts? → Yes GO to K7. → No REPAIR Circuit 54 (LG/Y). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to Section 501-20B.
K7 CHECK CIRCUIT 570 (BK/W) FOR OPEN ⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
1  2	2 Measure the resistance between DSM C337-11, Circuit 570 (BK/W), and ground.



- Is the resistance less than 5 ohms?

→ **Yes**

REFER to [Section 418-00](#).

→ **No**

REPAIR Circuit 570 (BK/W). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

K8 CHECK DSM FOR TRANSMISSION RANGE SENSOR INPUT — MONITOR THE DSM PID P/N_SW



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



1

Monitor the DSM PID P/N_SW while moving the transmission gear shift lever through entire range.

- Does the PID value agree with the gear shift lever positions?

→ **Yes**

INSTALL a new DSM. REFER to [Seat Module—Driver, 6-Way Power](#). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

GO to [K9](#).

K9 CHECK CIRCUIT 1000 (R/BK) FOR OPEN

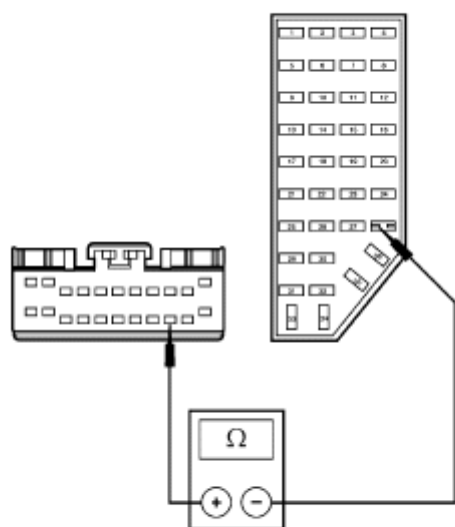


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

1

Measure the resistance between DSM C337-20, Circuit 1000 (R/BK), and fuse



GR3012-A

junction panel Fuse 28 (7.5A) pin 1.

- Is the resistance less than 5 ohms?

→ **Yes**

CHECK the T/R sensor. REFER to [Section 307-01A](#) or [Section 307-01B](#). REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

→ **No**

REPAIR Circuit 1000 (R/BK). TEST the system for normal operation. REACTIVATE the supplemental restraint system. REFER to [Section 501-20B](#).

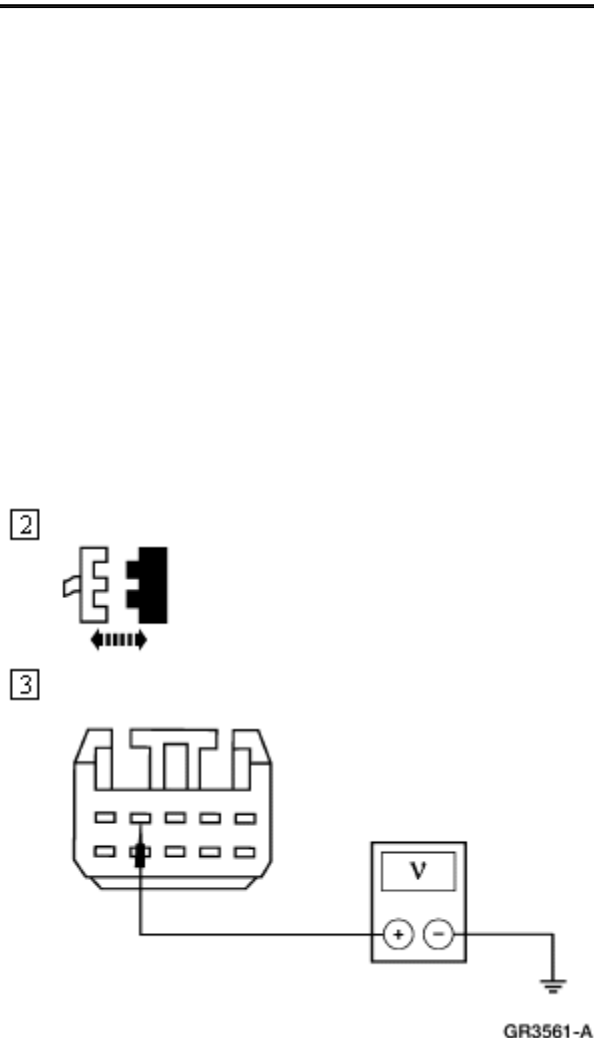
PINPOINT TEST L: THE HEATED SEAT IS INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
L1 CHECK FOR VOLTAGE TO THE HEATED SEAT MODULES — CIRCUIT 1048 (LB/WH)	
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector.	

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.



1 NOTE: Before disconnecting the battery, raise the seat to its highest position, then move and tilt the seat to its most forward position.

Vehicles equipped with side air bags, prepare the vehicle for seating diagnostics.

- Deactivate the air bag system. For additional information, refer to [Section 501-20B](#).
- With the air bag system deactivated, position the seats in the vehicle. Connect the seat system electrical connectors.

2 Disconnect inoperative heated seat module C370 (driver) or C340 (passenger).

3 Measure the voltage between driver heated seat module C370-4 (driver) or C340-4 (passenger), circuit 1048 (LB/WH), and ground.

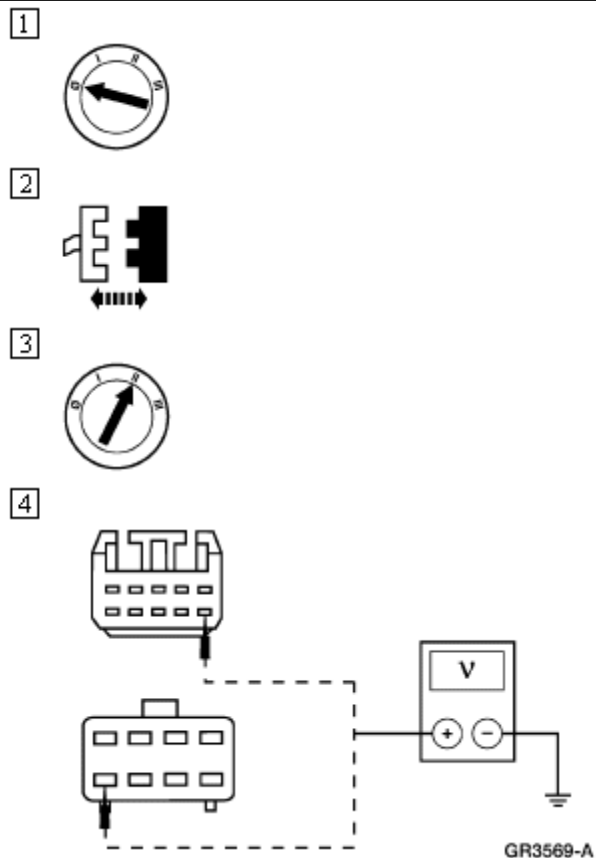
• Is the voltage greater than 10 volts?

→ **Yes**
GO to [L2](#).

→ **No**
REPAIR circuit 1048 (LB/WH). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L2 CHECK FOR VOLTAGE TO THE HEATED SEAT SWITCHES AND MODULES — CIRCUIT 1003 (GY/YE)

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



2 Disconnect inoperative heated seat switch C371 (driver) or C343 (passenger).

4 Measure the voltage between heated seat switch C371 (driver) or C343 (passenger), circuit 1003 (GY/YE), and ground; and between heated seat module C370-6 (driver) or C340-6 (passenger), circuit 1003 (GY/YE), and ground.

• Are the voltages greater than 10 volts?

→ **Yes**
GO to [L3](#).

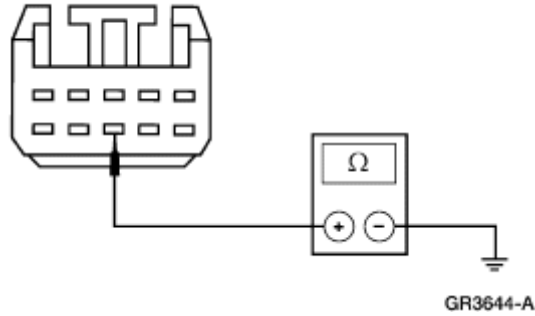
→ **No**
REPAIR circuit 1003 (GY/YE). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L3 CHECK PASSENGER HEATED SEAT MODULE(S) GROUND — CIRCUIT 57 (BK)

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



1 Measure the resistance between heated seat module C370 (driver) or C340 (passenger),



circuit 57 (BK), and ground.

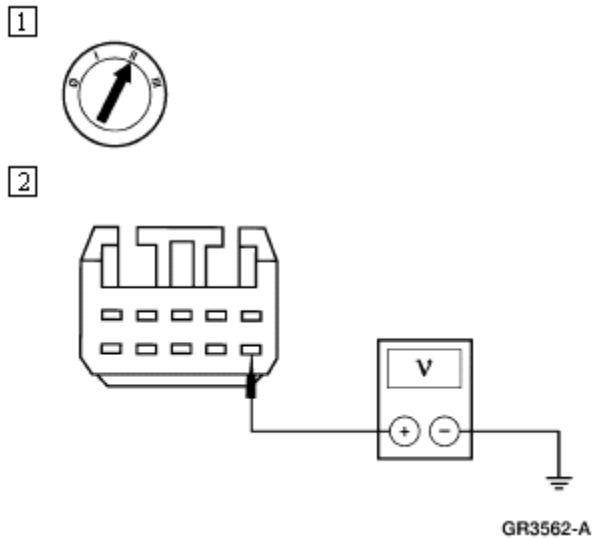
- Is the resistance less than 5 ohms?

→ **Yes**
GO to [L4](#).

→ **No**
REPAIR circuit 57 (BK). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L4 CHECK THE HEATED SEAT SWITCH FOR VOLTAGE — CIRCUIT 1003 (GY/YE)

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



- 2** Measure the voltage between driver heated seat module C370-6 (driver) or C340-6 (passenger), circuit 1003 (GY/YE), and ground.

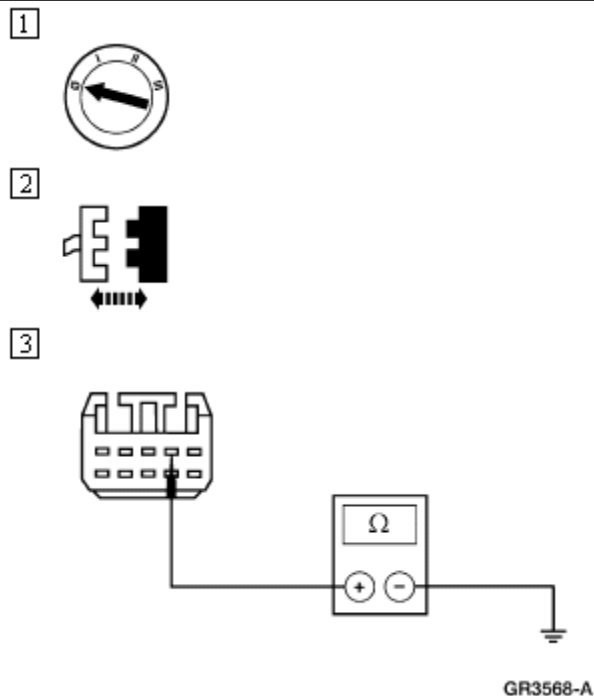
- Is the voltage greater than 10 volts?

→ **Yes**
GO to [L5](#).

→ **No**
REPAIR circuit 1003 (GY/YE). TEST the

system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L5 CHECK FOR VOLTAGE TO THE HEATED SEAT MODULE



- 2 Disconnect inoperative heated seat module C370 (driver) or C340 (passenger).
- 3 Measure the resistance between heated seat module C370-2 (driver) or C340-2 (passenger), circuit 1020 (DG/VT), and ground while pressing and holding the heated seat switch.

- Is the resistance less than 500 ohms?

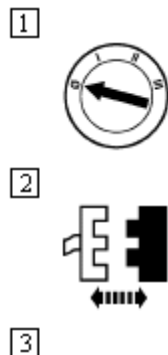
→ **Yes**
GO to [L8](#).

→ **No**
GO to [L6](#).

L6 CHECK FOR VOLTAGE TO THE HEATED SEAT SWITCH AND HEATED SEAT MODULE — CIRCUIT 1003 (GY/YE)



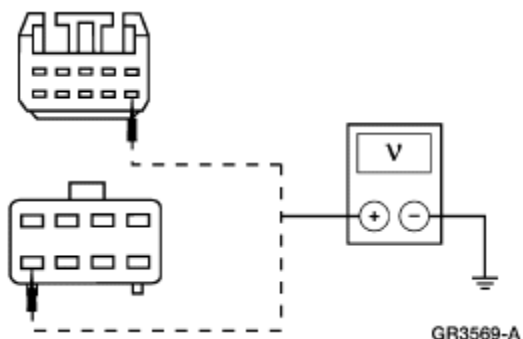
WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



- 2 Disconnect inoperative heated seat switch C371 (driver) or C343 (passenger).



4



4

Measure the voltage between heated seat switch C371-1 (driver) or C343-1 (passenger), circuit 1003 (GY/YE), and ground; and between heated seat module C370-6 (driver) or C340-6 (passenger), circuit 1003 (GY/YE), and ground.

- Are the voltages greater than 10 volts?

→ Yes

GO to [L7](#).

→ No

REPAIR circuit 1003 (GY/YE). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L7 CHECK CIRCUIT 1020 (DG/P) (DRIVER) OR 1020 (DG/VT) (PASSENGER) FOR OPEN

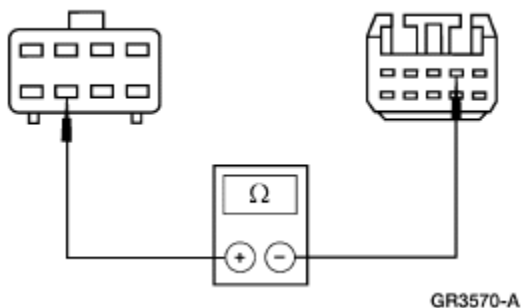


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

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Measure the resistance between driver heated seat module C370-2, circuit 1020 (DG/P), and driver heated seat switch C371-2, circuit 1020 (DG/VT); or between passenger heated seat module C340-2, circuit 581 (R), and passenger heated seat switch C343-2, circuit 1020 (DG/VT).

- Is the resistance less than 5 ohms?

→ **Yes**

INSTALL a new heated seat switch. TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

→ **No**

REPAIR circuit 1020 (DG/P). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L8 CHECK THE HEATED SEAT CIRCUITRY FOR OPEN AND SHORT TO GROUND

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

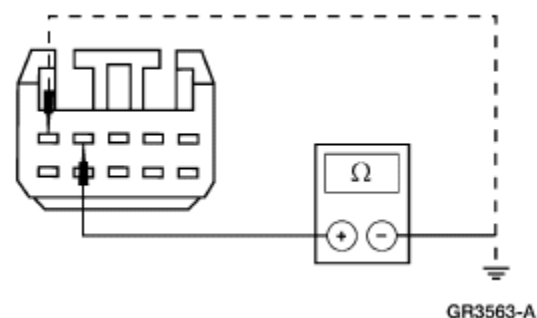
1



2



3



2

Disconnect inoperative heated seat module C370 (driver) or C340 (passenger).

3

Measure the resistance between heated seat module C370-3 (driver) or C340-3 (passenger), circuit 1064 (Y/LB), and heated seat module C370-5 (driver) or C340-5 (passenger), circuit 1067 (P/LB); and between heated seat module C367-3 (driver) or C375-3 (passenger), circuit 1064 (Y/LB), and ground.

- Is the resistance less than 5 ohms between the two connectors and greater than 10,000 ohms between the heated seat module connector and ground?

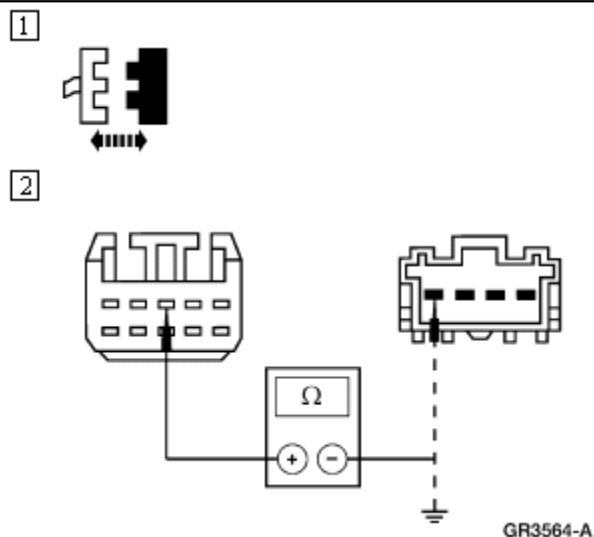
→ **Yes**

INSTALL a new heated seat module. REFER to [Seat Module—Heated Seat](#) in this section. TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

→ **No**
GO to [L9](#).

L9 CHECK CIRCUIT 1064 (Y/LB) FOR OPEN AND SHORT TO GROUND

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



- 1 Disconnect inoperative seat heater and temperature sensor C373 (driver) or C345 (passenger).
- 2 Measure the resistance between heated seat module C370-3 (driver) or C340-3 (passenger), circuit 1064 (Y/LB), and seat heater and temperature sensor C344-1 (driver) or C345-1 (passenger), circuit 1064 (Y/LB); and between heated seat module C370-3 (driver) or C340-3 (passenger), circuit 1064 (Y/LB), and ground.

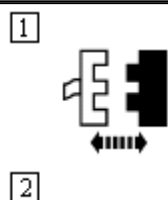
- Is the resistance less than 5 ohms between the two connectors and greater than 10,000 ohms between the seat module connector and ground?

→ **Yes**
GO to [L10](#).

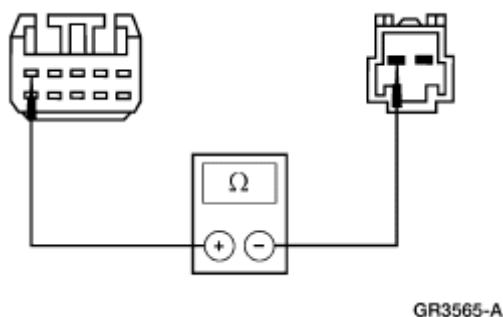
→ **No**
REPAIR circuit 1064 (Y/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L10 CHECK CIRCUIT 1067 (VT/LB) FOR OPEN

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



- 1 Disconnect inoperative seat back heater C372 (driver) or C344 (passenger).
- 2 Measure the resistance between heated seat module C370-5 (driver) or C340-5 (passenger), circuit 1067 (VT/LB), and seat back heater C372 (driver) or C344 (passenger).



back heater C372-2 (driver) or C344-2 (passenger), circuit 1067 (P/LB).

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [L11](#).

→ **No**

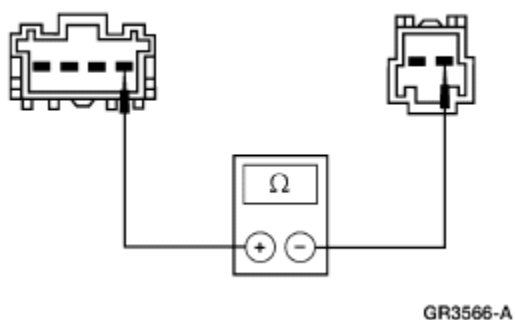
REPAIR circuit 1067 (VT/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L11 CHECK CIRCUIT 1066 (GY/LB) FOR OPEN



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

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Measure the resistance between seat back heater C372-1 (driver) or C344-1 (passenger), circuit 1066 (GY/LB), and seat heater and temperature sensor C373-1 (driver) or C345-1 (passenger), circuit 1066 (GY/LB).

- Is the resistance less than 5 ohms?

→ **Yes**

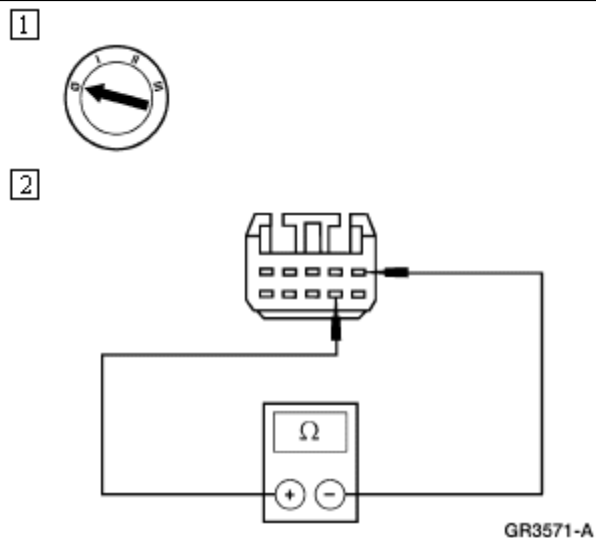
GO to [L12](#).

→ **No**

REPAIR circuit 1066 (GY/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L12 CHECK THE HEATED SEAT TEMPERATURE SENSOR CIRCUITRY FOR CONTINUITY

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



- 2 Measure the resistance between heated seat module C370-7 (driver) or C340-7 (passenger), circuit 1060 (BK/LB), and heated seat module C370-1 (driver) or C340-1 (passenger), circuit 1061 (BR/LB).

- Is the resistance less than 300,000 ohms and greater than 50 ohms?

→ **Yes**

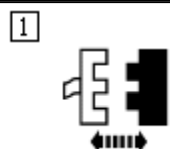
INSTALL a new heated seat module. REFER to [Seat Module—Heated Seat](#) in this section. TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

→ **No**

GO to [L13](#).

L13 CHECK CIRCUIT 1060 (BK/LB) FOR OPEN AND SHORT TO GROUND

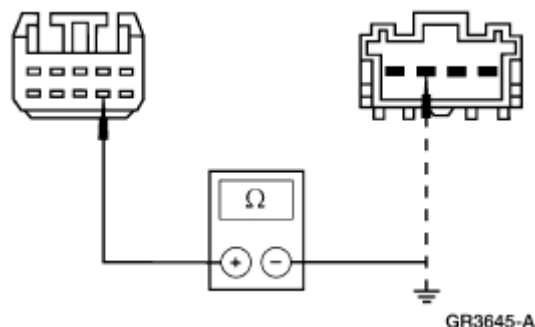
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



2

- 1 Disconnect inoperative seat heater and temperature sensor C373 (driver) or C345 (passenger).

- 2 Measure the resistance between heated seat module C370-7 (driver) or C340-7 (passenger), circuit 1060 (BK/LB), and seat heater and temperature sensor C373-2 (driver) or C345-2 (passenger), circuit 1060 (BK/LB); and between heated seat module C370-7 (driver) or C340-7 (passenger), circuit



1060 (BK/LB), and ground.

- Is the resistance less than 5 ohms between the two connectors and greater than 10,000 ohms between the heated seat module connector and ground?

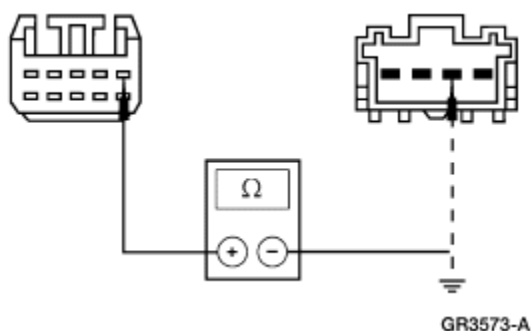
→ **Yes**
GO to [L14](#).

→ **No**
REPAIR circuit 1060 (BK/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

L14 CHECK CIRCUIT 1061 (BR/LB) FOR OPEN AND SHORT TO GROUND

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



1 Measure the resistance between heated seat module C370-1 (driver) or C340-1 (passenger), circuit 1061 (BR/LB), and seat heater and temperature sensor C373-3 (driver) or C345-3 (passenger), circuit 1061 (BR/LB); and between heated seat module C370-1 (driver) or C340-1 (passenger), circuit 1061 (BR/LB), and ground.

- Is the resistance less than 5 ohms between the two connectors and greater than 10,000 ohms between the heated seat module connector and ground?

→ **Yes**
INSTALL a new seat heater and temperature sensor. TEST the system for normal operation. Vehicles equipped with side air bags,

	REACTIVATE the seat supplemental restraint system. For additional information, refer to Section 501-20B. → No REPAIR circuit 1061 (BR/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to Section 501-20B.

PINPOINT TEST M: THE HEATED SEAT IS INOPERATIVE — SEAT DOES NOT HEAT BUT THE HEATED SEAT SWITCH ILLUMINATES WHEN PRESSED

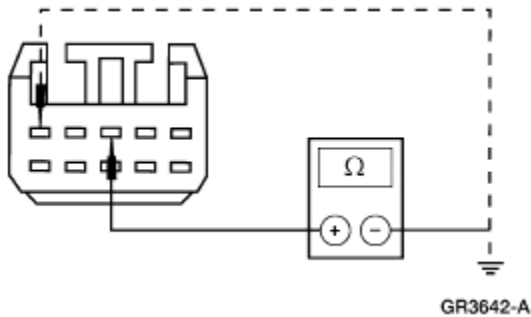
CONDITIONS	DETAILS/RESULTS/ACTIONS
M1 CHECK THE HEATED SEAT CIRCUITRY FOR OPEN AND SHORT TO GROUND	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.	
2	1 NOTE: Before disconnecting the battery, raise the seat to its highest position, then move and tilt the seat to its most forward position. Vehicles equipped with side air bags, prepare the vehicle for seating diagnostics. ■ Deactivate the air bag system. For additional information, refer to Section 501-20B. ■ With the air bag system deactivated, position the seats in the vehicle. Connect the seat system electrical connectors.



3



4



- 3 Disconnect inoperative heated seat module C370 (driver) or C340 (passenger).

- 4 Measure the resistance between heated seat module C370-3 (driver) or C340-3 (passenger), circuit 1064 (Y/LB), and heated seat module C370-5 (driver) or C340-5 (passenger), circuit 1067 (VT/LB); and between heated seat module C370-3 (driver) or C340-3 (passenger), circuit 1064 (Y/LB), and ground.

- Is the resistance greater than 1.5 and less than 4 ohms between the two connectors, and greater than 10,000 ohms between the heated seat module connector and ground?

→ Yes

INSTALL a new heated seat module. REFER to [Seat Module—Heated Seat](#). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

→ No

GO to [M2](#).

M2 CHECK CIRCUIT 1064 (Y/LB) FOR OPEN AND SHORT TO GROUND



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

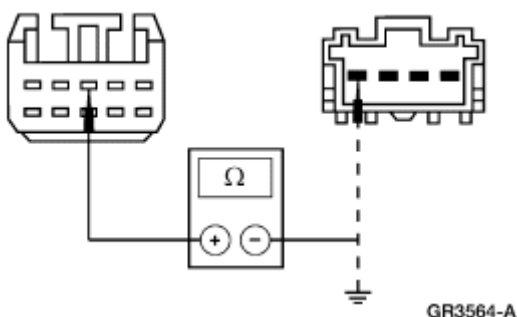
1



2

- 1 Disconnect inoperative seat heater and temperature sensor C373 (driver) or C345 (passenger).

- 2 Measure the resistance between heated seat module C370-3 (driver) or C340-3 (passenger), circuit 1064 (Y/LB), and seat heater and temperature sensor C373-1 (driver) or C345-1 (passenger), circuit 1064



(Y/LB); and between heated seat module C370-3 (driver) or C340-3 (passenger), circuit 1064 (Y/LB), and ground.

- Is the resistance less than 5 ohms between the two connectors and greater than 10,000 ohms between the seat module connector and ground?

→ **Yes**
GO to [M3](#).

→ **No**
REPAIR circuit 1064 (Y/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

M3 CHECK CIRCUIT 1067 (VT/LB) FOR OPEN

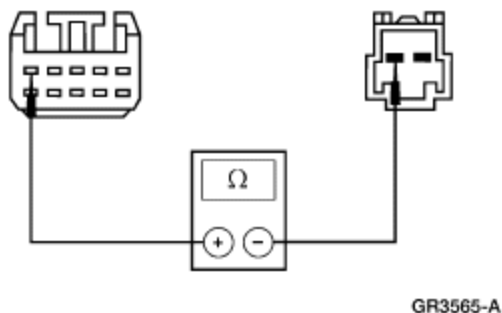
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



- 1 Disconnect inoperative seat back heater C372 (driver) or C344 (passenger).

2



- 2 Measure the resistance between heated seat module C370-5 (driver) or C340-5 (passenger), circuit 1067 (P/LB), and seat back heater C372-2 (driver) or C344-2 (passenger), circuit 1067 (VT/LB).

- Is the resistance less than 5 ohms?

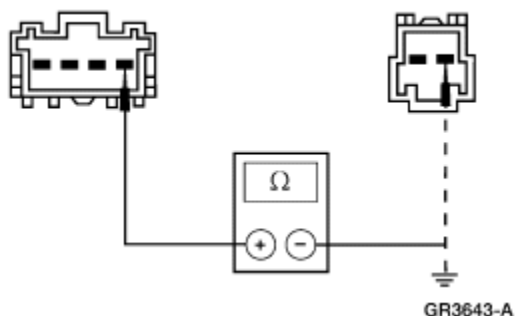
→ **Yes**
GO to [M4](#).

→ **No**
REPAIR circuit 1067 (VT/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

M4 CHECK CIRCUIT 1066 (GY/LB) FOR OPEN AND SHORT TO GROUND

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



1 Measure the resistance between seat back heater C372-1 (driver) or C344-1 (passenger), circuit 1066 (GY/LB), and seat heater and temperature sensor C373-4 (driver) or C345-4 (passenger), circuit 1066 (GY/LB); and between seat back heater C372-1 (driver) or C344-1 (passenger), circuit 1066 (GY/LB), and ground.

- Is the resistance less than 5 ohms between the two connectors and greater than 10,000 ohms between the seat back heater connector and ground?

→ **Yes**
GO to [M5](#).

→ **No**
REPAIR circuit 1066 (GY/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

M5 CHECK THE HEATED SEAT TEMPERATURE SENSOR CIRCUITRY FOR CONTINUITY

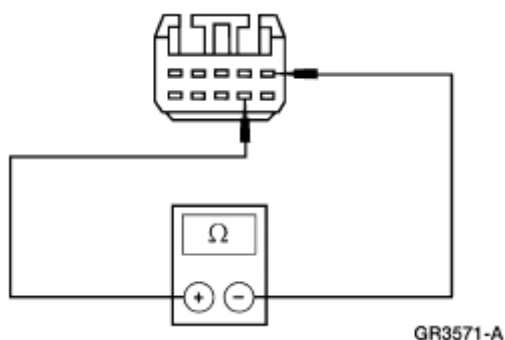
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2

2 Measure the resistance between heated seat module C370-7 (driver) or C340-7 (passenger), circuit 1060 (BK/LB), and heated



seat module C370-1 (driver) or C340-1 (passenger), circuit 1061 (BR/LB).

- Is the resistance less than 10 ohms?

→ **Yes**

INSTALL a new heated seat module. REFER to [Seat Module—Heated Seat](#) in this section. TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

→ **No**

GO to [M6](#).

M6 CHECK CIRCUIT 1060 (BK/LB) FOR OPEN AND SHORT TO GROUND

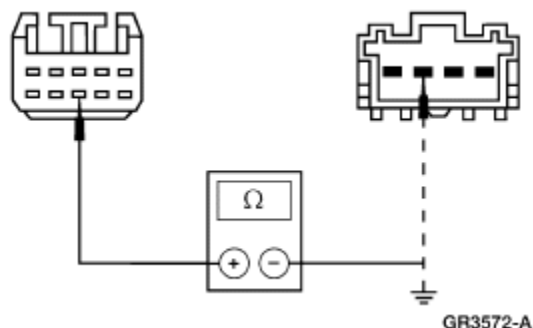


WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



2



1

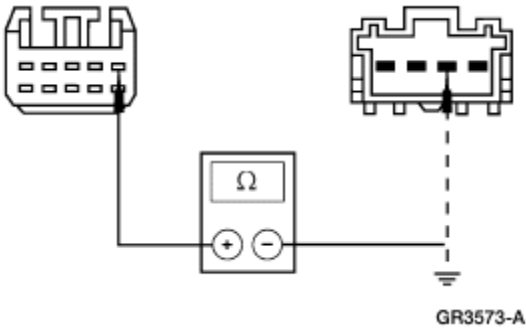
Disconnect inoperative seat heater and temperature sensor C373 (driver) or C345 (passenger).

2

Measure the resistance between heated seat module C370-7 (driver) or C340-7 (passenger), circuit 1060 (BK/LB), and seat heater and temperature sensor C373-2 (driver) or C345-2 (passenger), circuit 1060 (BK/LB); and between heated seat module C370-7 (driver) or C340-7 (passenger), circuit 1060 (BK/LB), and ground.

- Is the resistance less than 5 ohms between the two connectors and greater than 10,000 ohms between the heated seat module connector and ground?

→ **Yes**

	GO to M7 . → No REPAIR circuit 1060 (BK/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to Section 501-20B .
M7 CHECK CIRCUIT 1061 (BR/LB) FOR OPEN AND SHORT TO GROUND	
⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
1  GR3573-A	1 Measure the resistance between heated seat module C370-1 (driver) or C340-1 (passenger), circuit 1061 (BR/LB), and seat heater and temperature sensor C373-3 (driver) or C345-3 (passenger), circuit 1061 (BR/LB); and between heated seat module C370-1 (driver) or C340-1 (passenger), circuit 1061 (BR/LB), and ground. • Is the resistance less than 5 ohms between the two connectors and greater than 10,000 ohms between the heated seat module connector and ground? → Yes INSTALL a new heated seat and temperature sensor. TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to Section 501-20B . → No REPAIR circuit 1061 (BR/LB). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to Section 501-20B .

PINPOINT TEST N: THE HEATED SEAT IS INOPERATIVE — SEAT DOES HEAT BUT THE HEATED SEAT SWITCH DOES NOT ILLUMINATE WHEN PRESSED

CONDITIONS	DETAILS/RESULTS/ACTIONS
N1 CHECK FOR VOLTAGE TO THE HEATED SEAT MODULE — CIRCUIT 461 (OG)	



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

2



3



4



5

1

NOTE: Before disconnecting the battery, raise the seat to its highest position, then move and tilt the seat to its most forward position.

Vehicles equipped with side air bags, prepare the vehicle for seating diagnostics.

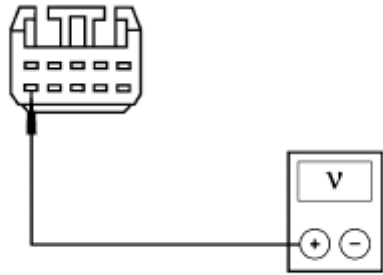
- Deactivate the air bag system. For additional information, refer to [Section 501-20B](#).
- With the air bag system deactivated, position the seats in the vehicle. Connect the seat system electrical connectors.

3

Disconnect inoperative heated seat module C370 (driver) or C340 (passenger).

5

Measure the voltage between heated seat module C370-10 (driver) or C340-10 (passenger), circuit 461 (OG), and ground.



GR3574-A

- Is the voltage greater than 10 volts?

→ **Yes**

INSTALL a new heated seat module. REFER to [Seat Module—Heated Seat](#) in this section. TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

→ **No**

GO to [N2](#).

N2 CHECK FOR VOLTAGE TO THE HEATED SEAT SWITCH — CIRCUIT 1003 (GY/YE)



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

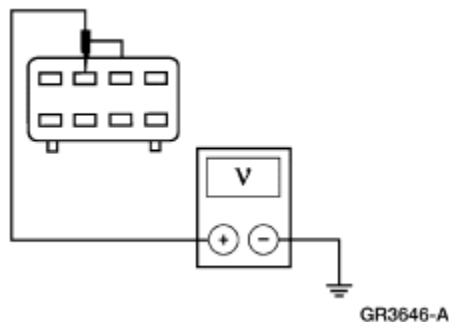
1



2



3



GR3646-A

1

Disconnect inoperative heated seat switch C371 (driver) or C343 (passenger).

3

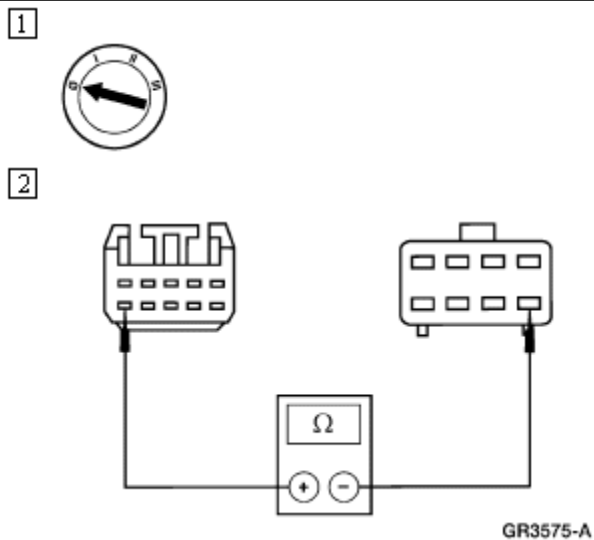
Measure the voltage between heated seat switch C371-6 (driver) or C343-6 (passenger), circuit 1003 (GY/YE), and ground.

- Is the voltage greater than 10 volts?

- **Yes**
GO to [N3](#).
- **No**
REPAIR circuit 1003 (GY/YE). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

N3 CHECK CIRCUIT 461 (OG) FOR OPEN

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



- 2 Measure the resistance between heated seat module C370-10 (driver) or C340-10 (passenger), circuit 461 (OG), and heated seat switch C371-4 (driver) or C343-4 (passenger), circuit 461 (OG).

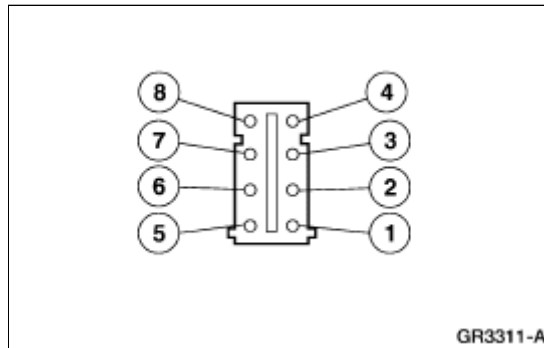
- Is the resistance less than 5 ohms?

- **Yes**
INSTALL a new heated seat switch. TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).
- **No**
REPAIR circuit 461 (OG). TEST the system for normal operation. Vehicles equipped with side air bags, REACTIVATE the seat supplemental restraint system. For additional information, refer to [Section 501-20B](#).

Component Test

Switch — Seat Regulator Control

Seat Regulator Control Switch



Remove the seat regulator control switch. Measure the resistance between the following indicated terminals while pressing the requested switches.

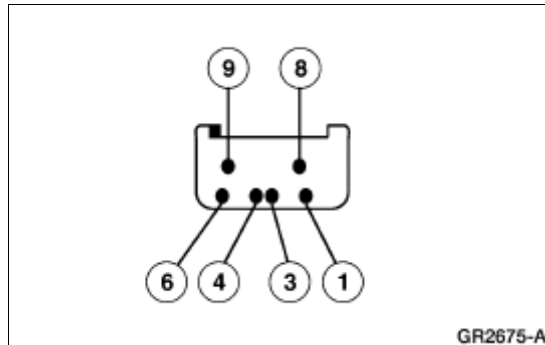
Switch	Terminals	
Front Tilt Up	5 and 4	7 and 2
Front Tilt Down	7 and 4	5 and 2
Rear Tilt Up	6 and 4	1 and 2
Rear Tilt Down	1 and 4	6 and 2
Seat Up	5, 6 and 4	1, 7 and 2
Seat Down	1, 7 and 4	5, 6 and 2
Seat Forward	3 and 4	8 and 2
Seat Rearward	8 and 4	3 and 2

The resistance should be less than 5 ohms for each direction.

If the resistance is not less than 5 ohms for each switch, replace the switch; otherwise, return to the calling pinpoint test.

Switch — Memory Set

Memory Set Switch



Remove the memory set switch.

Measure the resistance between the following indicated terminals while pressing the requested switches.

Switch	Terminals
Memory Switch 1	6 and 4
Memory Switch 2	6 and 3
Memory Set Switch	6 and 1

The resistance should be less than 5 ohms for each switch position.

If the resistance is not less than 5 ohms for each switch, replace the switch; otherwise, return to the calling Pinpoint Test.

Switch	Terminals
Memory Switch LED	8 and 9

NOTE: Refer to Multimeter User's Manual for testing diodes.

To check the memory set switch LED, connect the positive meter lead to terminal 8 and the negative lead to terminal 9. The meter should indicate greater than 0.3 volts. Reversing the leads, the meter should read OL.

If the meter readings are not as indicated above, replace the switch; otherwise, return to the calling Pinpoint Test.

Switch —6-Way Power Seat, Sport Bucket

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

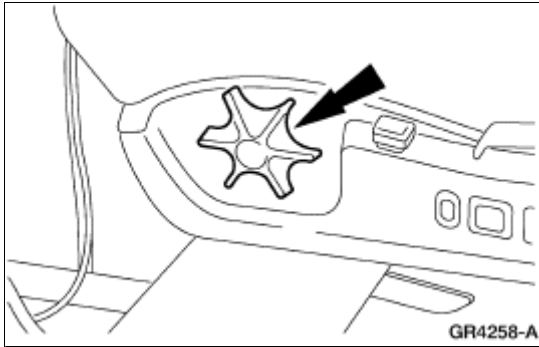
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

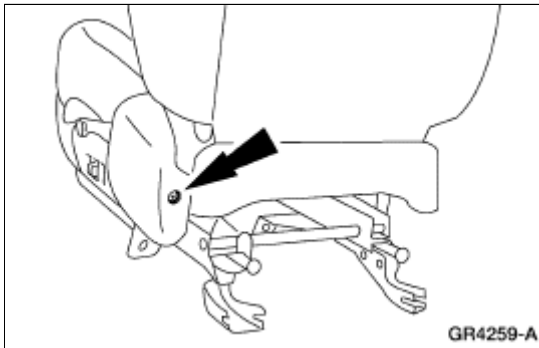
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Front Bucket](#), Removal and Installation.

Remove the front seat. For additional information, refer to [Seat—Front Bucket](#).

3. Remove the lumbar support knob.

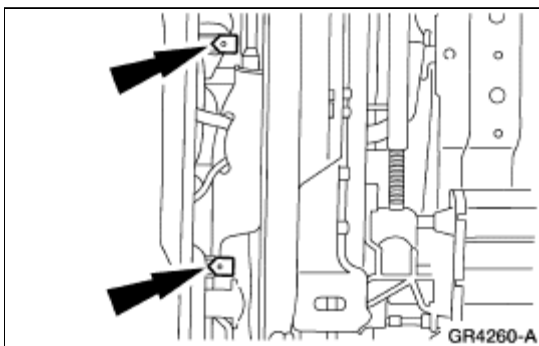


4. Remove the rear side shield screw.

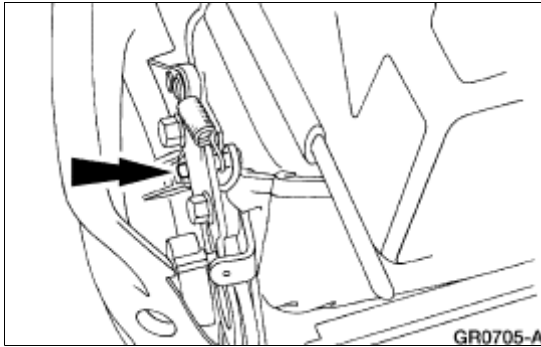


5.  **CAUTION:** To prevent damage to the side shield, the clips must be depressed in order to release the side shield from the cushion pan.

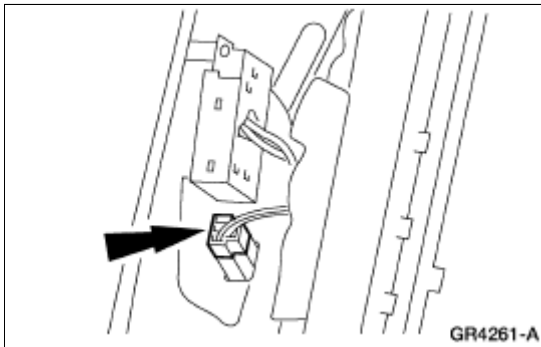
Release the side shield clips.



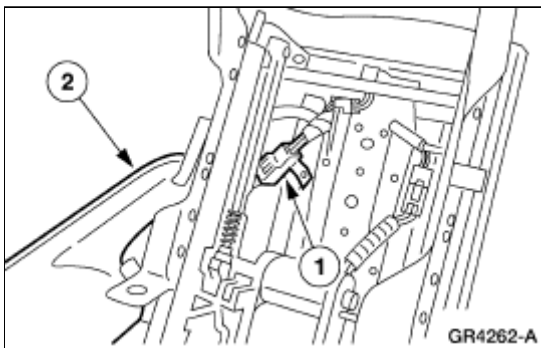
6. Unhook the side shield from the seat latch.



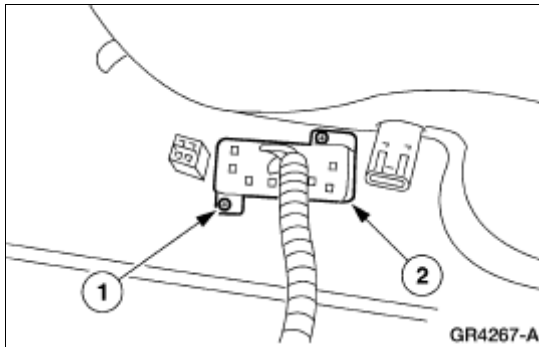
7. If equipped, disconnect the heated seat switch electrical connector.



8. Remove the side shield.
1. Disconnect the electrical connector.
 2. Remove the side shield.



9. Remove the 6-way power seat switch.
1. Remove the screws.
 2. Remove the 6-way power seat switch.



Installation



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1. To install, reverse the removal procedure.
 2. Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
 3. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
 4. Check the restraint system for proper operation.
-

Switch —6-Way Power Seat, Limited

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

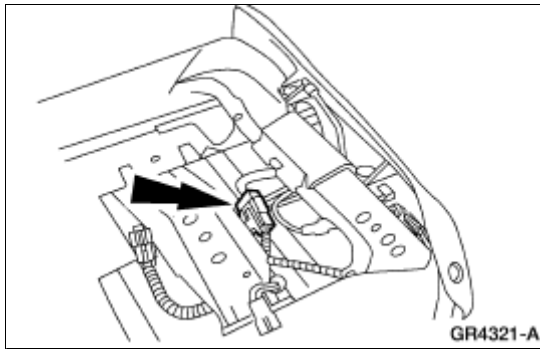
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

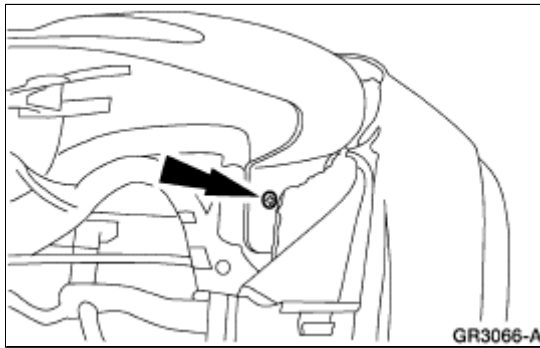
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Front Bucket](#), Removal and Installation.

Remove the front seat. For additional information, refer to [Seat—Front Bucket](#).

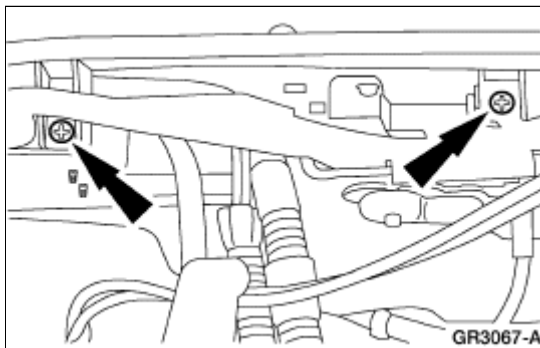
3. Disconnect the power seat switch electrical connector.



4. Remove the front seat cushion side shield rear screw.

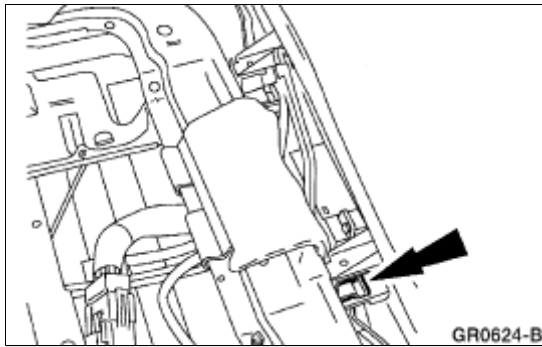


5. Remove the front seat cushion side shield screws.

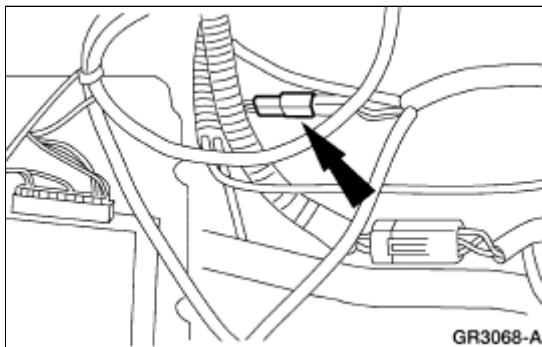


6.  **CAUTION:** Use care when disconnecting the seat cushion side shield from the seat cushion frame so the tabs on the seat cushion side shield are not damaged.

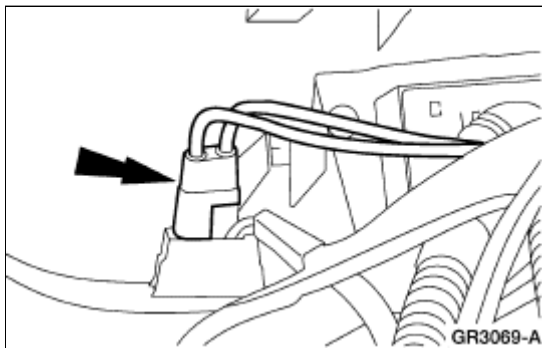
Disconnect the front seat cushion side shield.



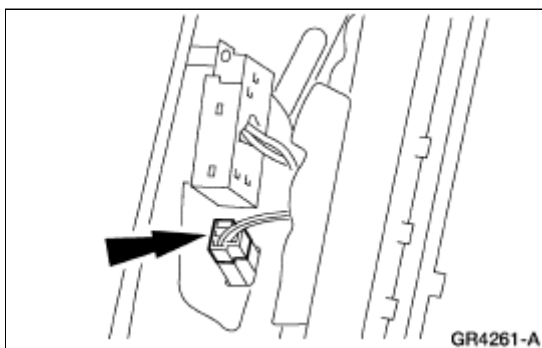
7. Disconnect the lumbar support control switch electrical connector.



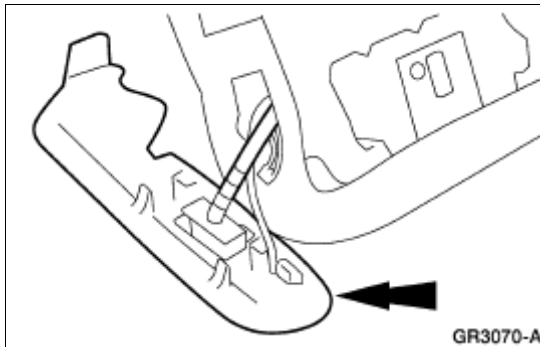
8. Disconnect the lumbar support adjusting hoses (65528) from the adjusting switch.



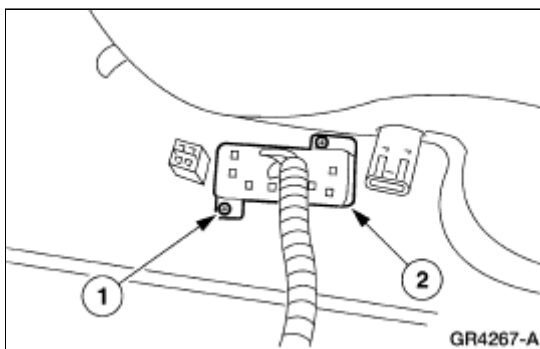
9. If equipped, disconnect the heated seat switch electrical connector.



10. Remove the front seat cushion side shield.



11. Remove the 6-way power seat switch.
 1. Remove the screws.
 2. Remove the 6-way power seat switch.



Installation

1.  **WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.**

To install, reverse the removal procedure.

2. Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
 3. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
 4. Check the restraint system for proper operation.
-

SECTION 501-10: Seating
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Switch —Heated Seat, Sport Bucket

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

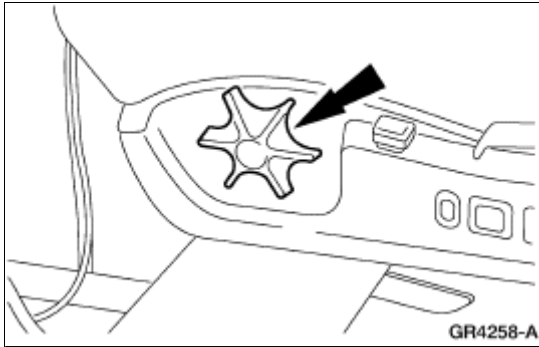
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

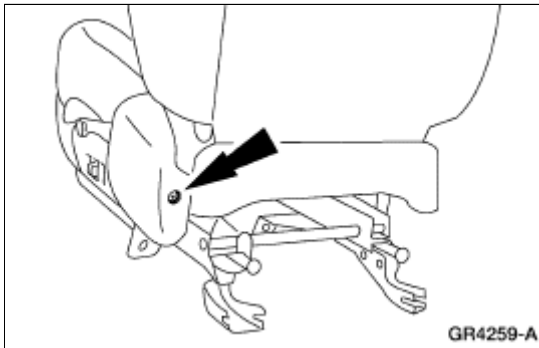
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Front Bucket](#), Removal and Installation.

Remove the front seat. For additional information, refer to [Seat—Front Bucket](#).

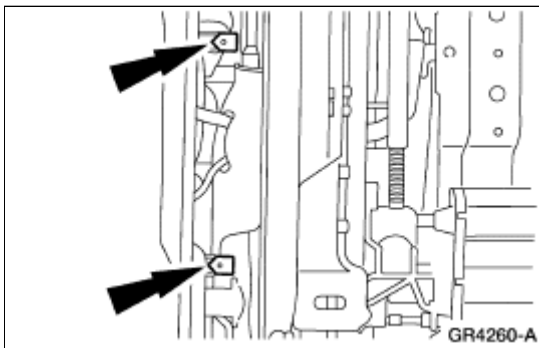
3. Remove the lumbar support knob.



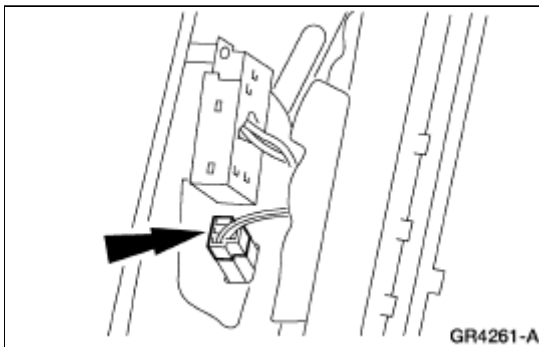
4. Remove the rear side shield screw.



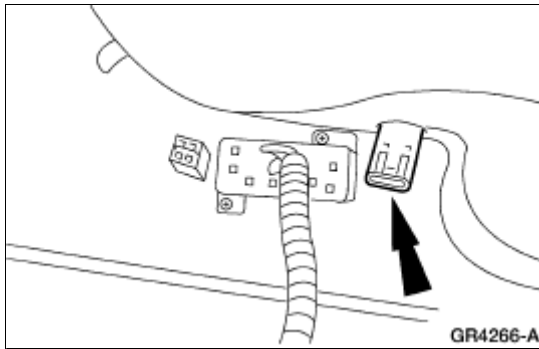
5. Release the side shield clips.



6. Disconnect the heated seat switch electrical connector.



7. Remove the heated seat switch.



Installation

1.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

To install, reverse the removal procedure.

2. Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
 3. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
 4. Check the restraint system for proper operation.
-

Switch —Heated Seat, Limited

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

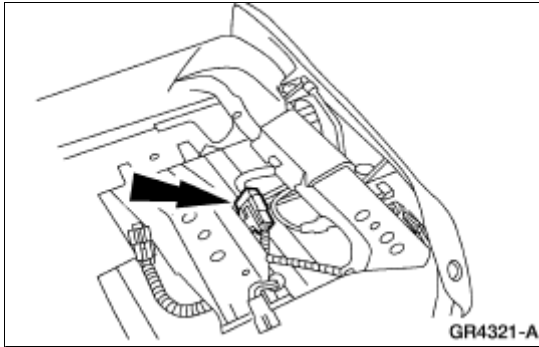
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

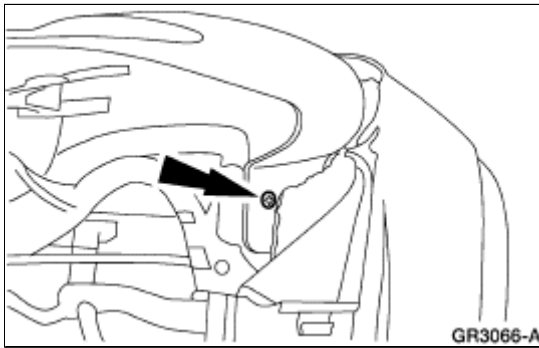
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Front Bucket](#), Removal and Installation.

Remove the front seat. For additional information, refer to [Seat—Front Bucket](#).

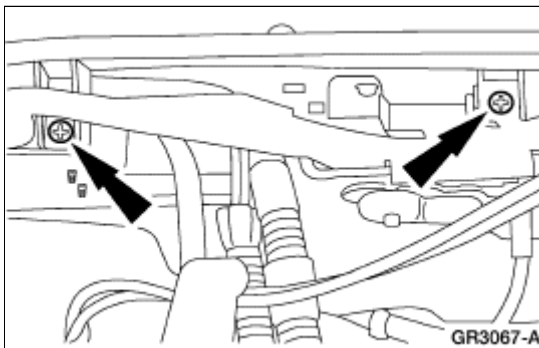
3. Disconnect the power seat switch electrical connector.



4. Remove the front seat cushion side shield rear screw.

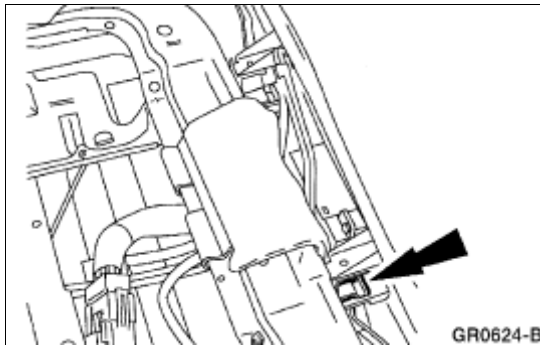


5. Remove the front seat cushion side shield screws.

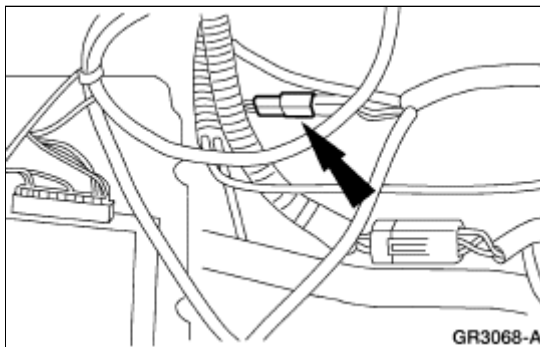


6.  **CAUTION:** Use care when disconnecting the seat cushion side shield from the seat cushion frame so the tabs on the seat cushion side shield are not damaged.

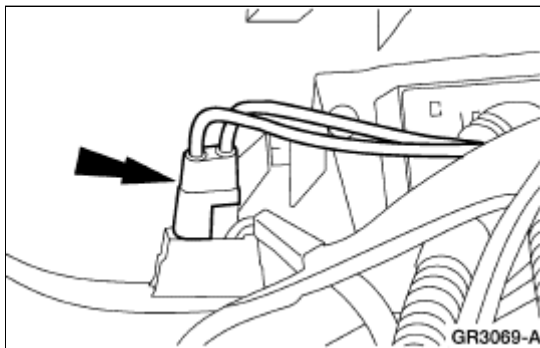
Disconnect the front seat cushion side shield.



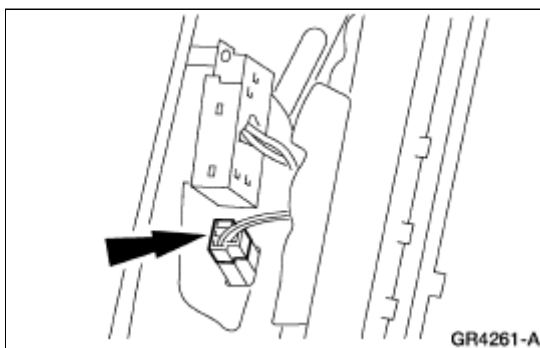
7. Disconnect the lumbar support control switch electrical connector.



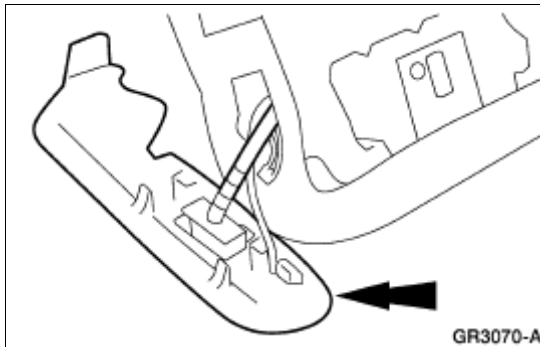
8. Disconnect the lumbar support adjusting hoses (65528) from the adjusting switch.



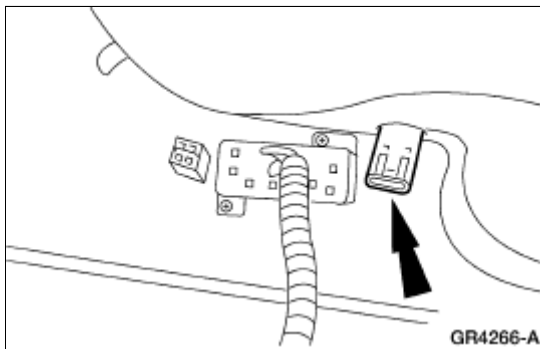
9. Disconnect the heated seat switch electrical connector.



10. Remove the front seat cushion side shield.



11. Remove the heated seat switch.



Installation

1.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

To install, reverse the removal procedure.

2. Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
 3. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
 4. Check the restraint system for proper operation.
-

SECTION 501-10: Seating
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Seat —Front Bucket

Special Tool(s)



Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live side air bag module down on the cover tear seam. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking

components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

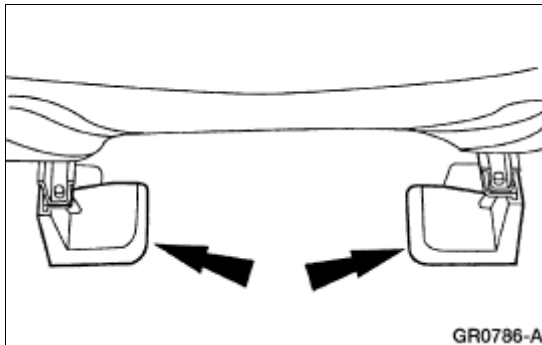
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

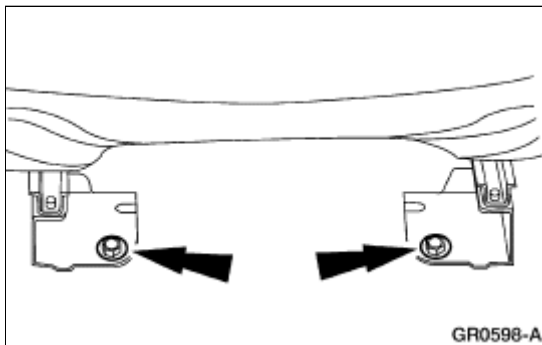
NOTE: A repair is made by replacement only. If a part is replaced and the new part does not correct the condition, install the original part and carry out the diagnostic procedure again.

NOTE: If a side air bag deployment took place the seatback pad, trim cover, and side air bag module must be replaced. The seatback frame should be replaced if necessary.

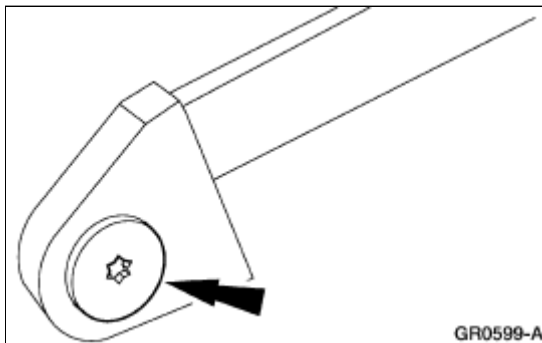
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. On 6-way power seat equipped vehicles, position the seat in the full up position.
3. Disconnect the battery ground cable (14301) and wait at least one minute.
4. Remove the front seat track rear bolt covers.



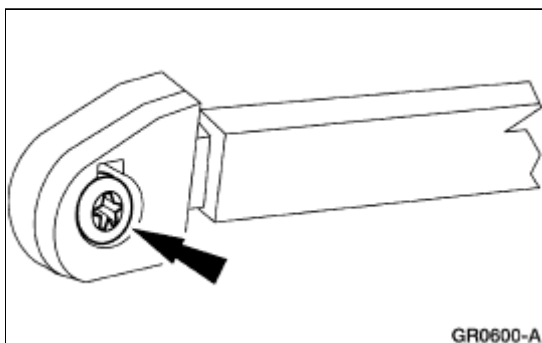
5. Remove the bolts.



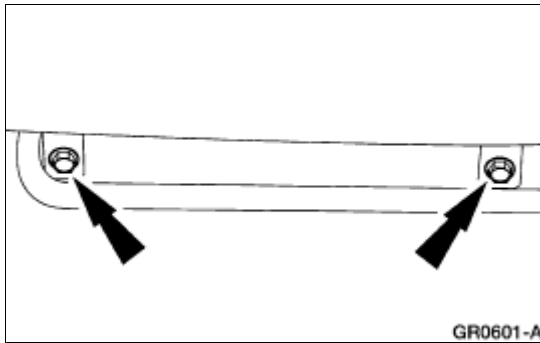
6. Remove the slide bar bolt cover plug.



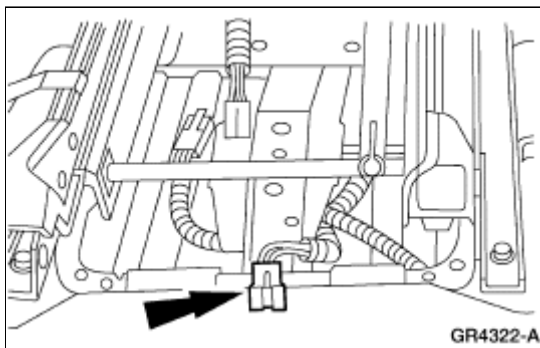
7. Using the Safety Belt Bolt Bit, remove the bolt.



8. Remove the front seat track to floor front bolts.



9. Disconnect the safety belt warning indicator electrical connector.
10. If equipped, disconnect the side air bag electrical connector.
11. On 6-way power seat equipped vehicles, lean the seat back and disconnect the electrical connectors.

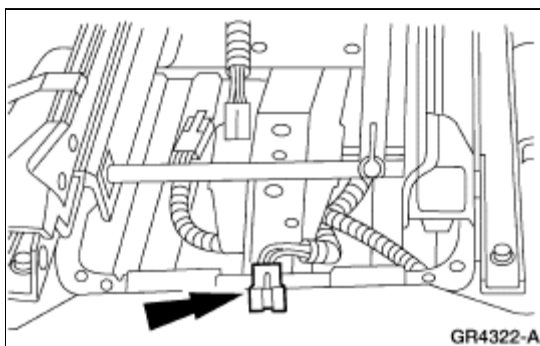


12.  **CAUTION:** Use care when handling the seat and track assembly. Dropping the assembly or sitting on a seat not secured in the vehicle may result in damaged components.

Remove the front seat.

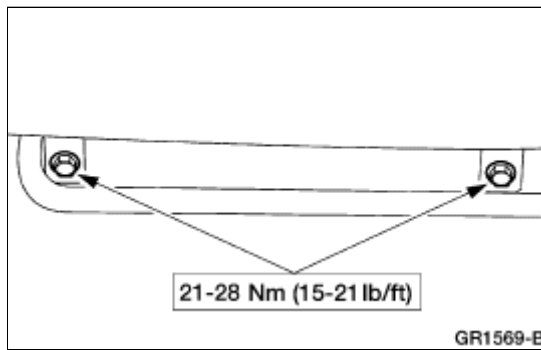
Installation

1. Position the front seat.
 - On 6-way power seat equipped vehicles, connect the electrical connectors.

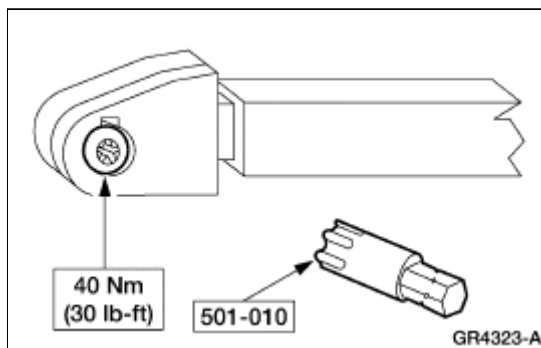


2. If equipped, connect the side air bag electrical connector.

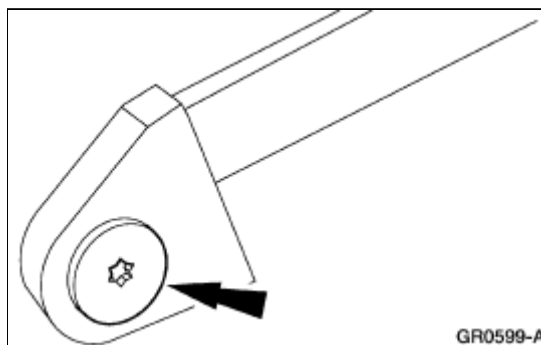
3. Connect the safety belt warning indicator electrical connector.
4. Install the front seat track to floor bolts.



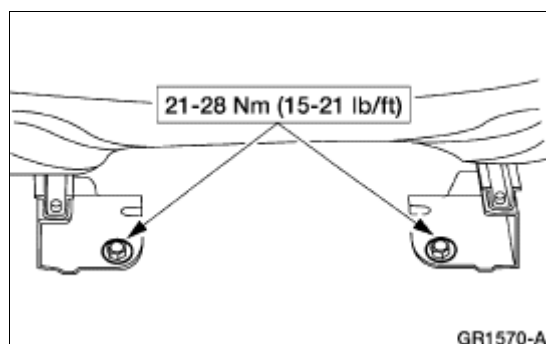
5. Using the special tool, install the slide bar bolt.



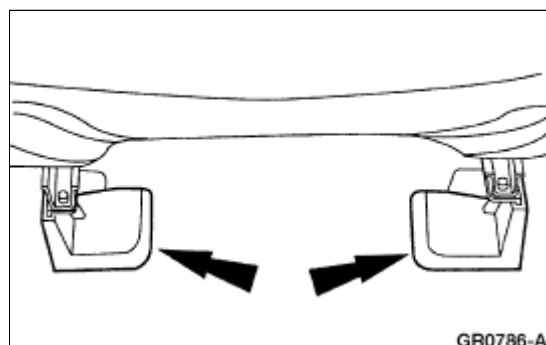
6. Install the slide bar bolt cover plug.



7. Install the rear front seat track bolts.



8. Install the rear front seat track bolt covers.



9. **NOTE:** When the battery (10655) is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

On 6-way power seat equipped vehicles, connect the battery ground cable.

10.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

11. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
 12. Check the restraint system for proper operation.
-

SECTION 501-10: Seating
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Seat —Rear, 40% Portion of 60/40 Split Bench

Removal and Installation

For additional information, refer to [Seat—Rear, 60% Portion of 60/40 Split Bench](#) in this section.

SECTION 501-10: Seating
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

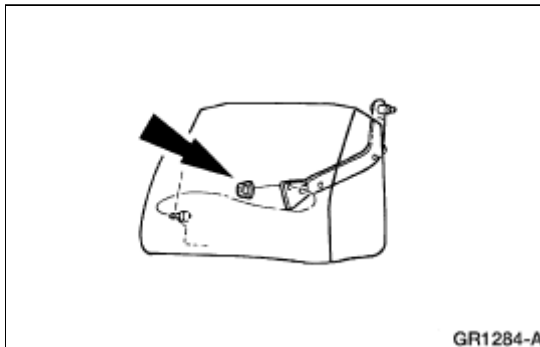
Seat —Rear, 50/50 Split Bench

Special Tool(s)

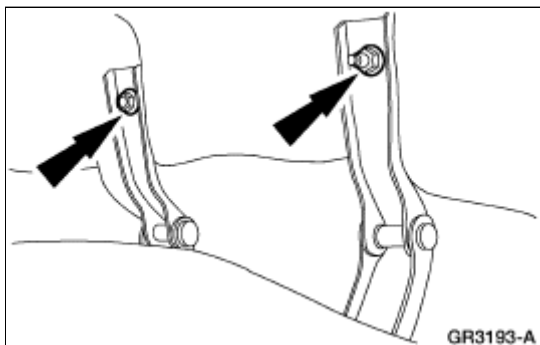


Removal

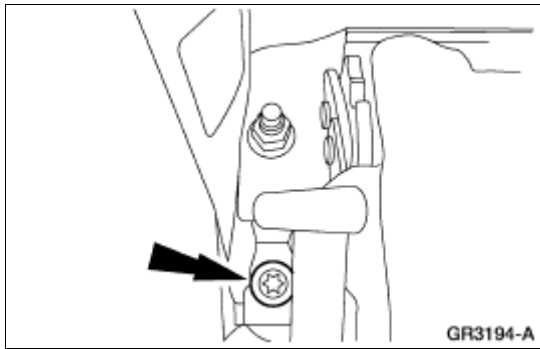
1. Fold the rear seat cushion assembly forward.
2. Remove the retaining nut from the end of the link arm and slide the link arm off the stud on the seat cushion frame.



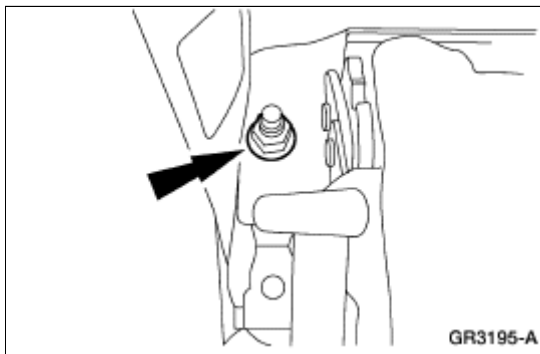
3. Return the seat back assembly to the upright position.
4. Remove the retaining nuts from the front floor attachment.



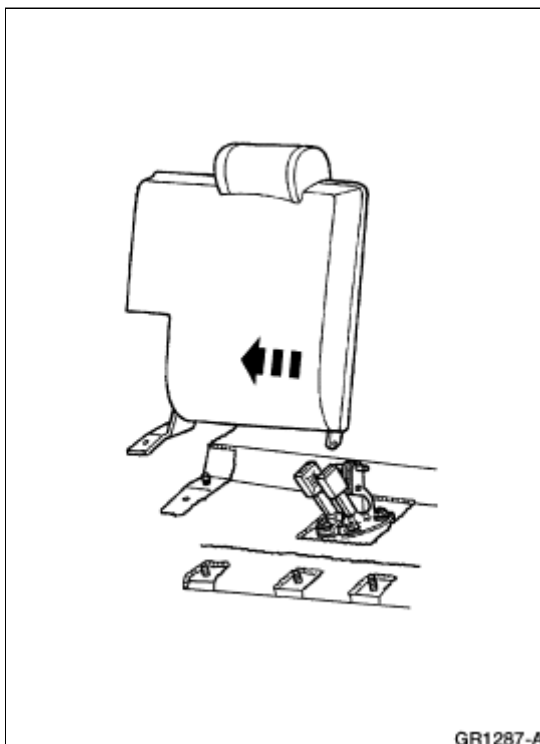
5. Remove the seat cushion assembly from the vehicle.
6. Use Safety Belt Bolt Bit to remove the safety belt bolt.



7. Remove the rear outboard nut.

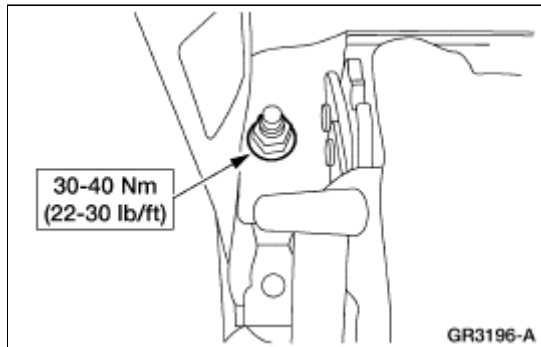


8. Slide the seat back assembly off the center pivot bracket and remove the seat back assembly from the vehicle.

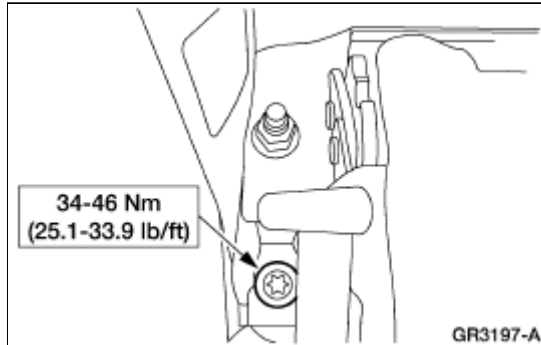


Installation

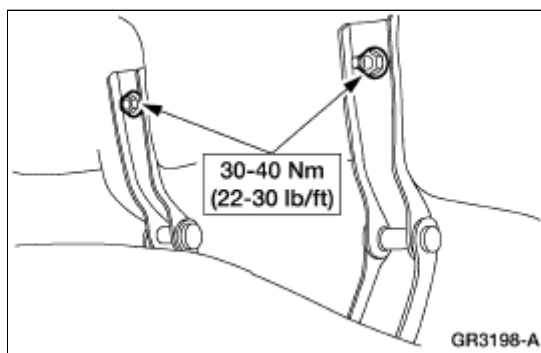
1. Install the seat back (with link arm) onto the pin on the center pivot bracket and position the seat onto the floor pan.
2. Install the rear outboard nut.



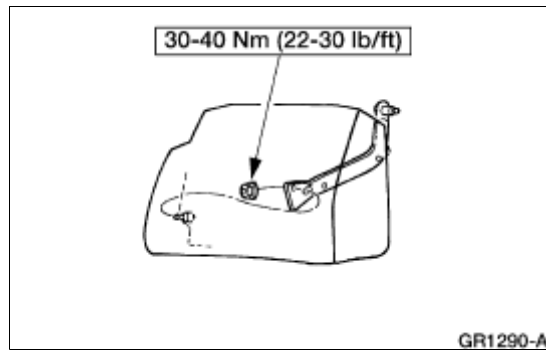
3. Use Safety Belt Bolt Bit to install the rear outboard bolt.



4. Install the seat cushion.
 - Install the nuts.



5. Install the link arm nut.



SECTION 501-10: Seating
REMOVAL AND INSTALLATION

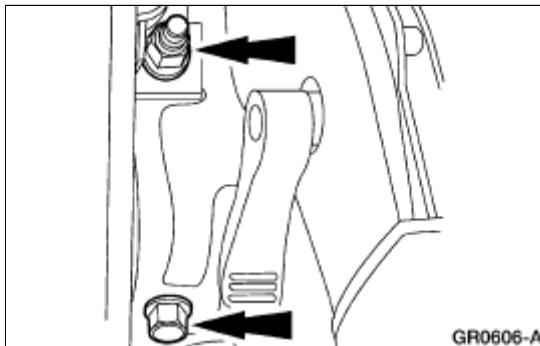
2000 Explorer/Mountaineer Workshop Manual

Seat —Rear, 60% Portion of 60/40 Split Bench

Removal

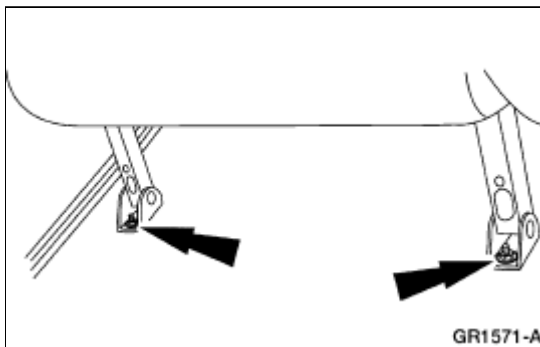
NOTE: 60 percent rear seat shown; 40 percent rear seat similar.

1. Remove the rear outboard nut and bolt.

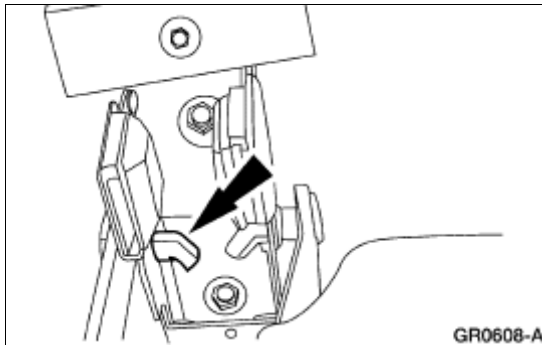


2. **NOTE:** Remove the plastic caps from the studs.

Remove the rear seat riser to floor nuts.

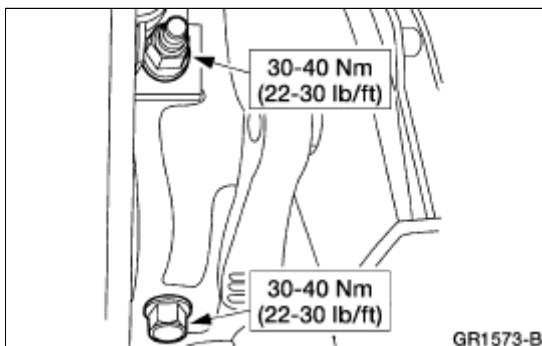
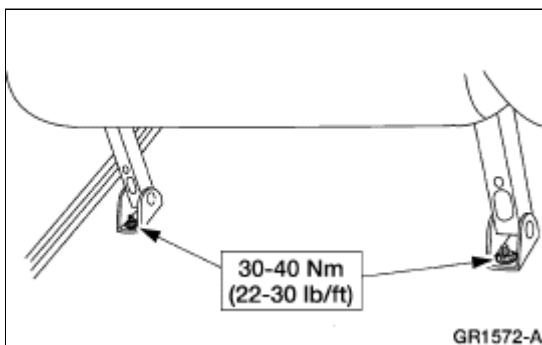


3. Fold the rear seat down.
4. Remove the rear seat.
 - Pivot the seat to unhook the tab from the safety belt buckle bracket.



Installation

1. To install, reverse the removal procedure.



SECTION 501-10: Seating
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Seat —Track, Front Manual

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



CAUTION: Use care when handling the seat and track assembly. Dropping the assembly or sitting on a seat not secured in the vehicle may result in damaged components.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

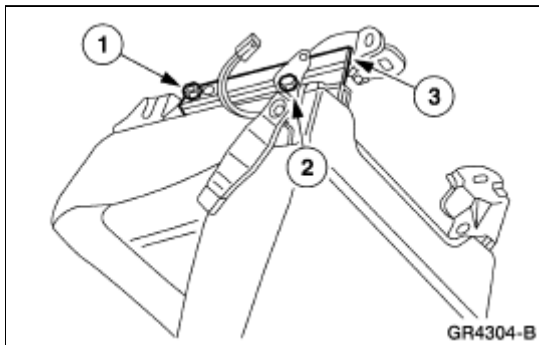
NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Front Bucket](#), Removal and Installation.

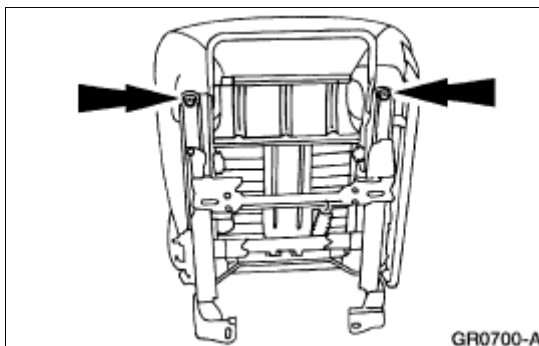
Remove the front seat. For additional information, refer to [Seat—Front Bucket](#).

3. Place the front seat (60012) upside-down on a clean workbench.

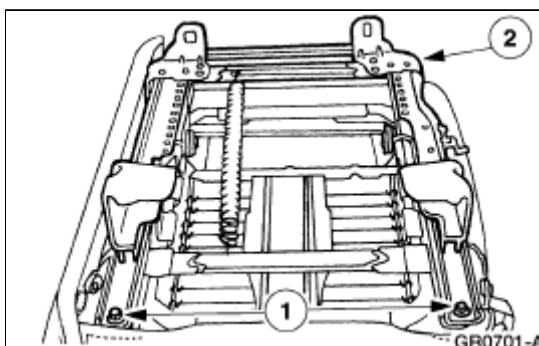
4. Remove the safety belt buckle slide bar.
 1. Remove the nut.
 2. Remove the bolt.
 3. Remove the safety belt buckle slide bar.



5. Remove the seat track to seat cushion front bolts.

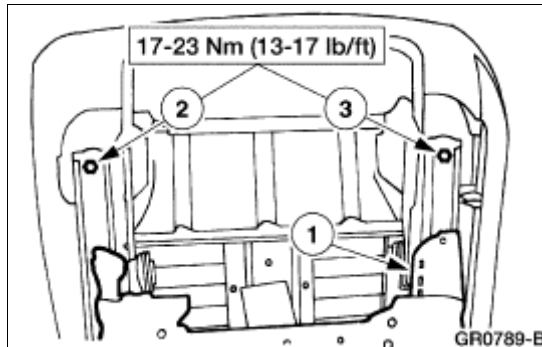


6. Remove the front seat track (61705).
 1. Remove the seat track to seat cushion rear bolts.
 2. Remove the front seat track.

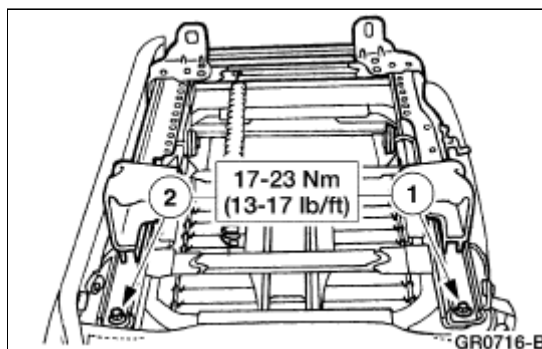


Installation

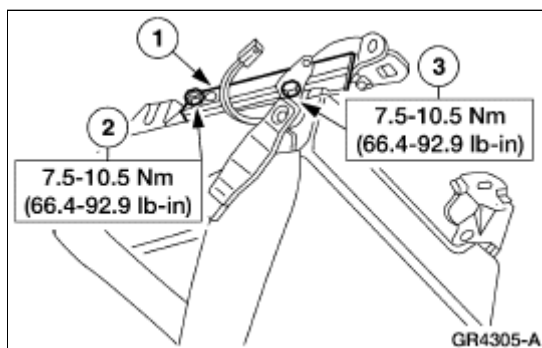
1. Install the front seat track front bolts.
 1. Position the front seat track.
 2. Install the inboard bolt.
 3. Install the outboard bolt.



2. Install the front seat track rear bolts.
 1. Install the inboard bolt.
 2. Install the outboard bolt.



3. Install the safety belt buckle slide bar.
 1. Position the safety belt buckle slide bar.
 2. Install the nut.
 3. Install the bolt.



4. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Front Bucket](#), Removal and Installation.

Install the front seat. For additional information, refer to [Seat—Front Bucket](#).

5.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

6. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
 7. Check the restraint system for proper operation.
-

SECTION 501-10: Seating
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Seat —Track, Limited and 6-Way Power

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



CAUTION: Use care when handling the seat and track assembly. Dropping the assembly or sitting on a seat not secured in the vehicle may result in damaged components.

NOTE: LHD seats shown, RHD seat similar.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

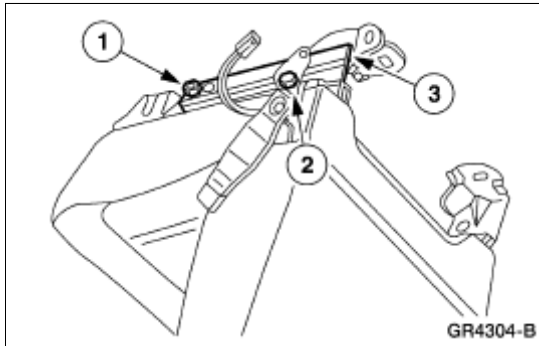
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

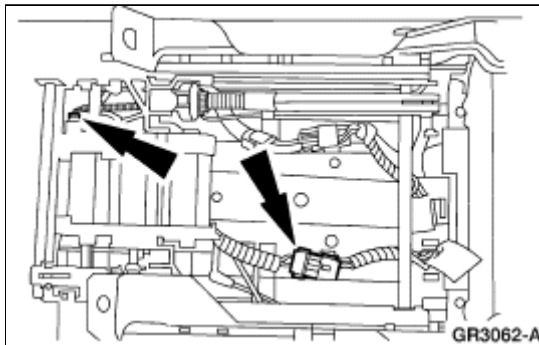
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Front Bucket](#), Removal and Installation.

Remove the front seat. For additional information, refer to [Seat—Front Bucket](#).

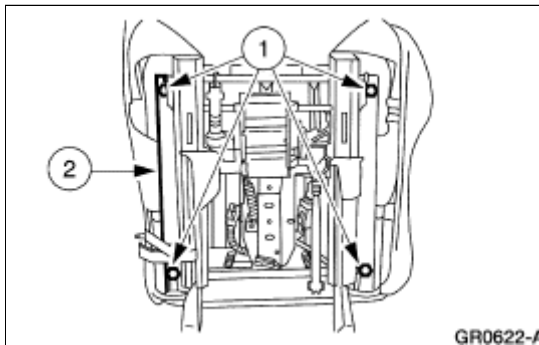
3. Place the seat on a clean workbench.
4. Remove the safety belt buckle slide bar.
 1. Remove the nut.
 2. Remove the bolt.
 3. Remove the safety belt buckle slide bar.



5. Disconnect the seat track wiring harness electrical connectors.
 - If equipped, disconnect the memory seat module electrical connectors.
 - Disconnect the seat track motor electrical connectors.



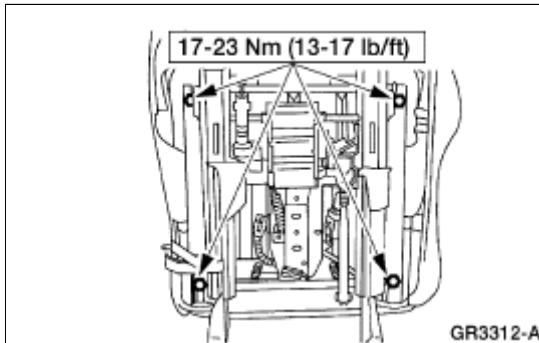
6. Remove the seat track.
 1. Remove the bolts.
 2. Remove the seat track.



Installation

1. **NOTE:** When installing the power seat track, start at the corner with the round hole and work around the seat base in a horseshoe pattern.

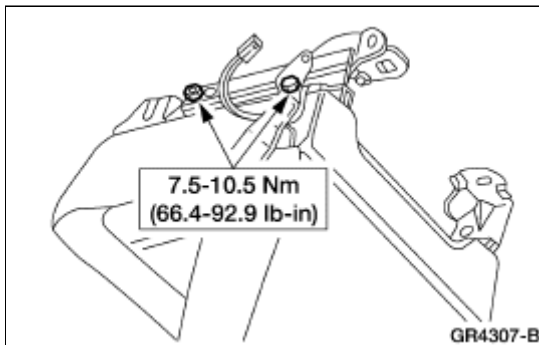
To install, reverse the removal procedure.



2.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

3. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
4. Check the restraint system for proper operation.



SECTION 501-10: Seating
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Seat Module —Heated Seat

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.



CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

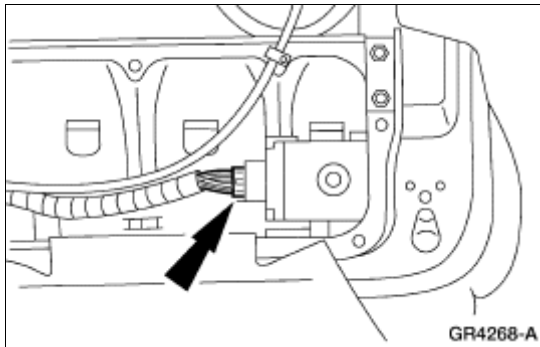
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

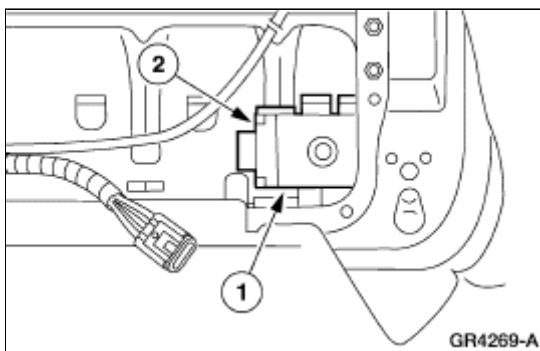
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Track, Limited and 6-Way Power](#), Removal and Installation.

Remove the power front seat track. For additional information refer to [Seat—Track, Limited and 6-Way Power](#).

3. Disconnect the heated seat module electrical connector.



4. Remove the heated seat module.
 1. Release the clip.
 2. Remove the heated seat module.

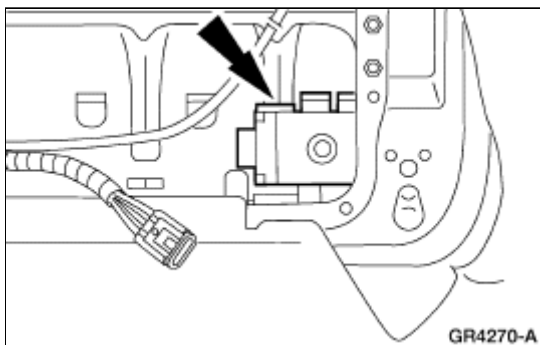


Installation

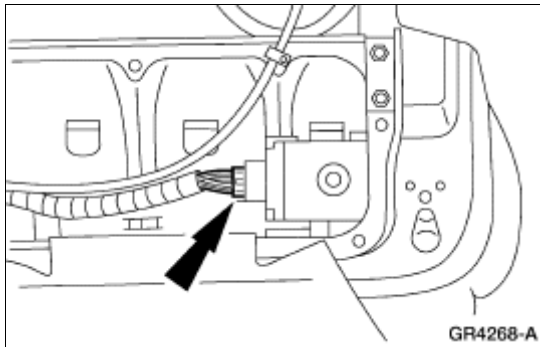


CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result.

1. Install the heated seat module.



2. Connect the heated seat module electrical connector.



3. **NOTE:** Be sure to read and follow all air bag warnings contained in [Seat—Track, Limited and 6-Way Power](#), Removal and Installation.

Install the power front seat track. For additional information, refer to [Seat—Track, Limited and 6-Way Power](#).

4.  **WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.**

Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

5. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
 6. Check the restraint system for proper operation.
-

Side Air Bag Wiring Harness

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live side air bag module down on the cover tear seam. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

NOTE: A side air bag repair is made by installing a new component only. If a part is replaced and the new part does not correct the condition, install the original part and carry out the diagnostic procedure again.

All Seats



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

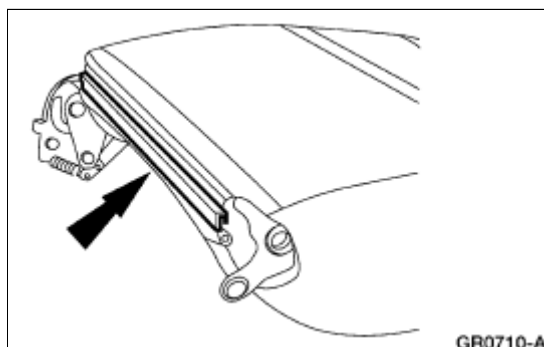
NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings in [Seat—Front Bucket, 6-Way Power, Except Limited](#), [Seat—Front Bucket, Limited](#), or [Seat—Front Bucket, Manual](#), Disassembly and Assembly.

Disassemble the seat. For additional information, refer to [Seat—Front Bucket, 6-Way Power, Except Limited](#), [Seat—Front Bucket, Limited](#) or [Seat—Front Bucket, Manual](#).

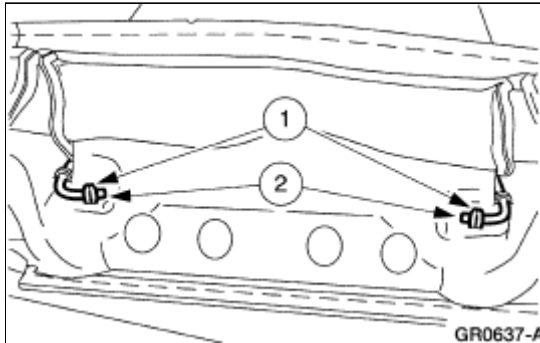
3.  **WARNING:** Front seat back trim covers installed on seats equipped with side air bags cannot be repaired. They are to be replaced (cleaning is permissible).

Unhook the trim cover J-clip.



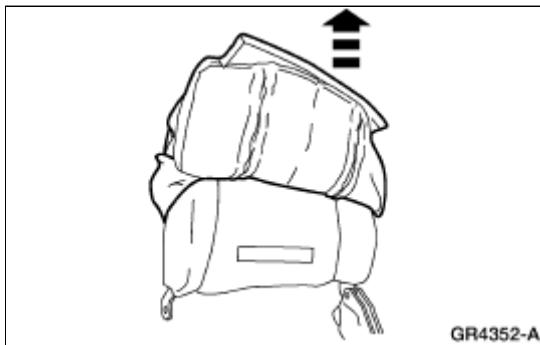
Sport Bucket Seat

4. Remove the seat backrest trim cover swing rods.
 1. Remove and discard the hog rings.
 2. Remove the seat backrest trim cover cushion swing rods.



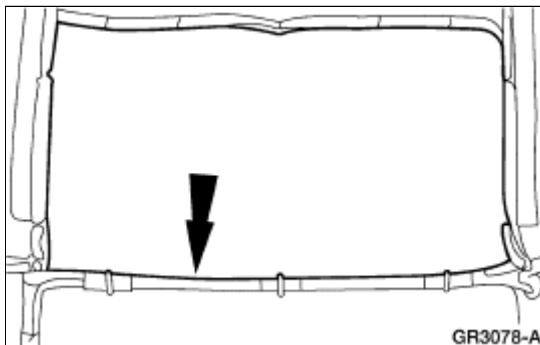
5.  **CAUTION:** Use care when separating the seat cushion trim cover from the hook and loop strip, or the hook and loop strip can be torn from the seat cushion foam.

Roll the seatback trim cover in an inside out fashion to the side air bag deployment chute.

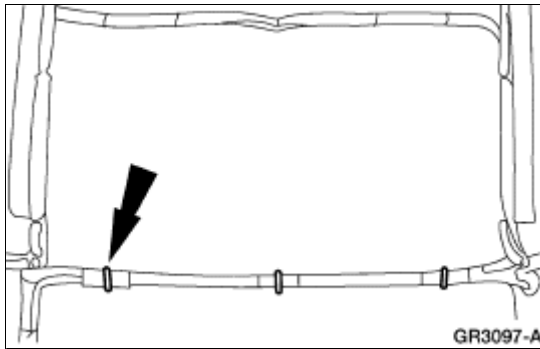


Limited Seat

6. Roll the seat backrest trim cover to the first row of hog rings.
7. Remove and discard the hog rings.
8. Roll the seat backrest trim cover to the second row of hog rings.



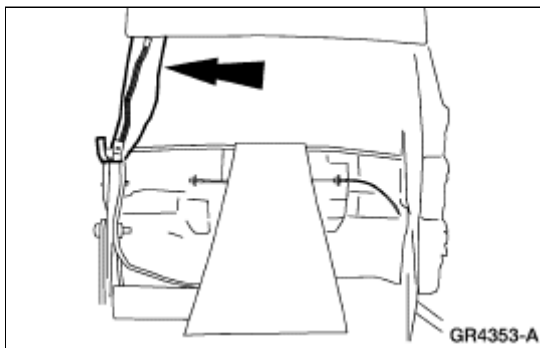
9. Remove and discard the hog rings.



10. Roll the seat backrest trim cover to the side air bag deployment chute.

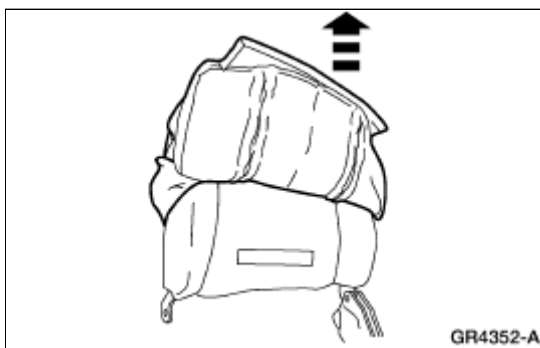
All Seats

11. Unzip the side air bag deployment chute.



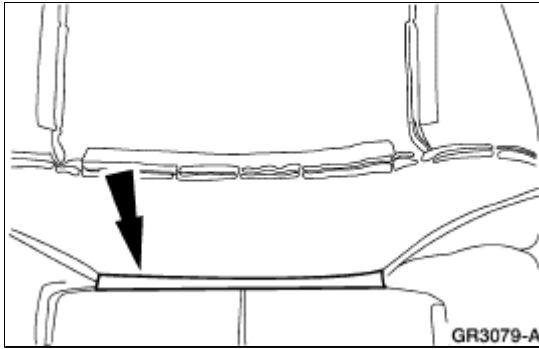
Sport Bucket

12. Roll the seat backrest cover and side air bag deployment chute to completely expose the side air bag bracket and side air bag module.

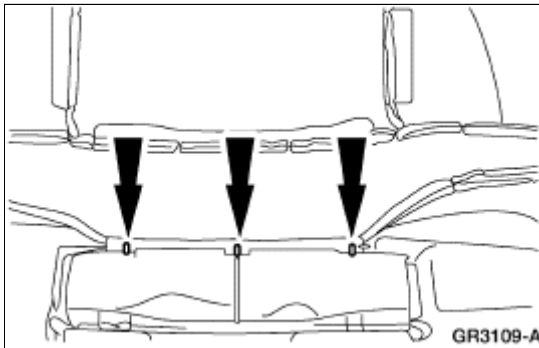


Limited Seat

13. Roll the seat backrest trim cover to the third row of hog rings.

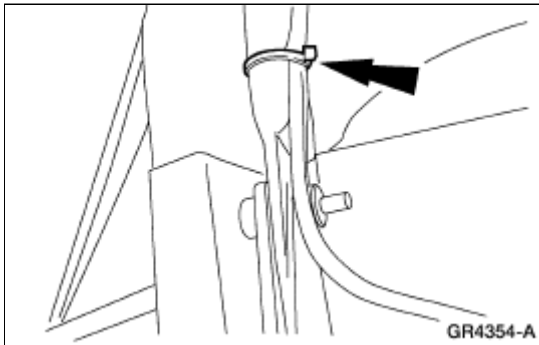


14. Remove and discard the hog rings.



All Seats

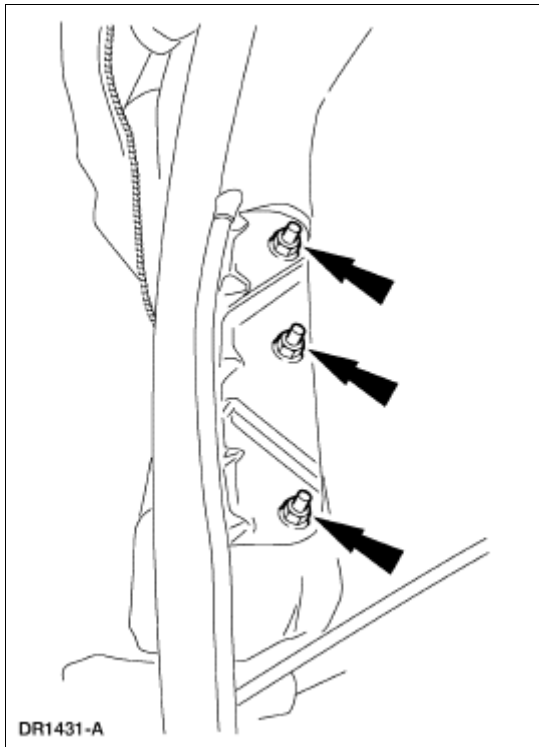
15. Remove the side air bag wiring harness wire tie.



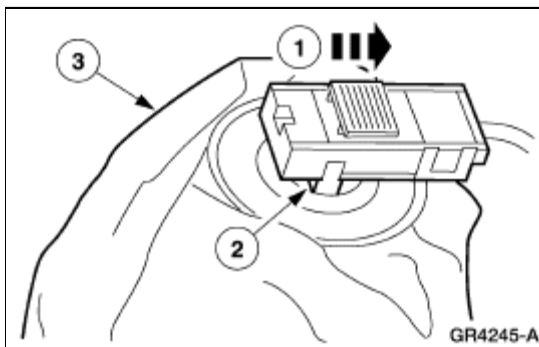
16. **NOTE:** If installing a new side air bag module, use new retaining nuts. If the same side air bag module is to be reused, then reuse the side air bag module retaining nuts.

Through the seat backrest cushion opening, position the side air bag module aside.

- Remove the retaining nuts.



17. Remove the side air bag module.
1. Release the side air bag module electrical connector clip.
 2. Release the connector tabs by pushing in on them, then disconnect the side air bag module electrical connector.
 3. Remove the side air bag module.

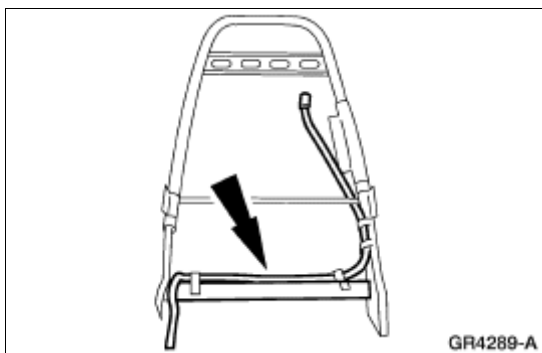


18. **NOTE:** Sport bucket seat shown; Limited seat similar.

NOTE: The seat backrest components other than the seat backrest frame and side air bag wiring harness have been omitted for clarity.

Remove the side air bag wiring harness.

- Disconnect the pin-type retainers from the seat backrest frame.



Installation



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Check the side air bag deployment chute and zipper for damage. The deployment chute and zipper must not be repaired. If there is any damage to the deployment chute or zipper, the seat back trim cover and deployment chute must be installed new as a unit. Failure to do so may result in personal injury.



WARNING: The deployment seam cannot be repaired or re sewn. A trim cover requiring replacement of the bolster or side facing must be replaced as a unit.



WARNING: If the air bag deployment chute is not properly positioned and completely zipped, the side air bag may not deploy properly. Failure to follow these instructions may result in personal injury.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

All Seats

1. **NOTE:** The seat backrest components other than the seat backrest frame and side air bag wiring harness have been omitted for clarity.

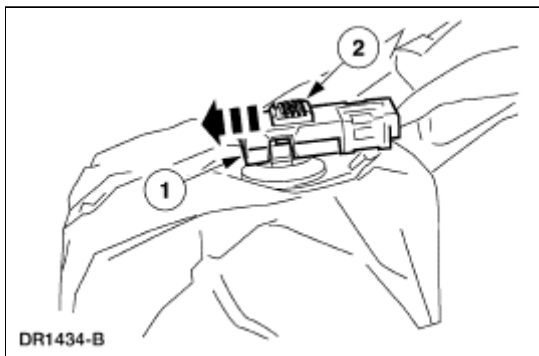
NOTE: Sport bucket seat shown; Limited seat similar.

Install the side air bag wiring harness.

- Connect the pin-type retainer to the seat backrest frame.



2. Connect the side air bag module electrical connector.
 1. Install the connector to the side air bag module.
 2. Slide the side air bag module electrical connector locking clip to secure the connector to the side air bag module.



3. Make sure the electrical connector is securely fastened to the side air bag module.

4.  **WARNING:** Inspect the mounting surfaces of the side air bag module and the seat back frame mounting bracket for any foreign objects before installing the side air bag module. If any foreign objects are found, remove them. Failure to do so may result in personal injury, in the event of an air bag deployment.

 **WARNING:** Inspect the side air bag deployment chute and the side air bag cavity in the seat back pad for any foreign objects. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.

 **WARNING:** Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury, in the event of an air bag deployment.

 **WARNING:** If the air bag cover has separated or the air bag material has been exposed, install a new side air bag module. Do not attempt to repair the air bag module. Failure to do so may result in personal injury in the event of an air bag deployment.

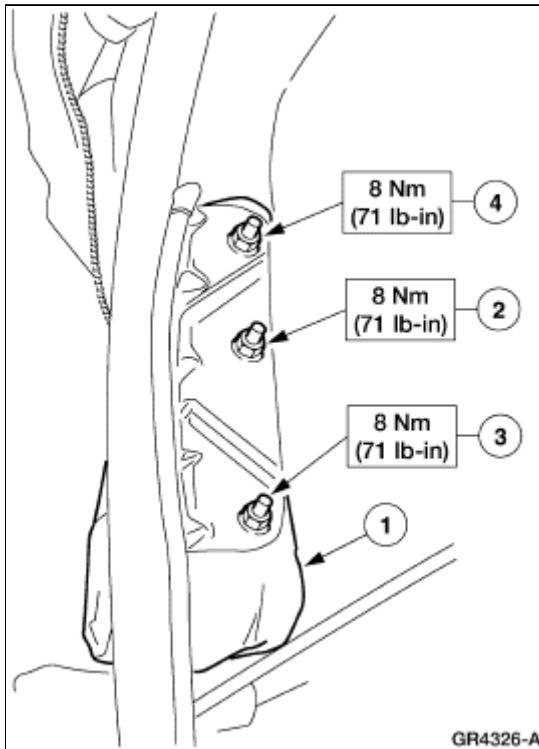
 **CAUTION:** The retaining nuts of the side air bag module must be tightened in the sequence described.



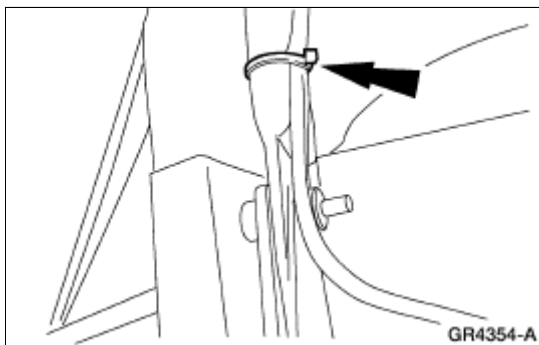
CAUTION: Be sure the side air bag wiring harness is not pinched between the side air bag module and mounting bracket.

Install the side air bag module onto the front seat back frame mounting bracket.

1. Position the side air bag module onto the front seat back mounting bracket being sure the side air bag wiring harness is located behind the seat backrest frame.
2. Install the side air bag module retaining nut.
3. Install the side air bag module retaining nut.
4. Install the side air bag module retaining nut.

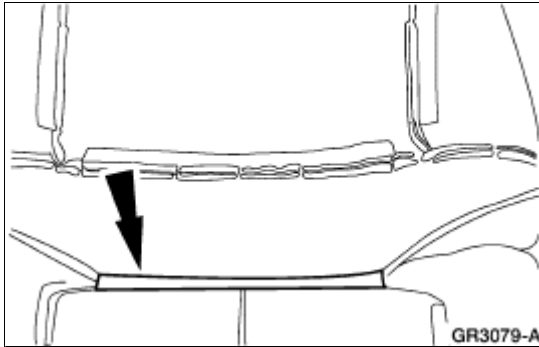


5. Tie-strap the side air bag module wire harness to the seat back frame.

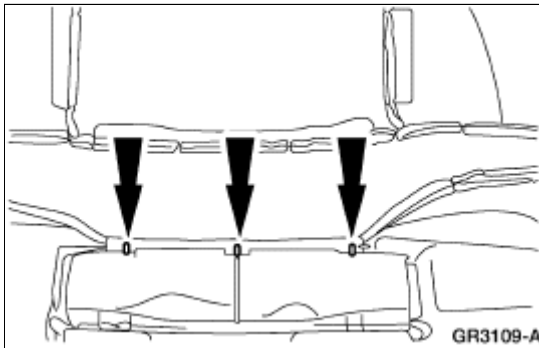


Limited Seats

6. Unroll the seat backrest trim cover to the third row of hog rings.

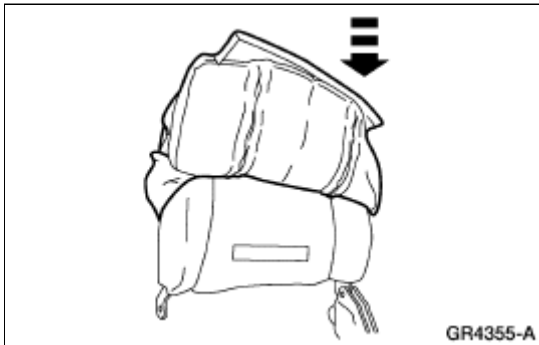


7. Install the hog rings.



All Seats

8. Roll the seat back trim cover to position the deployment chute around the side air bag module.



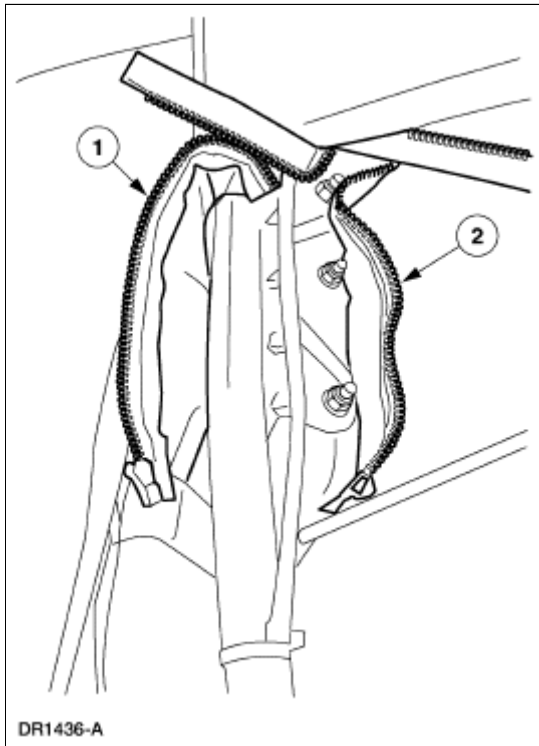
9.  **WARNING:** Check the side air bag deployment chute and zipper for damage. The deployment chute and zipper must not be repaired. If there is any damage to the deployment chute or zipper the seat back trim cover and deployment chute must be installed new as a unit.

 **WARNING:** If the air bag deployment chute is not properly positioned and completely zipped, the side air bag may not deploy properly.

Position the air bag deployment chute.

1. Insert the outboard side of the air bag deployment chute between the seat back pad and the side air bag module, pulling it around the outboard side of the seat back frame.
2. Insert the inboard side of the air bag deployment chute between the seat back pad and the

side air bag module from the inboard side of the seat back.

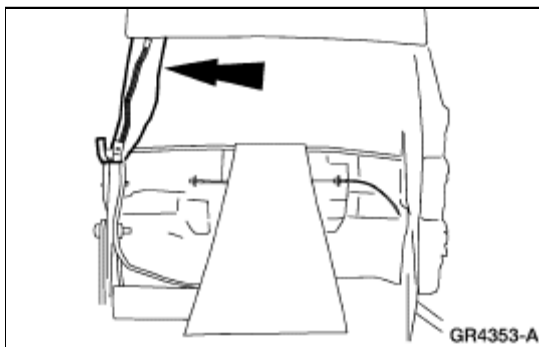


10. **NOTE:** Sport bucket seat shown; Limited seat similar.

NOTE: Be sure the side air bag deployment chute is properly positioned, before proceeding to the next step.

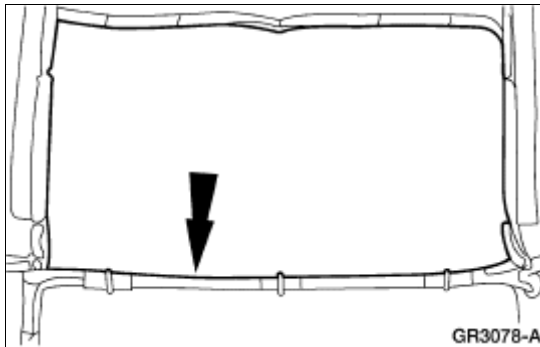
Zip the air bag deployment chute completely closed, then position the zipper tails at the top and bottom of the deployment chute, into the seat back opening.

- The side air bag deployment chute must encircle the side air bag module, going completely around the side air bag module and the side of the seat back frame.
- Align the side air bag deployment chute to the side air bag module, making sure it covers the length of the side air bag module.

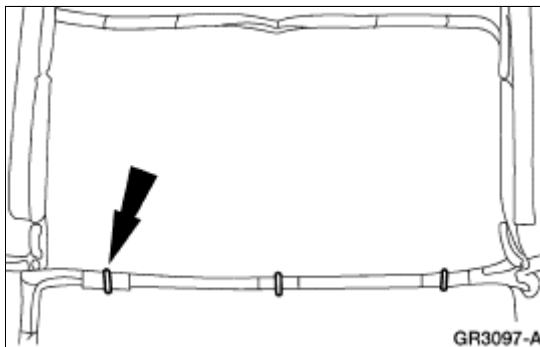


Limited Seat

11. Unroll the seat backrest trim cover to the second row of hog rings.



12. Install the hog rings.



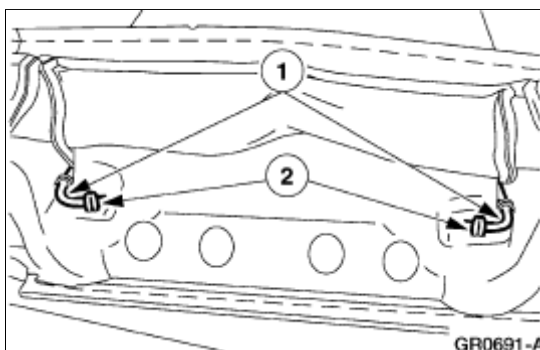
13. Unroll the seat backrest trim cover to the bottom row of hog rings.
14. Install the hog rings.

Sport Bucket Seat

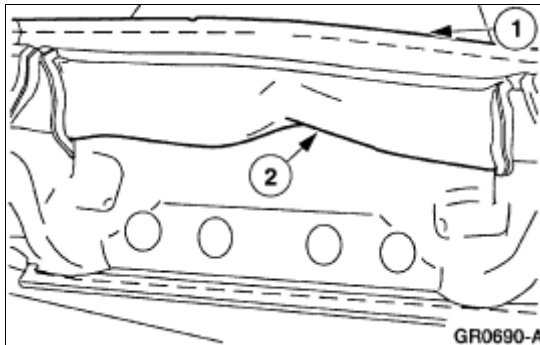
15. **NOTE:** Make sure that the top of the swing rod is positioned beneath the listing wire near the middle row of hog rings.

If equipped, install the seat backrest trim cover swing rods.

1. Position the seat backrest trim cover and install the swing rods through the sleeves.
2. Install the hog rings.



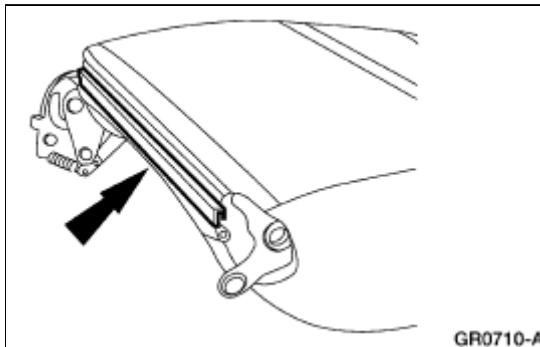
16. Connect the hook and loop fastener to the seat backrest trim cover.
 1. Pull the seat backrest trim cover completely down.
 2. Reach up inside the seat backrest and grab the plastic above the hook and loop. Remove enough plastic to expose the hook and loop.



All Seats

17. **NOTE:** If equipped, make sure that the seat backrest heating element wire is aligned with and off-set from the lower seat backrest trim cover J-clip.

Hook the trim cover clip.



18. **NOTE:** Be sure to read and follow all air bag warnings in [Seat—Front Bucket, 6-Way Power, Except Limited](#) and [Seat—Front Bucket, Limited](#), Disassembly and Assembly.

Assemble the seat. For additional information, refer to [Seat—Front Bucket, 6-Way Power, Except Limited](#) and [Seat—Front Bucket, Limited](#).

19.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

20. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).

21. Check the restraint system for proper operation.
-

SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

Seat —40% Portion of Front 60/40 Split Bench

Disassembly

1. The disassembly of the 40% portion of the front 60/40 split bench is similar to the manual front bucket seat. For additional information, refer to [Seat—Front Bucket, Limited](#).

Assembly

1. The assembly of the 40% portion of the front 60/40 split bench is similar to the manual front bucket seat. For additional information, refer to [Seat—Front Bucket, Manual](#).
-

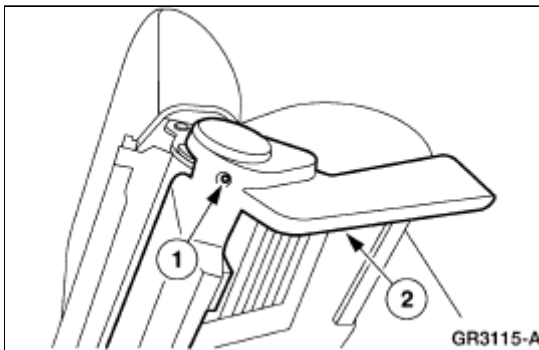
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

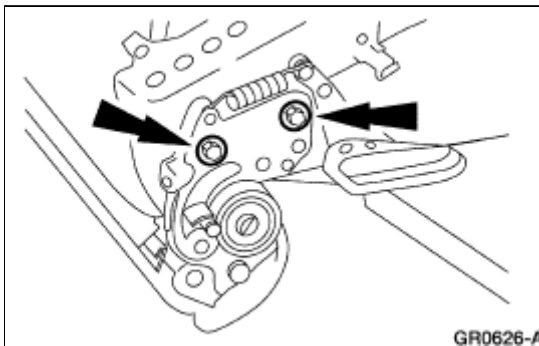
Seat —60% Portion of Front 60/40 Split Bench

Disassembly

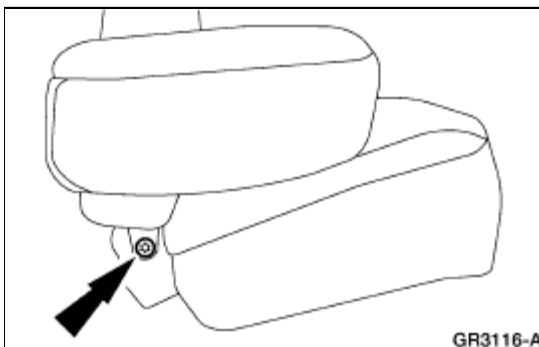
1. Remove the seat track. For additional information, refer to [Seat—Track, Front Manual](#).
2. Remove the seat backrest latch cover.
 1. Remove the screw.
 2. Remove the seat backrest latch cover.



3. Remove the front seat backrest latch to seat cushion bolts.

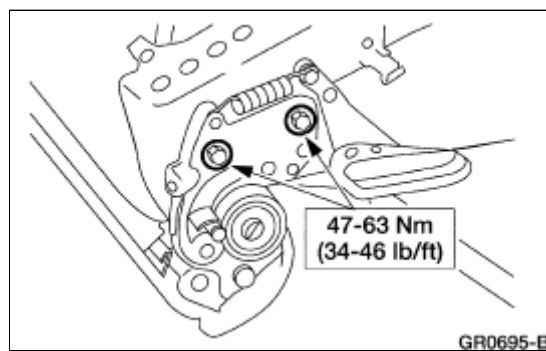
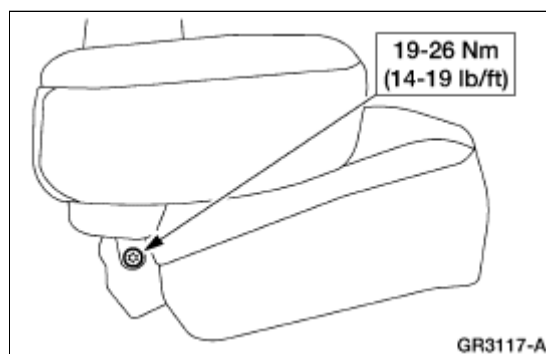


4. Remove the inboard pivot bolt and separate the seat cushion from the seat backrest.



Assembly

1. To assemble, reverse the disassembly procedure.
 - Check the restraint system for proper operation.



SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

Seat —Back, 40% Portion of Front 60/40 Split Bench

Disassembly

1. For the disassembly of the 40 percent front seat backrest, refer to [Seat—Back, Front Bucket, Manual](#).

Assembly

1. For the assembly of the 40 percent front seat backrest, refer to [Seat—Back, Front Bucket, Manual](#).
-

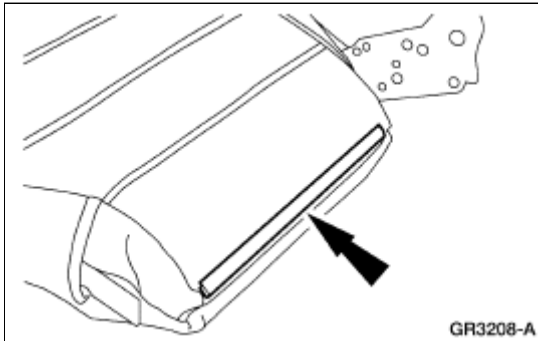
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

Seat —Back, 40% Portion of Rear 60/40 Split Bench

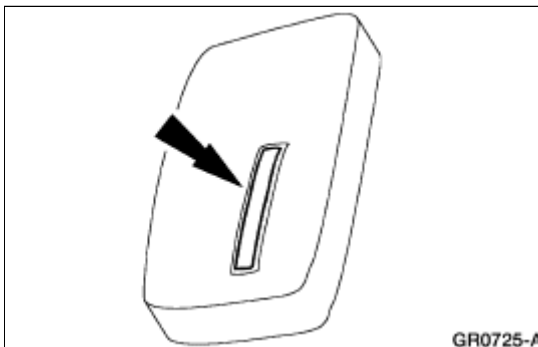
Disassembly

1. Disassemble the rear 40 percent seat. For additional information, refer to [Seat—Rear, 40% Portion of 60/40 Split Bench](#).
2. Unhook the seat backrest trim cover J-clip.

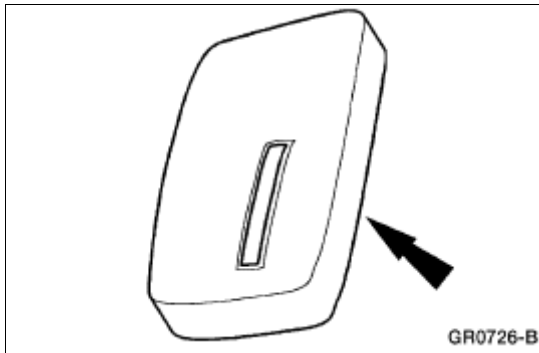


3.  **CAUTION:** Use care when separating the seat backrest trim cover from the hook and loop strip or the hook and loop strip may be torn from the seat backrest foam.

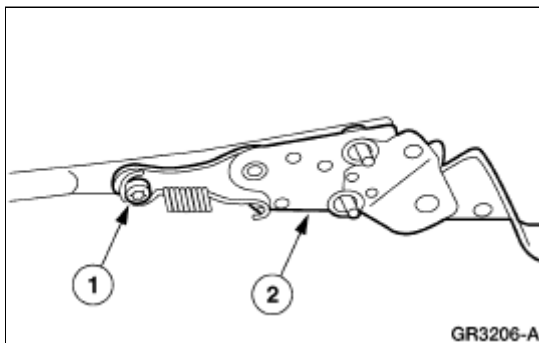
Disengage the hook and loop strip and remove the seat backrest trim cover.



4. Remove the seat backrest frame from the seat backrest foam.

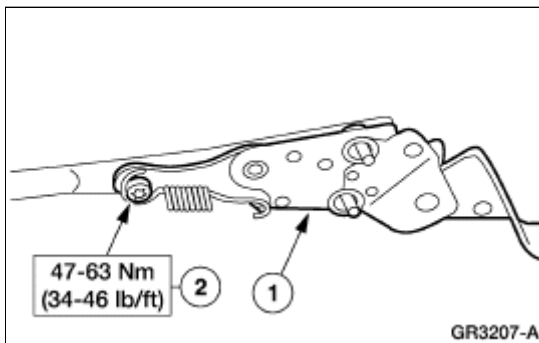


5. Remove the rear seat backrest latch.
 1. Remove the bolt.
 2. Remove the rear seat backrest latch.

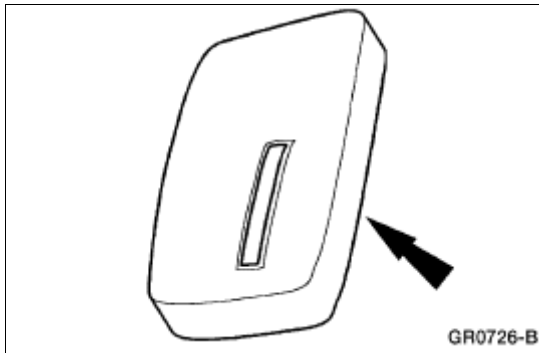


Assembly

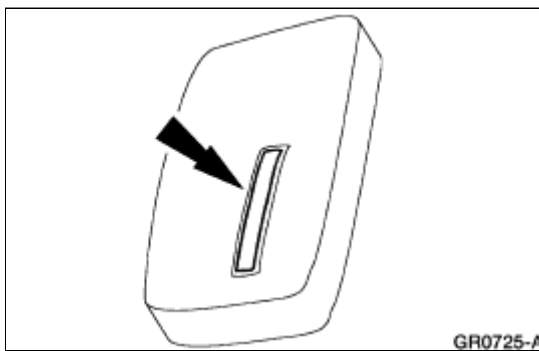
1. Install the rear seat backrest latch.
 1. Position the rear seat backrest latch.
 2. Install the bolt.



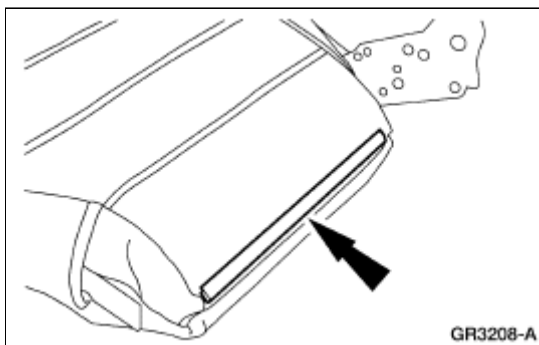
2. Install the seat backrest frame into the seat backrest foam.



3. Install the seat backrest trim cover.
 - Connect the hook and loop strip to the seat backrest trim cover.



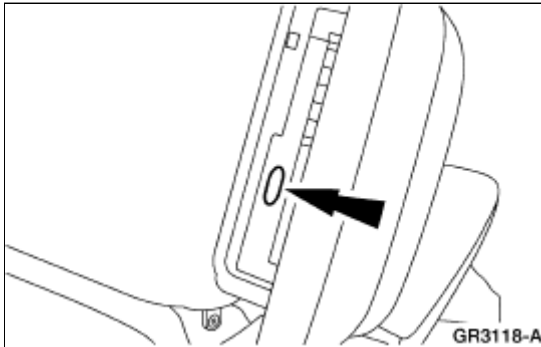
4. Hook the seat backrest trim cover J-clip.



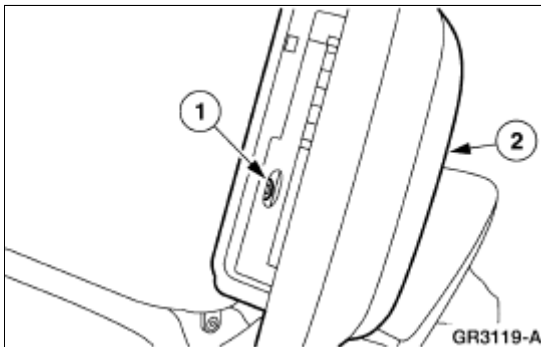
5. Assemble the rear 40 percent seat. For additional information, refer to [Seat—Rear, 40% Portion of 60/40 Split Bench](#).
-

Seat —Back, 60% Portion of Front 60/40 Split Bench**Disassembly**

1. Disassemble the seat. For additional information, refer to [Seat—60% Portion of Front 60/40 Split Bench](#).
2. Remove the armrest bolt cover.



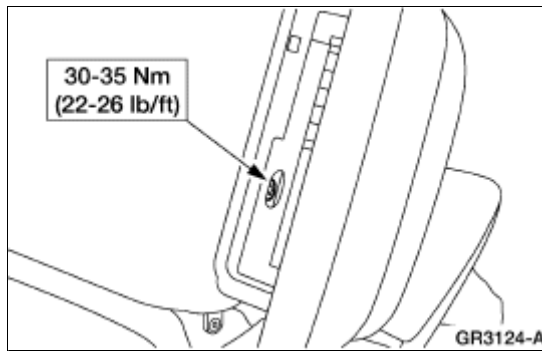
3. Remove the armrest.
 1. Remove the bolt.
 2. Remove the armrest.



4. Disassemble the seat backrest. For additional information, refer to [Seat—Back, Front Bucket, Manual](#).

Assembly

1. To assemble, reverse the disassembly procedure.



SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

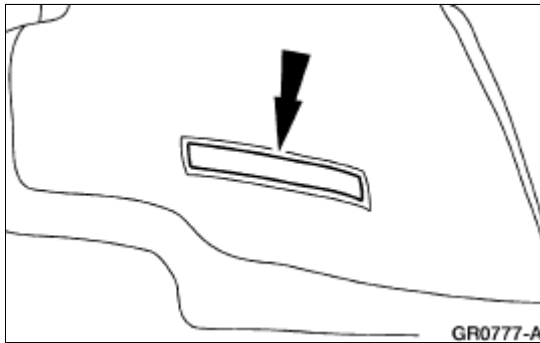
2000 Explorer/Mountaineer Workshop Manual

Seat —Back, 60% Portion of Rear 60/40 Split Bench

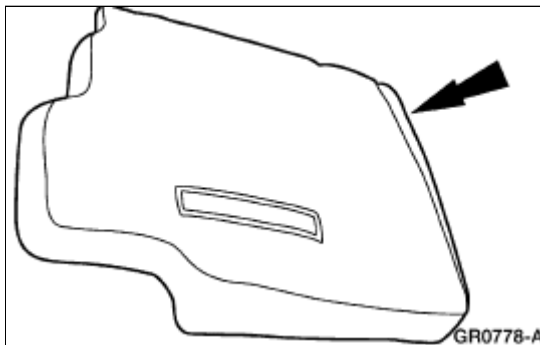
Disassembly

1. Disassemble the rear 60 percent seat. For additional information, refer to [Seat—Rear, 60% Portion of 60/40 Split Bench](#).
2. Unhook the J-clips.
3.  **CAUTION:** Use care when separating the seat backrest trim cover from the hook and loop strip or the hook and loop strip may be torn from the seat backrest foam.

Disengage the hook and loop strips and remove the seat backrest trim cover.

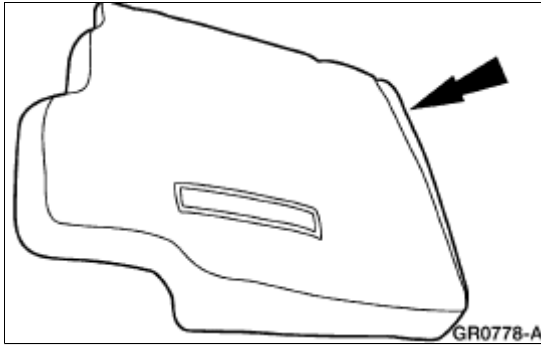


4. Remove the seat backrest padding.

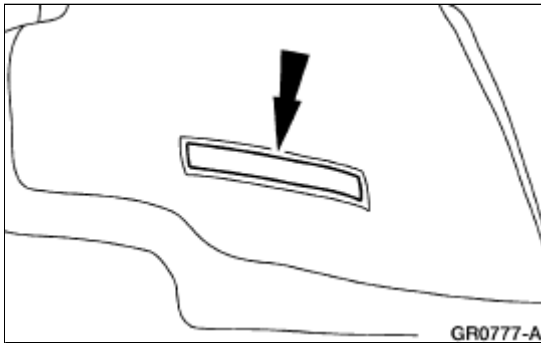


Assembly

1. Install the seat backrest foam.



2. Install the seat backrest trim cover and connect the hook and loop strips.



3. Connect the seat backrest trim cover J-clip.
 4. Assemble the rear 60 percent seat. For additional information, refer to [Seat—Rear, 60% Portion of 60/40 Split Bench](#).
-

Seat —Back, Front Bucket, 6-Way Power, Except Limited

Disassembly



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of accidental deployment.



WARNING: Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live side air bag module down on the cover tear seam. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: A side air bag repair is made by installing a new component only. If a part is replaced and the new part does not correct the condition, install the original part and carry out the diagnostic procedure again.

NOTE: If a side air bag deployment took place the seat back pad, trim cover, and side air bag module must be replaced. The seatback frame should be replaced if necessary.

NOTE: Be sure to read and follow all air bag warnings in [Seat—Front Bucket, 6-Way Power, Except Limited](#), Disassembly and Assembly.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

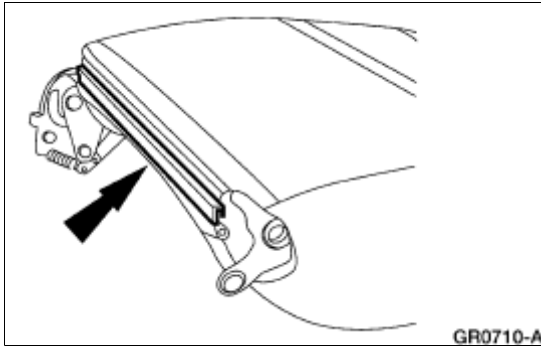
1. **NOTE:** Before disconnecting the battery, raise the seat to its highest position, then move and tilt the seat to its most forward position.

Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

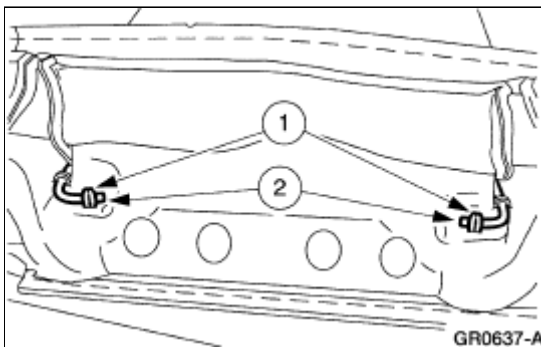
2. Disassemble the 6-way power front bucket seat. For additional information, refer to [Seat—Front Bucket, 6-Way Power, Except Limited](#).

3.  **WARNING:** Front seat back trim covers installed on seats equipped with side air bag cannot be repaired. They are to be replaced (cleaning is permissible).

Unhook the trim cover J-clip.

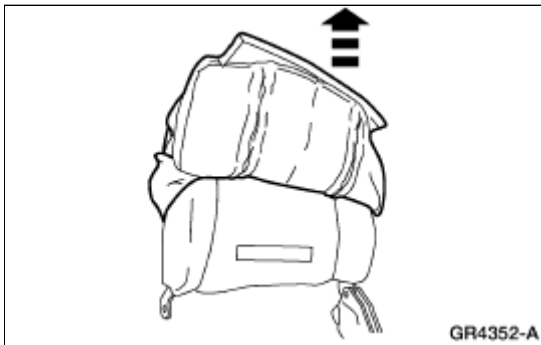


4. Remove the seat backrest trim cover swing rods.
 1. Remove and discard the hog rings.
 2. Remove the seat backrest trim cover cushion swing rods.

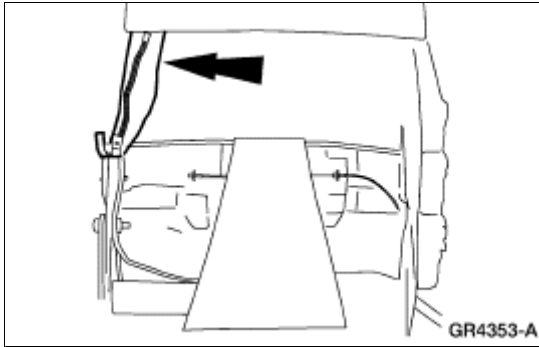


5.  **CAUTION:** Use care when separating the seat cushion trim cover from the hook and loop strip, or the hook and loop can be torn from the seat cushion foam.

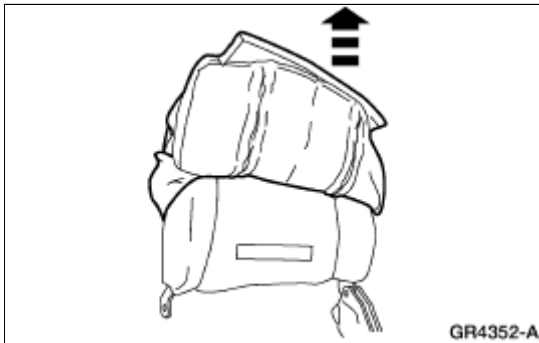
If equipped, roll the seatback trim cover in an inside out fashion to the side air bag deployment chute.



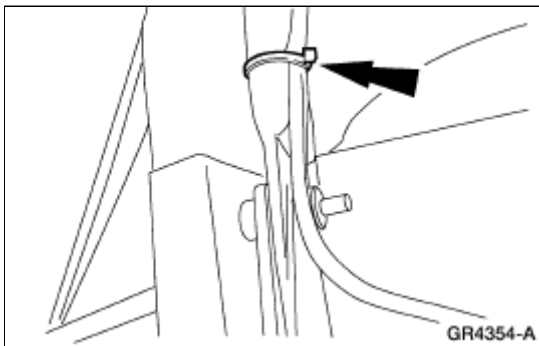
6. If equipped, unzip the side air bag deployment chute.



7. Roll the seat backrest trim cover up to expose the lower row of hog rings.



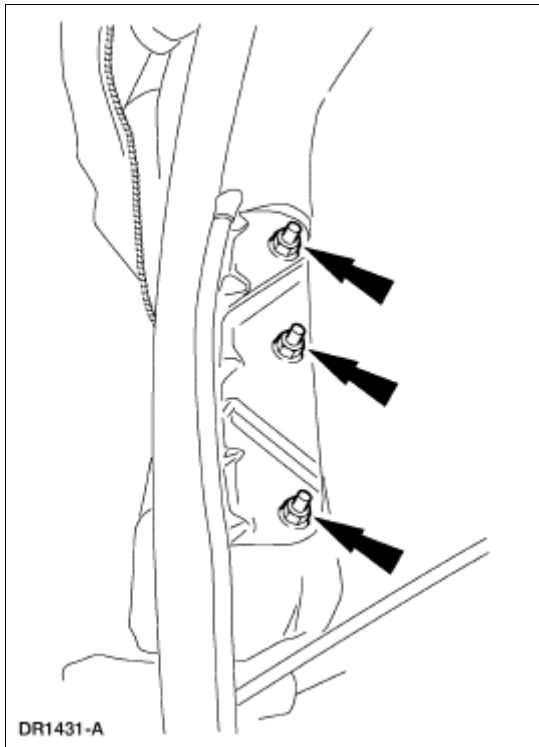
8. If equipped, remove the side air bag wiring harness wire tie.



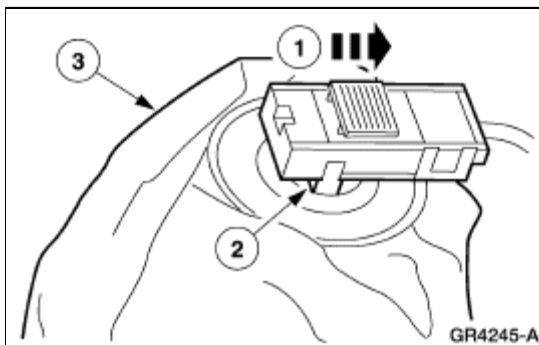
9. **NOTE:** If installing a new side air bag module use new retaining nuts. If the same side air bag module is to be used, then reuse the side air bag module retaining nuts.

If equipped, through the seat backrest cushion opening, position the side air bag module aside.

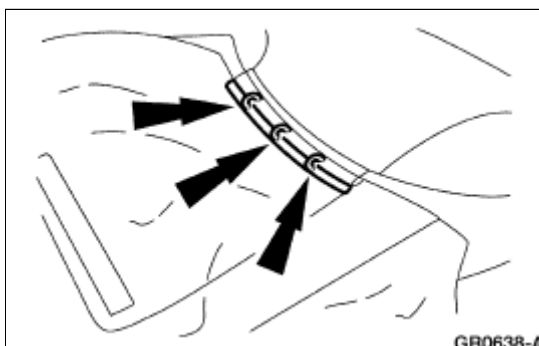
- Remove the retaining nuts.



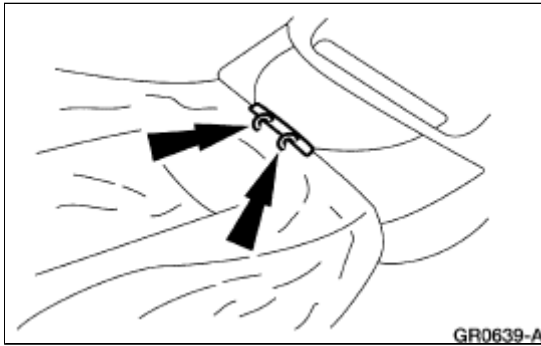
10. If equipped, remove the side air bag module.
 1. Slide the side air bag module electrical connector clip.
 2. Release the connector tabs by pushing in on them, then disconnect the side air bag module electrical connector.
 3. Remove the side air bag module.



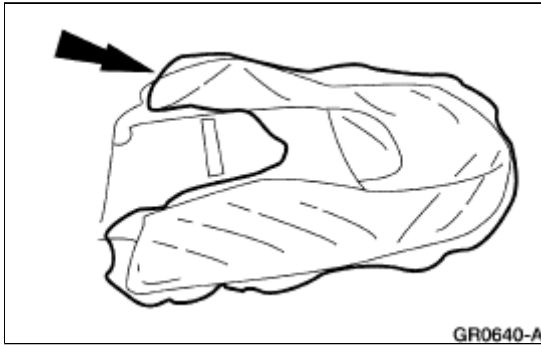
11. Remove and discard the lower row hog rings.



12. On leather seats, pull the seat backrest trim cover up to expose the upper row of hog rings.
13. On leather seats, remove and discard the upper row hog rings.

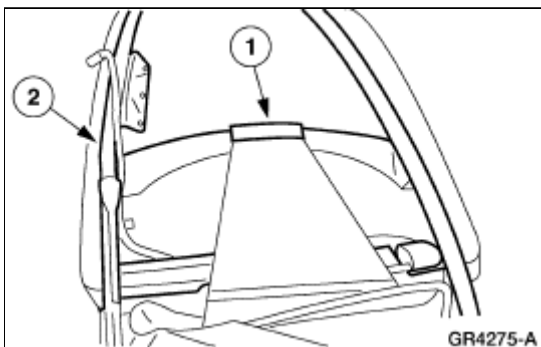


14. Remove the seat backrest trim cover.
15. Remove the plastic bag.

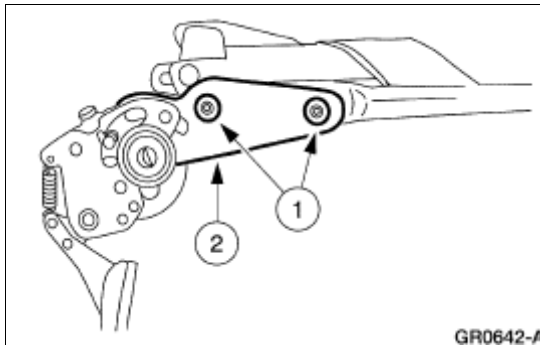


16. Remove the seat backrest frame from the seat backrest foam.
 1. Remove the J-clip.
 2. **NOTE:** The seat backrest foam may be glued to the seat backrest frame.

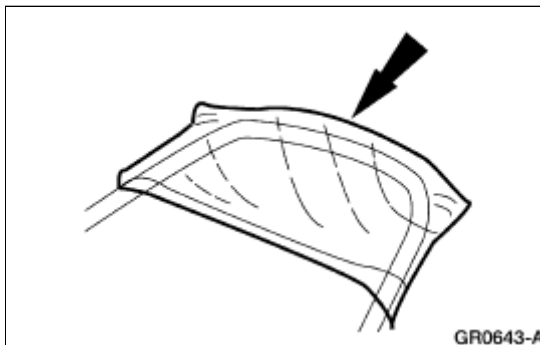
Remove the seat backrest frame from the seat backrest foam.



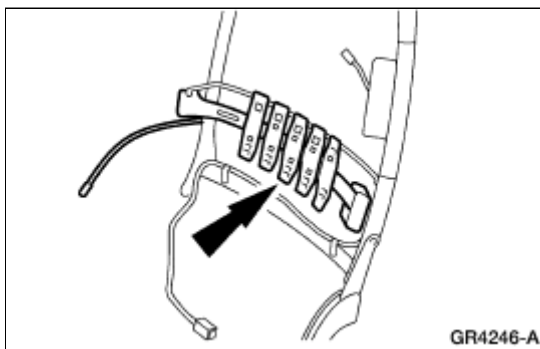
17. Remove the front seat backrest latch.
 1. Remove the bolts.
 2. Remove the front seat backrest latch.



18. Remove the plastic bag from the top of the seat backrest frame.

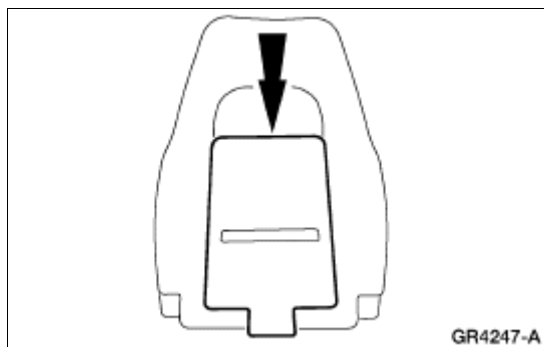


19. Remove the lumbar support adjuster.
- Release the clips.

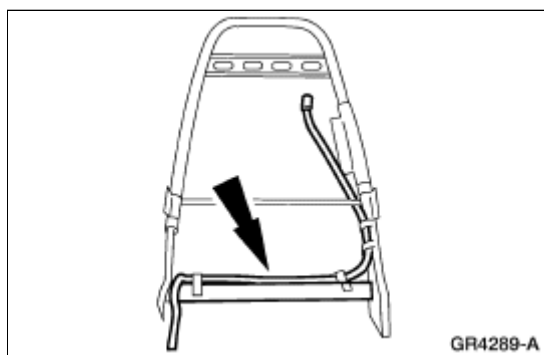


20.  **CAUTION:** Any time the seat backrest heating element is removed from the seat backrest foam, the foam must be replaced.

If equipped, remove the seat backrest heating element from the seat backrest foam.



21. If equipped, remove the side air bag wiring harness.
- Disconnect the pin-type retainers from the seat backrest frame.



Assembly

 **WARNING:** Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.

 **WARNING:** Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

 **WARNING:** Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.

 **WARNING:** Check the side air bag deployment chute and zipper for damage. The deployment chute and zipper must not be repaired. If there is any damage to the deployment chute or zipper, the seat back trim cover and deployment chute must be installed new as a unit. Failure to do so may result in personal injury.

 **WARNING:** The deployment seam cannot be repaired or resewn. A trim cover requiring replacement of the bolster or side facing must be replaced as a unit.

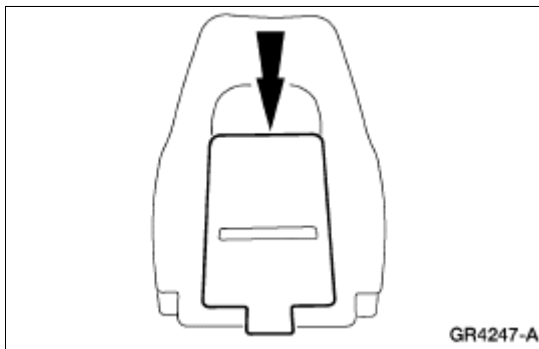
 **WARNING:** If the air bag deployment chute is not properly positioned and completely zipped, the side air bag may not deploy properly. Failure to follow these instructions may result in personal injury.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

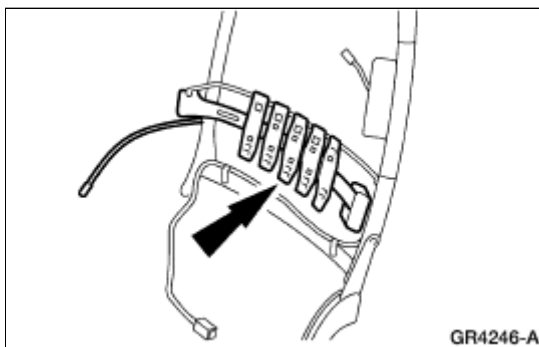
1. If equipped, install the side air bag wiring harness.
 - Connect the pin-type retainer to the seat backrest frame.



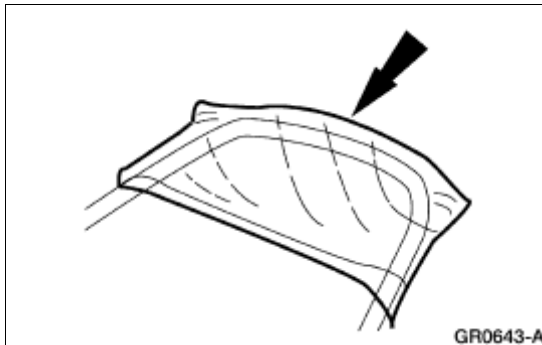
2. If equipped, install the seat backrest heating element.



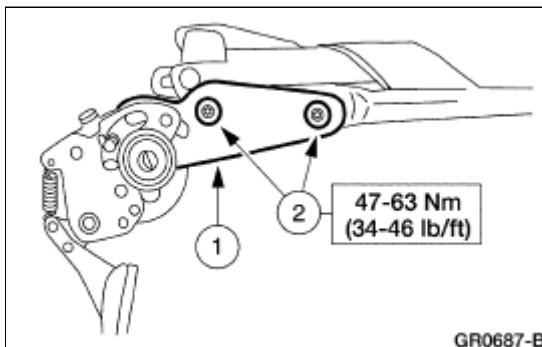
3. Install the lumbar support adjuster.
 - Clip the ends to the seat backrest frame.



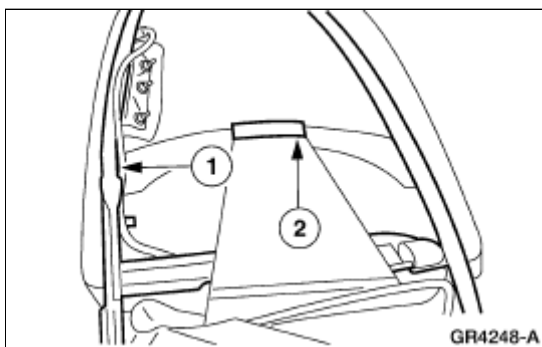
4. Install the plastic bag on the top of the seat backrest frame.



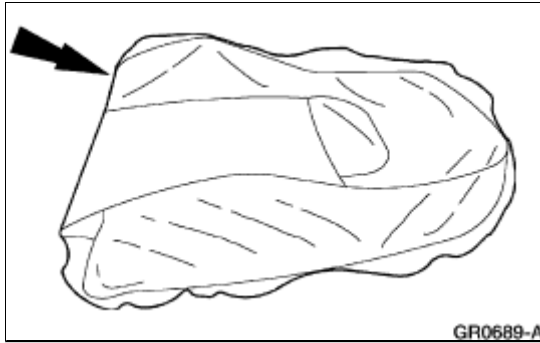
5. Install the front seat backrest latch (62648).
 1. Position the front seat backrest latch.
 2. Install the bolts.



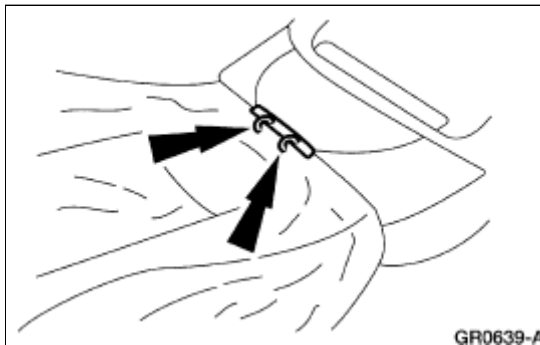
6. Install the seat backrest frame into the seat backrest foam.
 1. Install the seat backrest frame into the seat backrest foam.
 2. Install the J-clip.



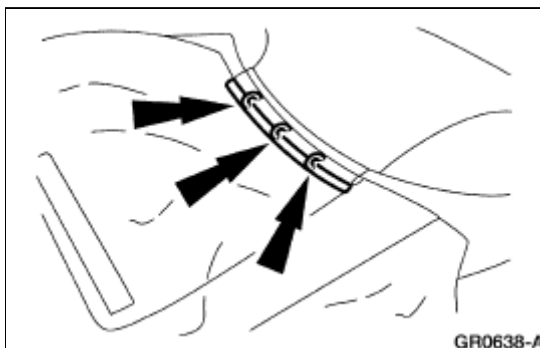
7. Install the plastic bag over the seat backrest.



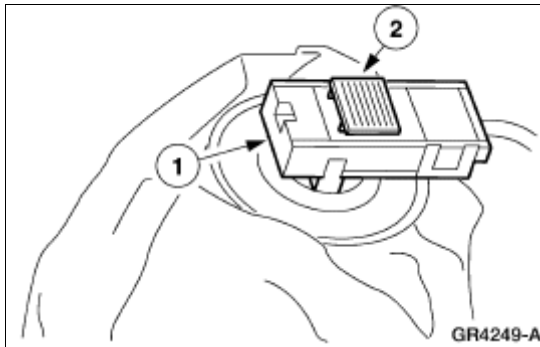
8. Pull the seat backrest trim cover to the upper cutout in the seat backrest.
9. On leather seat, install the upper row of hog rings.



10. Pull the seat backrest trim cover to the lower cutout in the seat backrest.
11. Install the lower row of hog rings.



12. If equipped, connect the side air bag module electrical connector.
 1. Plug the electrical connector into the side air bag module.
 2. Slide the locking clip into position.



13. If equipped, make sure the side air bag module electrical connector is securely fastened to the side air bag module.

14.  **WARNING:** Inspect the mounting surfaces of the side air bag module and the seat back frame mounting bracket for any foreign objects before installing the side air bag module. If any foreign objects are found, remove them. Failure to do so may result in personal injury, in the event of an air bag deployment.

 **WARNING:** Inspect the side air bag deployment chute and the side air bag cavity in the seat back pad for any foreign objects. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.

 **WARNING:** Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury, in the event of an air bag deployment.

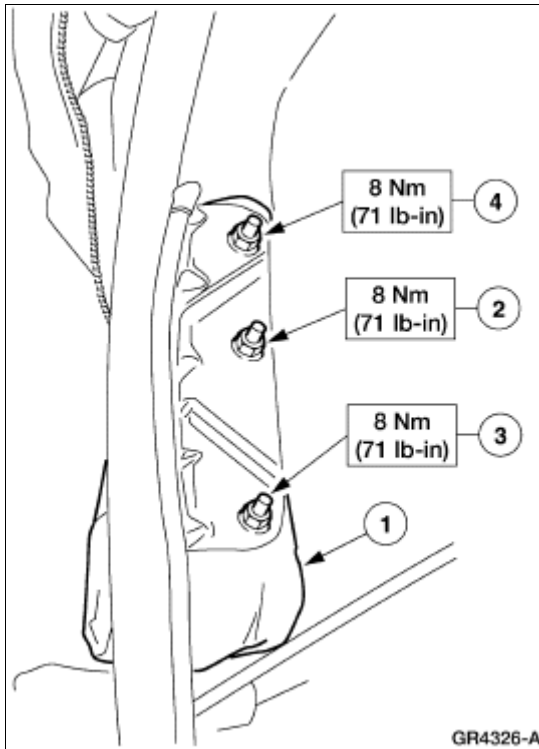
 **WARNING:** If the air bag cover has separated or the air bag material has been exposed, install a new side air bag module. Do not attempt to repair the air bag module. Failure to do so may result in personal injury in the event of an air bag deployment.

 **CAUTION:** The retaining nuts of the side air bag module must be tightened in the sequence described.

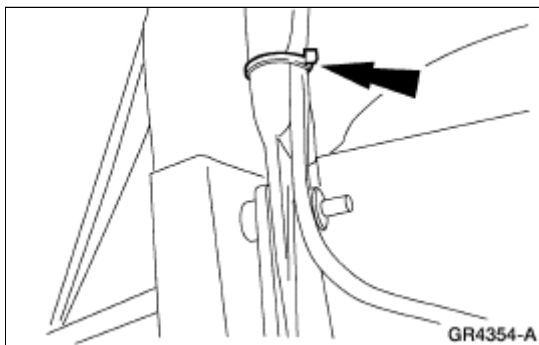
 **CAUTION:** Be sure the side air bag wiring harness is not pinched between the side air bag module and the mounting bracket.

If equipped, install the side air bag module onto the front seat back frame mounting bracket.

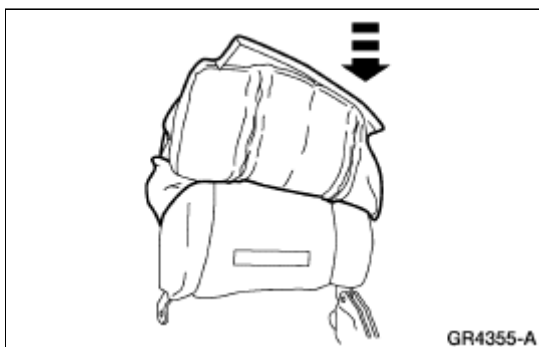
1. Position the side air bag module onto the front seat back mounting bracket being sure the side air bag wiring harness is located behind the seat backrest frame.
2. Install the side air bag module retaining nut.
3. Install the side air bag module retaining nut.
4. Install the side air bag module retaining nut.



15. If equipped, install the side air bag wiring harness wire tie.



16. If equipped, roll the seat backrest trim cover to position the deployment chute around the side air bag module.



17.  **WARNING:** Check the side air bag deployment chute and zipper for damage. The

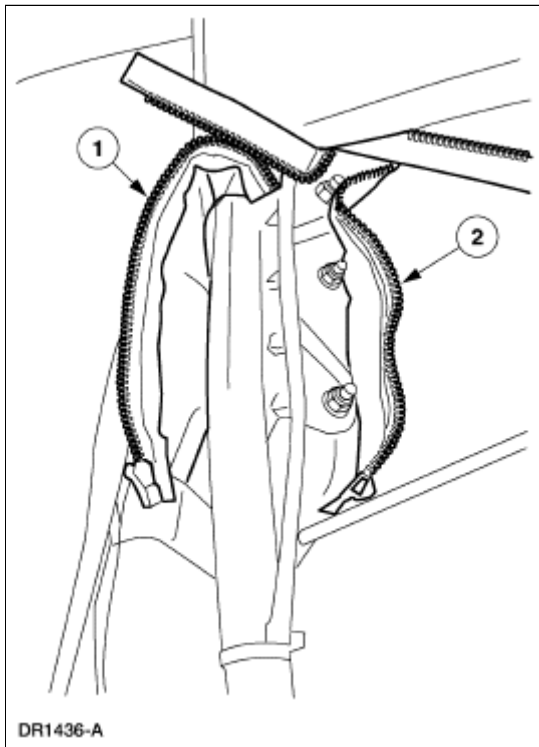
deployment chute and zipper must not be repaired. If there is any damage to the deployment chute or zipper the seat back trim cover and deployment chute must be installed new as a unit.



WARNING: If the air bag deployment chute is not properly positioned and completely zipped, the side air bag may not deploy properly.

If equipped, position the side air bag deployment chute.

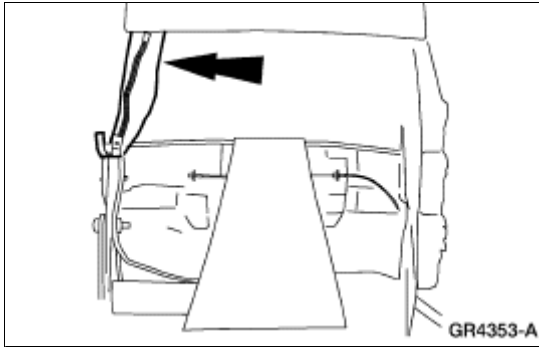
1. Insert the outboard side of the air bag deployment chute between the seat back pad and the side air bag module, pulling it around the outboard side of the seat back frame.
2. Insert the inboard side of the air bag deployment chute between the seat back pad and the side air bag module from the inboard side of the seat back.



18. **NOTE:** Be sure the side air bag deployment chute is properly positioned, before proceeding to Step 19.

If equipped, zip the air bag deployment chute completely closed, then position the zipper tails at the top and bottom of the deployment chute, into the seat back opening.

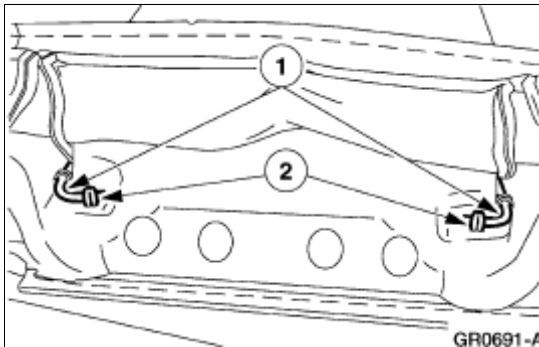
- The side air bag deployment chute must encircle the side air bag module, going completely around the side air bag module and the side of the seat back frame.
- Align the side air bag deployment chute to the side air bag module, making sure it covers the length of the side air bag module.



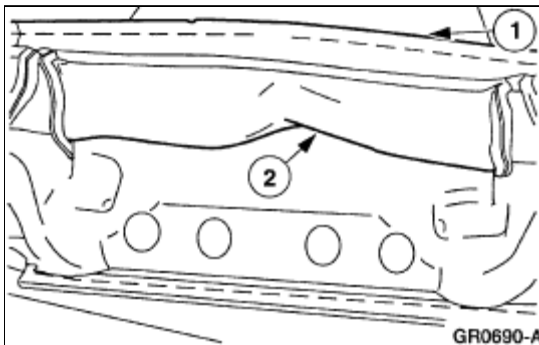
19. **NOTE:** Make sure that the top of the swing rod is positioned beneath the listing wire near the lower row of hog rings.

Install the seat backrest trim cover swing rods.

1. Position the seat backrest trim cover and install the swing rods through the sleeves.
2. Install the hog rings.



20. Connect the hook and loop fastener to the seat backrest trim cover.
1. Pull the seat backrest trim cover completely down.
 2. Reach up inside the seat backrest and grab the plastic above the hook and loop. Remove enough plastic to expose the hook and loop.

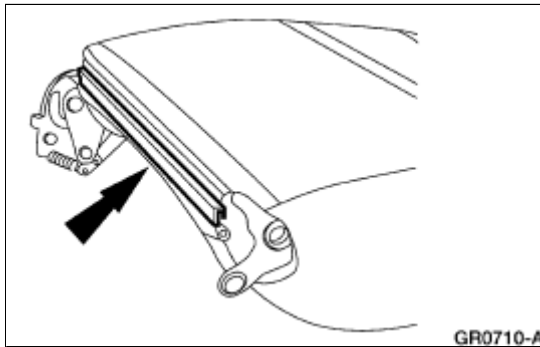


21. **NOTE:** If equipped, make sure that the seat backrest heating element wire is aligned with and off-set from the lower seat backrest trim cover J-clip.

NOTE: Check that the lumbar strap is secure to the wire paddle before closing the trim cover.

NOTE: If equipped with a side air bag module, check the positioning of the air bag deployment chute before closing the trim cover.

Hook the trim cover clips.



22. **NOTE:** Be sure to read and follow all air bag warnings in [Seat—Front Bucket, 6-Way Power, Except Limited](#), Disassembly and Assembly.

Assemble the 6-way power front bucket seat. For additional information, refer to [Seat—Front Bucket, 6-Way Power, Except Limited](#).

23.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

24. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).

25. Check the restraint system for proper operation.
-

Seat —Back, Front Bucket, Limited

Disassembly



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live side air bag module down on the cover tear seam. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: A side air bag repair is made by installing a new component only. If a part is replaced and the new part does not correct the condition, install the original part and carry out the diagnostic procedure again.

NOTE: If a side air bag deployment took place the seat back pad, trim cover, and side air bag module must be replaced. The seat back frame should be replaced as necessary.

NOTE: Be sure to read and follow all air bag warnings in [Seat—Front Bucket, Limited](#), Disassembly and Assembly.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

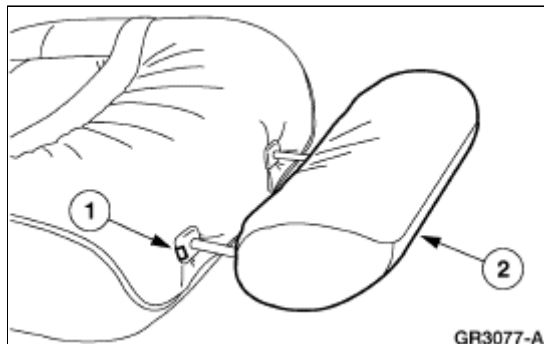
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1. **NOTE:** Before disconnecting the battery, raise the seat to its highest position, then move and tilt the seat to its most forward position.

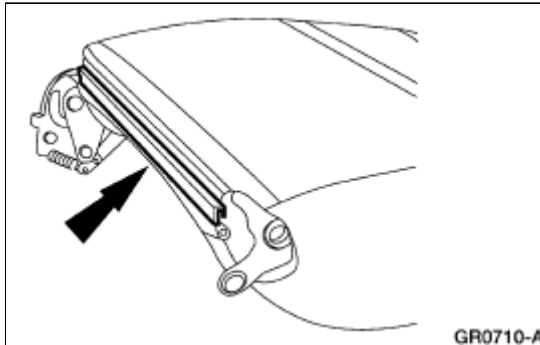
Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

2. Disassemble the seat. For additional information, refer to [Seat—Front Bucket, Limited](#).
3. Remove the head restraint.
 1. Press the head restraint release button.
 2. Remove the head restraint.

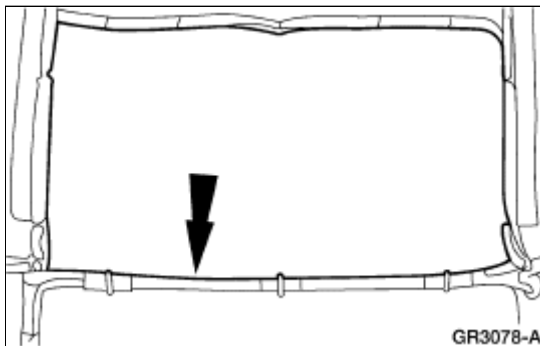


4.  **WARNING:** Front seat back trim covers installed on seats equipped with side air bags cannot be repaired. They are to be replaced (cleaning is permissible).

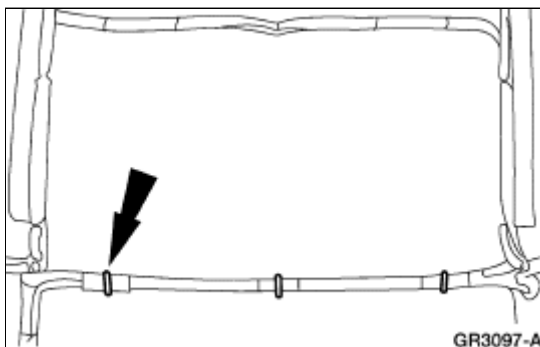
Unhook the seat backrest trim cover J-clip.



5. Roll the seat backrest trim cover to the first row of hog rings.
6. Remove and discard the hog rings.
7. Roll the seat backrest trim cover to the second row of hog rings.

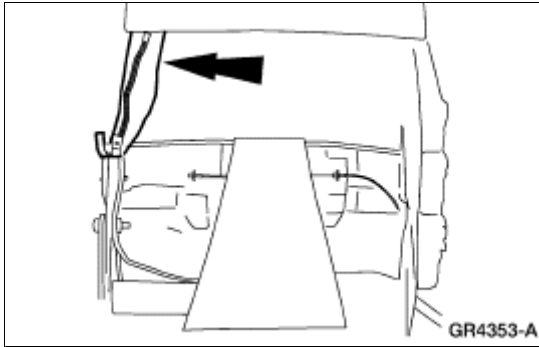


8. Remove and discard the hog rings.

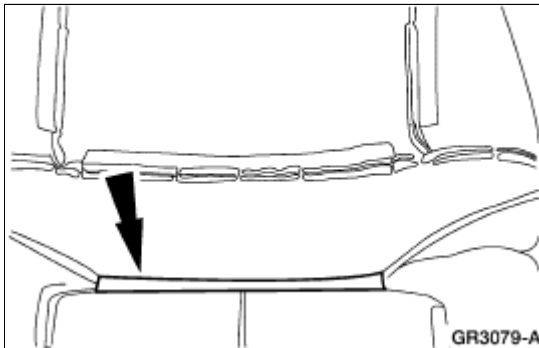


9. If equipped, roll the seat backrest trim cover to the side air bag deployment chute.
10. **NOTE:** Sport bucket seat shown; Limited seat similar.

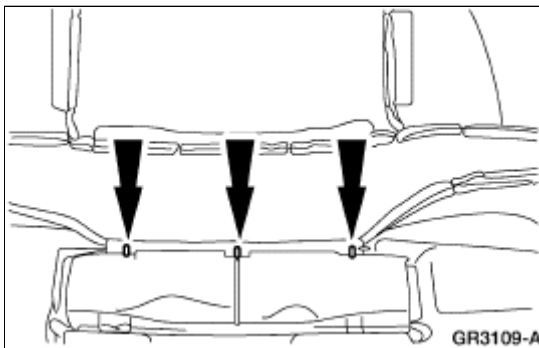
If equipped, unzip the side air bag deployment chute.



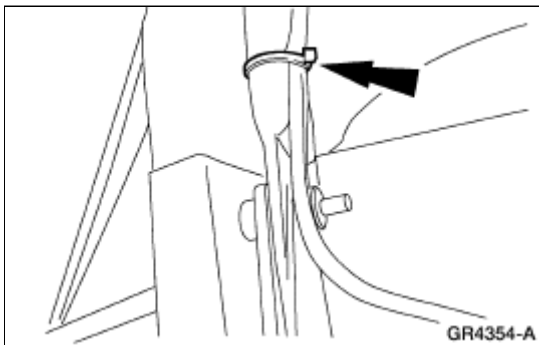
11. Roll the seat backrest trim cover to the top row of hog rings.



12. Remove and discard the hog rings.



13. If equipped, remove the side air bag wiring harness wire tie.

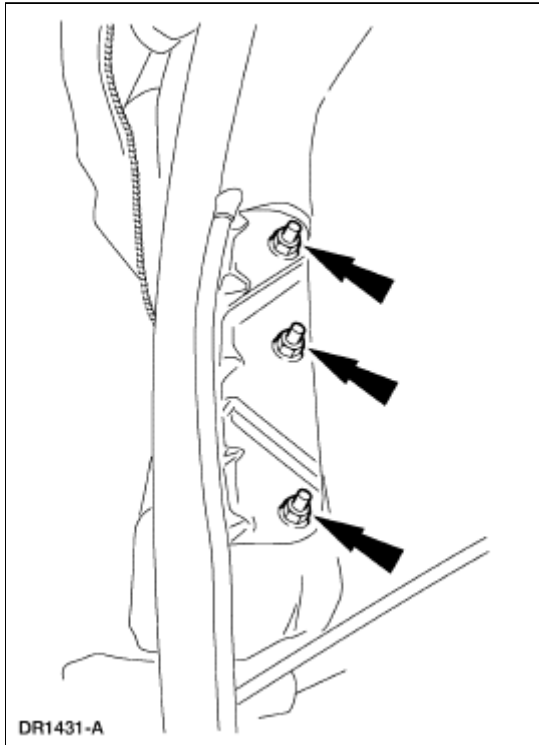


14. **NOTE:** If installing a new side air bag module use new retaining nuts. If the same side air bag module

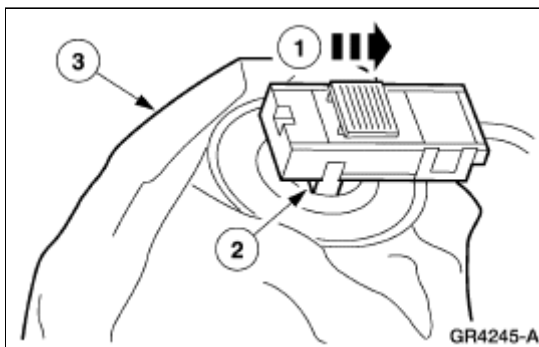
is to be used, then reuse the side air bag module retaining nuts.

If equipped, through the seat backrest cushion opening, position the side air bag module aside.

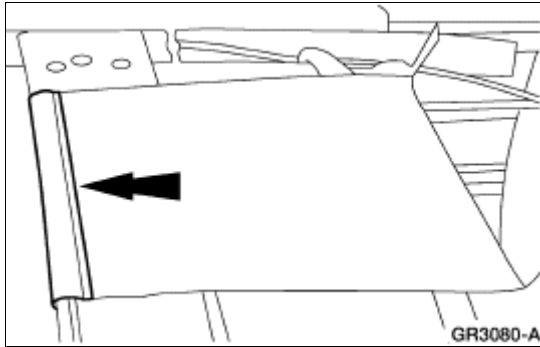
- Remove the retaining nuts.



15. If equipped, remove the side air bag module.
 1. Slide the side air bag module electrical connector clip.
 2. Release the connector tabs by pushing in on them, then disconnect the side air bag module electrical connector.
 3. Remove the side air bag module.



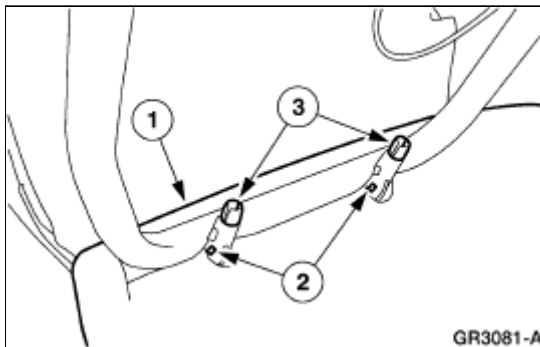
16. Finish inverting the seat backrest trim cover.
17. Unhook the seat backrest foam J-clip.



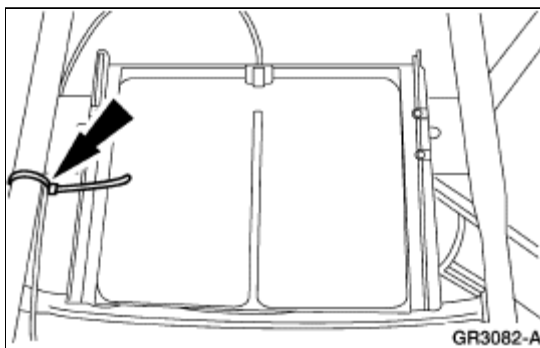
18. **NOTE:** Removing the head restraint guide sleeves will also remove the seat backrest trim cover and the seat backrest foam.

Remove the head restraint guide sleeves.

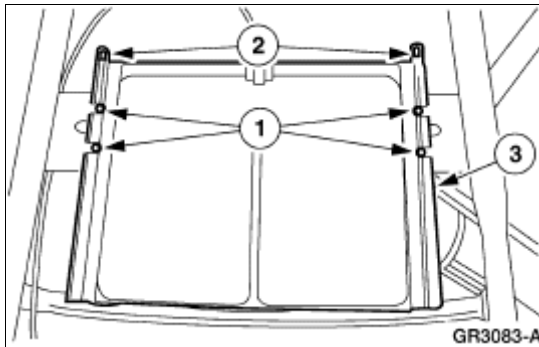
1. Position the seat backrest cushion to gain access to the head restraint guide sleeves.
2. Press the head restraint guide sleeve tabs.
3. Remove the head restraint guide sleeve.
 - Remove the head restraint guide sleeves from the seat backrest trim cover and inspect them for damage.



19. Remove the wire tie.



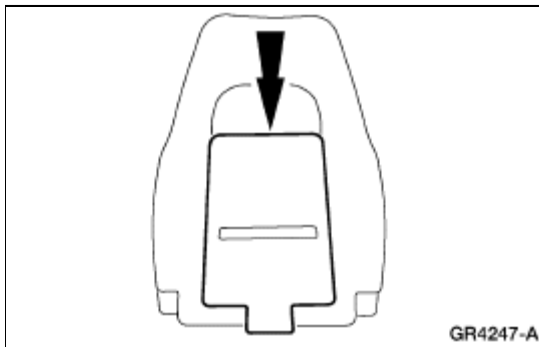
20. Remove the lumbar support adjuster.
1. Open the tabs enough to remove the tension on the listing wires.
 2. Remove the listing wires.
 3. Remove the lumbar support adjuster.



21.  **CAUTION:** Any time the seat backrest heating element is removed from the seat backrest foam, the foam must be replaced.

NOTE: Sport bucket seat shown; Limited seat similar.

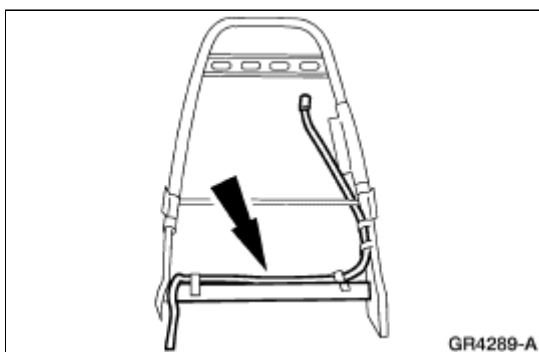
If equipped, and if necessary, remove the seat backrest heating element from the seat backrest foam.



22. **NOTE:** Sport bucket seat shown; Limited seat similar.

If equipped, remove the side air bag wiring harness.

- Disconnect the pin-type retainers from the seat backrest frame.



Assembly

 **WARNING:** Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.

 **WARNING:** Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

 **WARNING:** Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.

 **WARNING:** Check the side air bag deployment chute and zipper for damage. The deployment chute and zipper must not be repaired. If there is any damage to the deployment chute or zipper, the seat back trim cover and deployment chute must be installed new as a unit. Failure to do so may result in personal injury.

 **WARNING:** The deployment seam cannot be repaired or resewn. A trim cover requiring replacement of the bolster or side facing must be replaced as a unit.

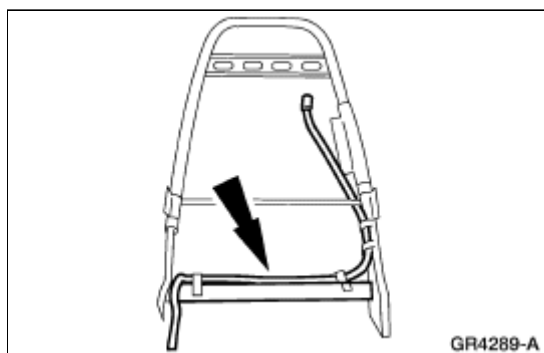
 **WARNING:** If the air bag deployment chute is not properly positioned and completely zipped, the side air bag may not deploy properly. Failure to follow these instructions may result in personal injury.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. **NOTE:** Sport bucket seat shown; Limited seat similar.

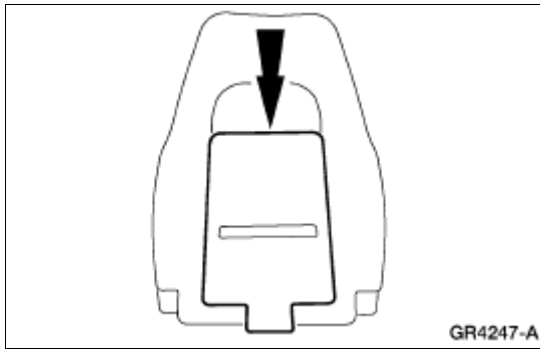
If equipped, install the side air bag wiring harness.

- Connect the pin-type retainers to the seat backrest frame.

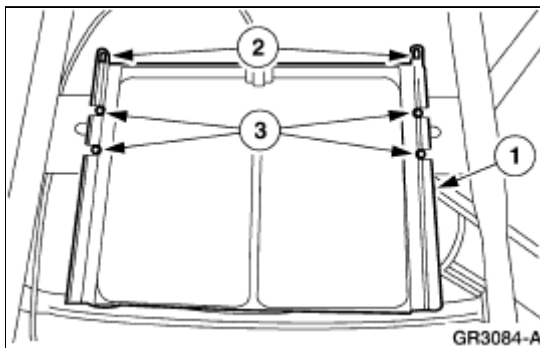


2. **NOTE:** Sport bucket seat shown; Limited seat similar.

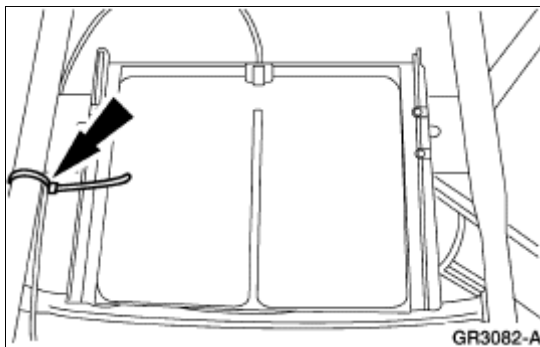
If equipped, and if necessary, install the seat backrest heating element.



3. Install the lumbar support adjuster.
 1. Position the lumbar support adjuster.
 2. Install the listing wires.
 3. Close the tabs enough to place tension on the listing wires without bending them.

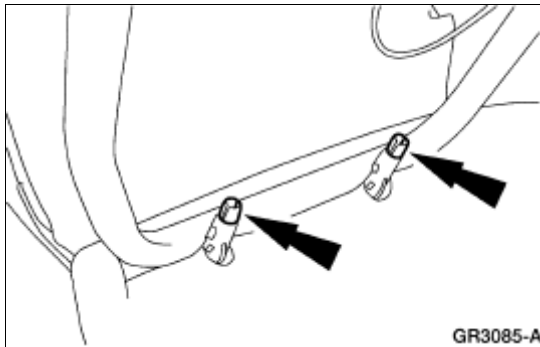


4. Install the wire tie.

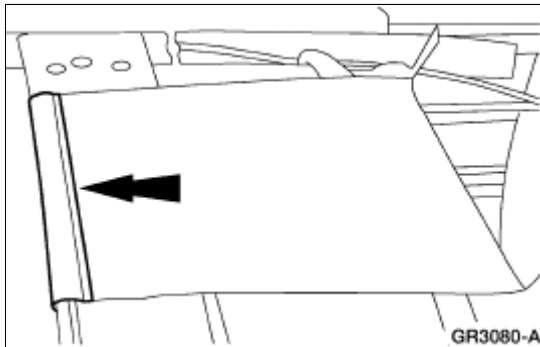


5. Position the seat backrest foam on the seat backrest frame.
6. **NOTE:** The head restraint guide sleeves are keyed; make sure they are aligned with the seat backrest frame and the head restraint guide bars before installing them in the seat backrest trim cover.

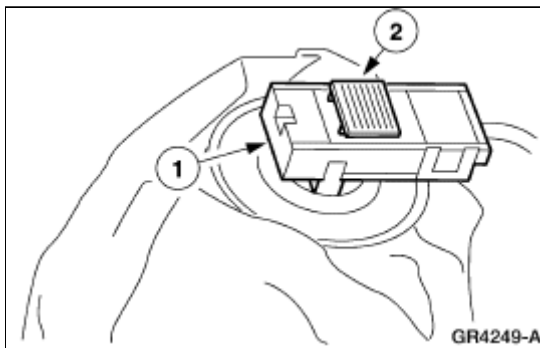
Install the head restraint guide sleeves.



7. Hook the seat backrest foam J-clip.



8. If equipped, connect the side air bag module electrical connector.
 1. Plug the electrical connector into the side air bag module.
 2. Slide the locking clip into position.



9. If equipped, make sure the side air bag module electrical connector is securely fastened to the side air bag module.
10.  **WARNING:** Inspect the mounting surfaces of the side air bag module and the seat back frame mounting bracket for any foreign objects before installing the side air bag module. If any foreign objects are found, remove them. Failure to do so may result in personal injury, in the event of an air bag deployment.

 **WARNING:** Inspect the side air bag deployment chute and the side air bag cavity in the seat back pad for any foreign objects. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.

WARNING: Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury, in the event of an air bag deployment.

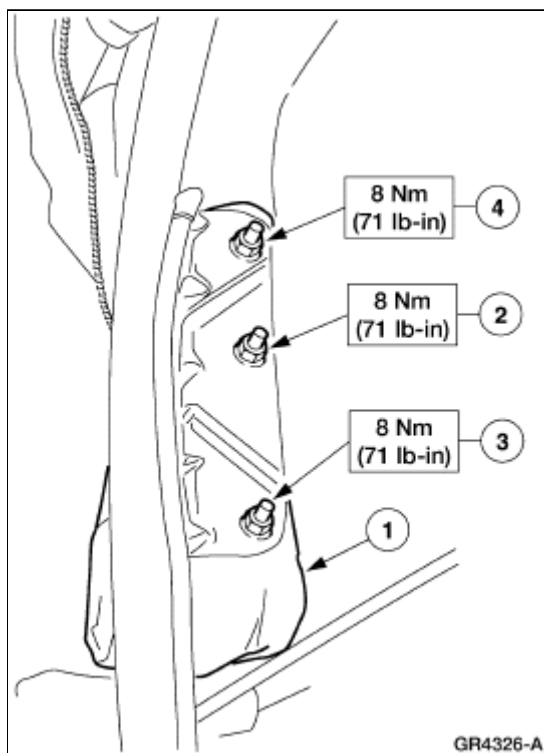
WARNING: If the air bag cover has separated or the air bag material has been exposed, install a new side air bag module. Do not attempt to repair the air bag module. Failure to do so may result in personal injury in the event of an air bag deployment.

CAUTION: The retaining nuts of the side air bag module must be tightened in the sequence described.

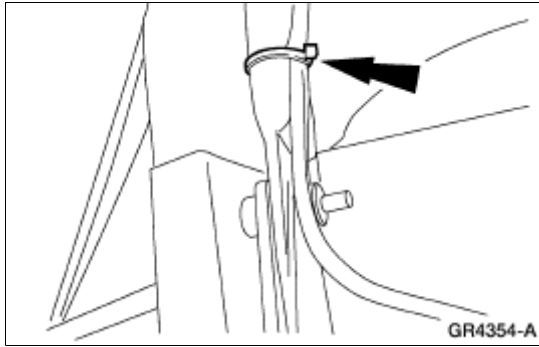
CAUTION: Be sure the side air bag wiring harness is not pinched between the side air bag module and the mounting bracket.

If equipped, install the side air bag module onto the front seat back frame mounting bracket, being sure the side air bag wiring harness is located behind the seat backrest frame.

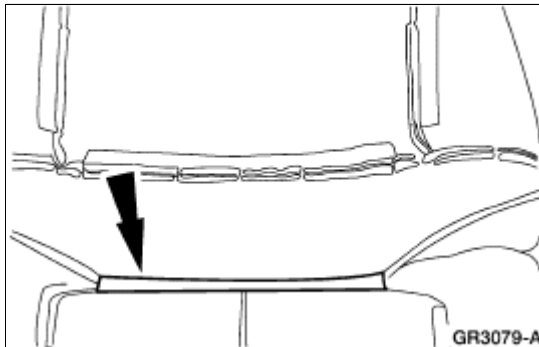
1. Position the side air bag module onto the front seat back mounting bracket.
2. Install the side air bag module retaining nut.
3. Install the side air bag module retaining nut.
4. Install the side air bag module retaining nut.



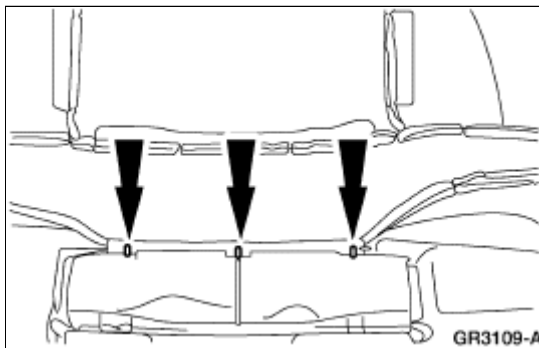
11. If equipped, install the side air bag wiring harness wire tie.



12. Unroll the seat backrest trim cover to the top row of hog rings.



13. Install the hog rings.



14. If equipped, roll the seat back trim cover to position the deployment chute around the side air bag module.

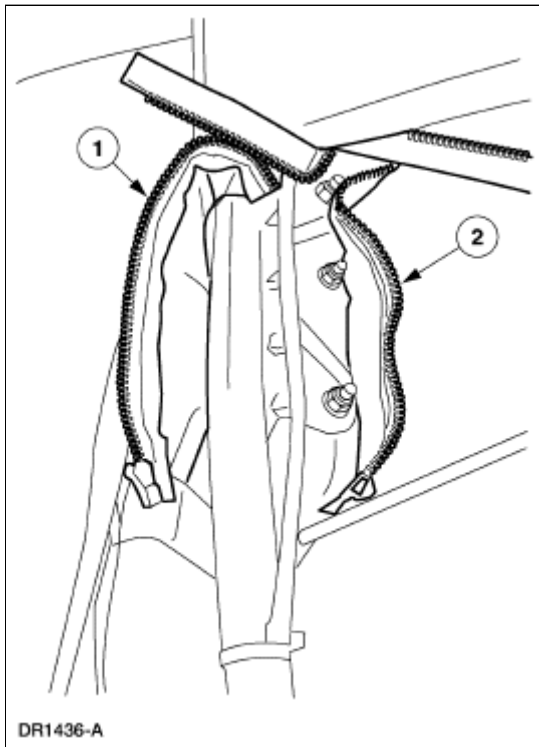
15.  **WARNING:** Check the side air bag deployment chute and zipper for damage. The deployment chute and zipper must not be repaired. If there is any damage to the deployment chute or zipper the seat back trim cover and deployment chute must be installed new as a unit.

 **WARNING:** If the air bag deployment chute is not properly positioned and completely zipped, the side air bag may not deploy properly.

If equipped, position the air bag deployment chute.

1. Insert the outboard side of the air bag deployment chute between the seat back pad and the side air bag module, pulling it around the outboard side of the seat back frame.

2. Insert the inboard side of the air bag deployment chute between the seat back pad and the side air bag module from the inboard side of the seat back.

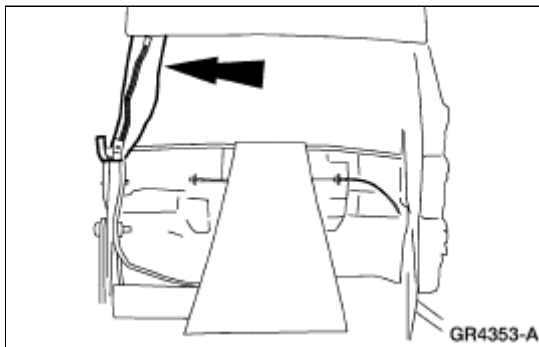


16. **NOTE:** Sport bucket seat shown; Limited seat similar.

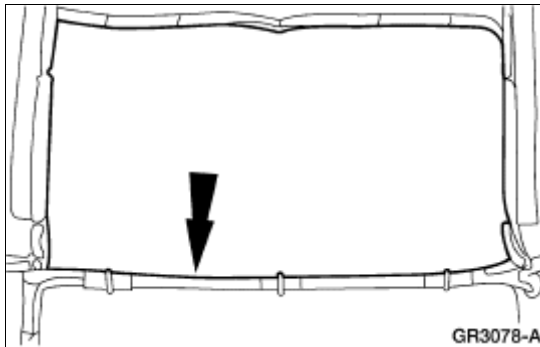
NOTE: Be sure the side air bag deployment chute is properly positioned, before proceeding to Step 17.

Zip the air bag deployment chute completely closed, then position the zipper tails at the top and bottom of the deployment chute, into the seat back opening.

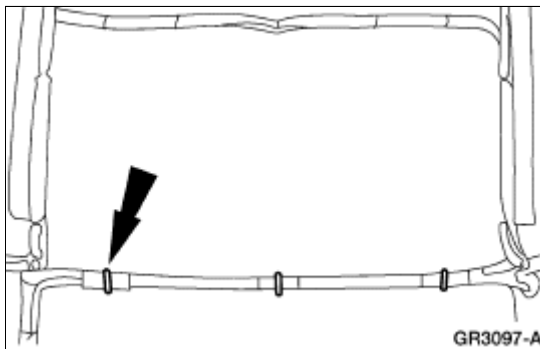
- The side air bag deployment chute must encircle the side air bag module, going completely around the side air bag module and the side of the seat back frame.
- Align the side air bag deployment chute to the side air bag module, making sure it covers the length of the side air bag module.



17. Unroll the seat backrest trim cover to the second row of hog rings.

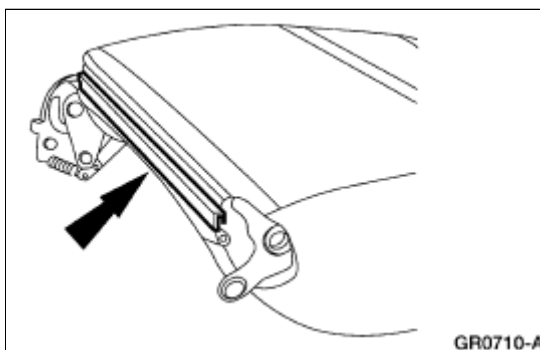


18. Install the hog rings.

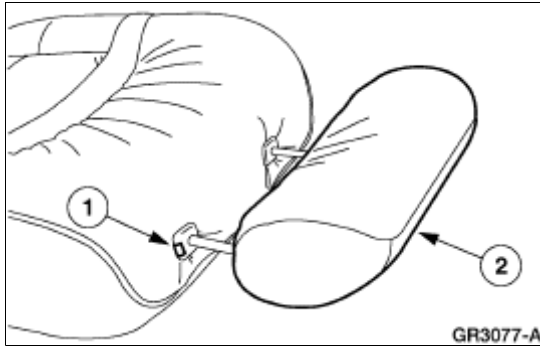


19. Unroll the seat backrest trim cover to the bottom row of hog rings.
20. Install the hog rings.
21. **NOTE:** If equipped, make sure that the seat backrest heating element wire is aligned with and off-set from the lower seat backrest trim cover J-clip.

Hook the seat backrest trim cover J-clip.



22. Install the head restraint.
1. Press the head restraint release button.
 2. Install the head restraint.



23. **NOTE:** Be sure to read and follow all air bag warnings in [Seat—Front Bucket, Limited](#), Disassembly and Assembly.

Assemble the seat. For additional information, refer to [Seat—Front Bucket, Limited](#).

24.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

25. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).

26. Check the restraint system for proper operation.
-

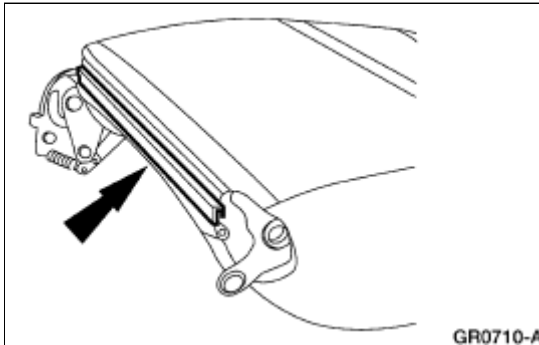
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

Seat —Back, Front Bucket, Manual

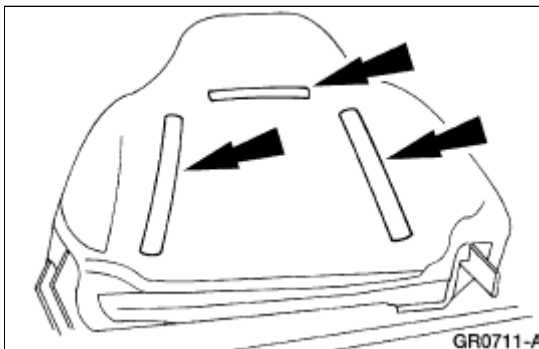
Disassembly

1. Disassemble the manual front bucket seat. For additional information, refer to [Seat—Front Bucket, Manual](#).
2. Unhook the seat backrest trim cover J-clip.

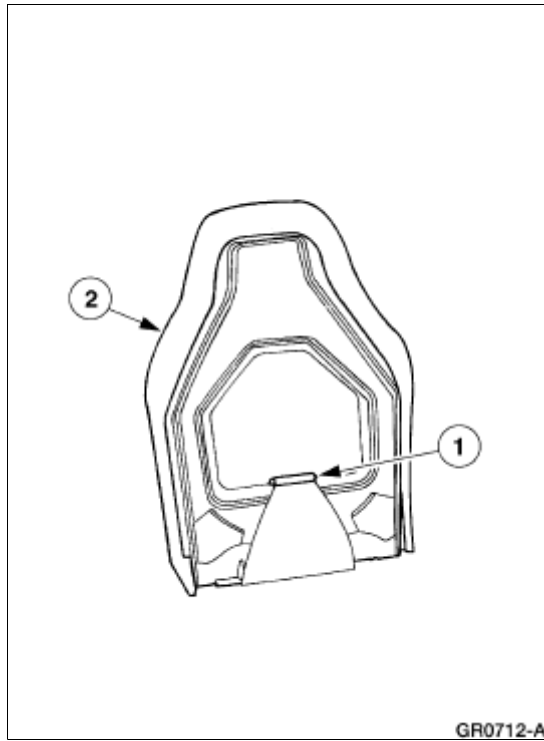


3.  **CAUTION:** Use care when separating the seat backrest trim cover from the hook and loop strip or the hook and loop strip may be torn from the seat backrest foam.

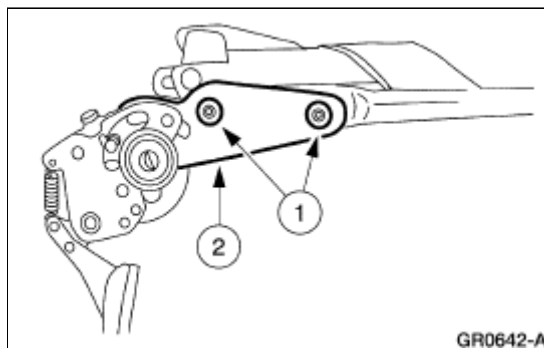
Disengage the hook and loop strips and remove the seat backrest trim cover.



4. Remove the seat back padding from the seat back frame.
 1. Remove the J-hook.
 2. Remove the seat back padding from the seat back frame.

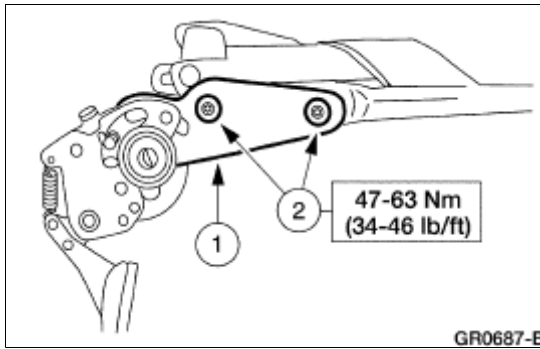


5. Remove the front seat backrest latch (62648).
 1. Remove the bolts.
 2. Remove the front seat backrest latch.

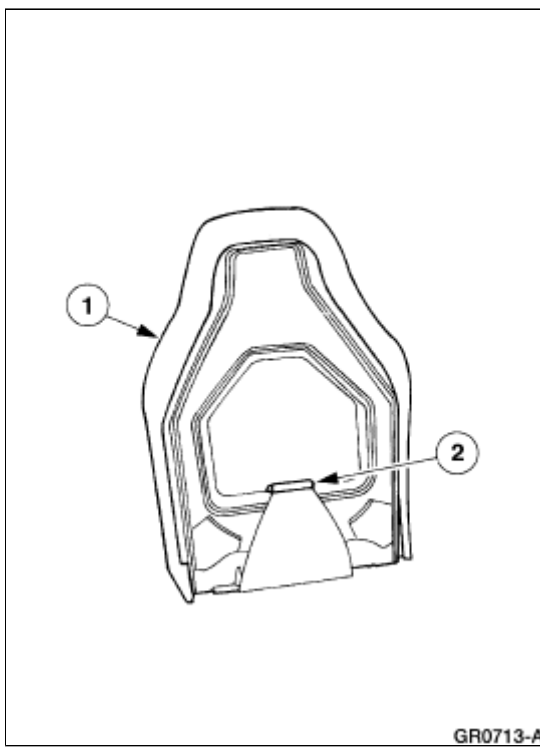


Assembly

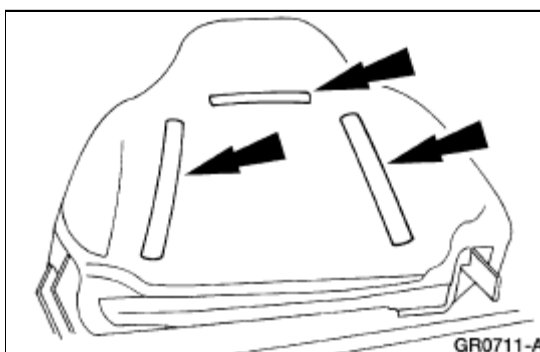
1. Install the front seat backrest latch.
 1. Position the front seat backrest latch.
 2. Install the bolts.



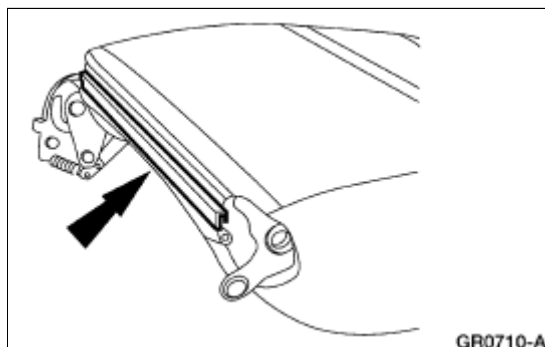
2. Install the seat back padding into the seat back frame.
 1. Install the seat back frame into the seat back padding.
 2. Install the J-hook.



3. Install the seat backrest trim cover.
 - Connect the hook and loop strips to the seat backrest trim cover.



4. Hook the seat backrest trim cover J-clips.



5. Assemble the manual front bucket seat. For additional information, refer to [Seat—Front Bucket, Manual](#).
-

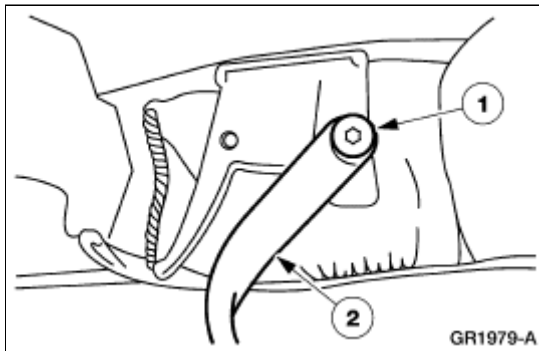
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

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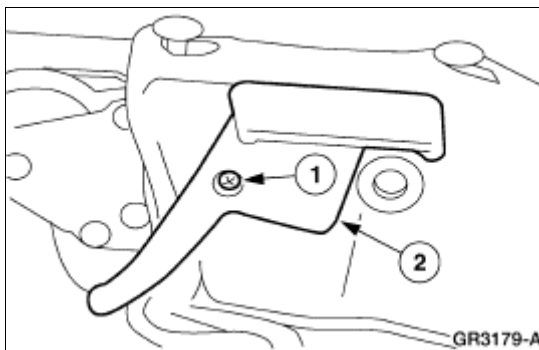
Seat —Back, Rear 50/50 Split Bench

Disassembly

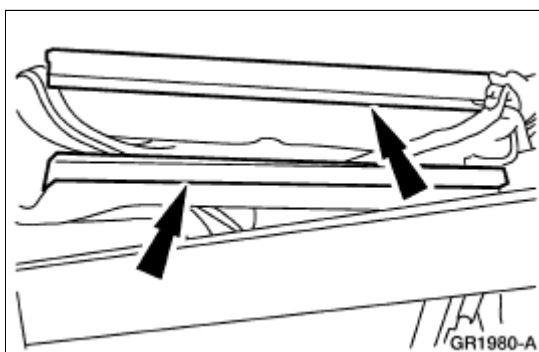
1. Remove the rear seat link from the seat backrest.
 1. Remove the bolt.
 2. Remove the rear seat link.



2. Remove the seat backrest adjuster handle.
 1. Remove the screw.
 2. Remove the seat backrest adjuster handle.

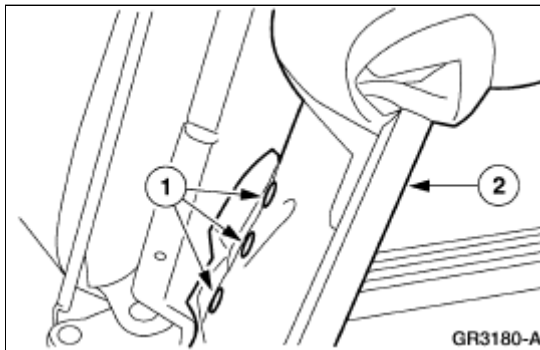


3. Disconnect the seat backrest trim cover.

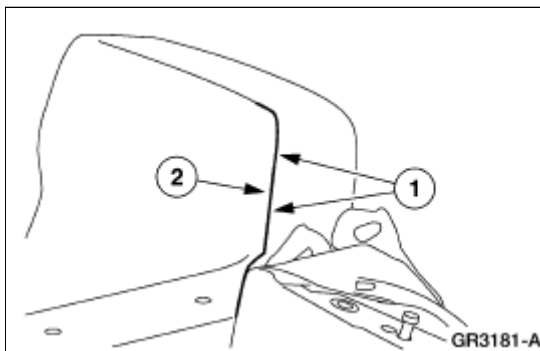


4. Roll back the seat backrest trim cover.

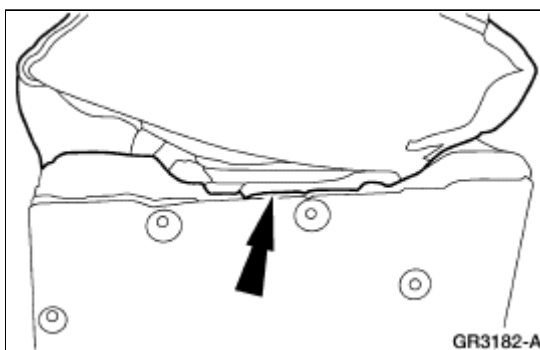
1. Disconnect the pin-type retainers.
2. Roll back the seat backrest trim cover.



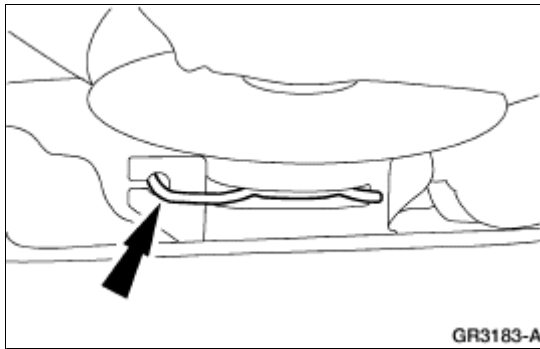
5. Remove the staples.
6. Roll back the seat backrest trim cover.
 1. Disconnect the pin-type retainers.
 2. Roll back the seat backrest trim cover.



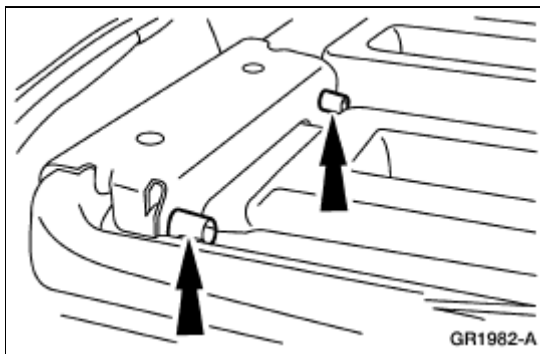
7. Remove the staples.
8. Roll the seat backrest trim cover up completely.



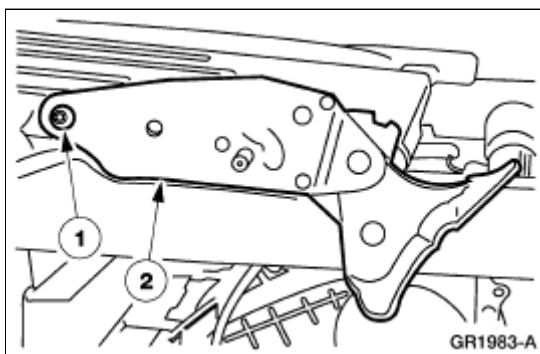
9. Remove the two head restraint lock springs.



10. Remove the head restraint.
11. Remove the seat backrest foam.
12. Remove the head restraint guide sleeves.
 - Depress the tangs to release.

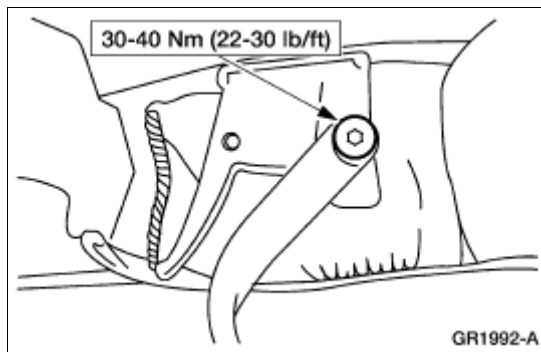
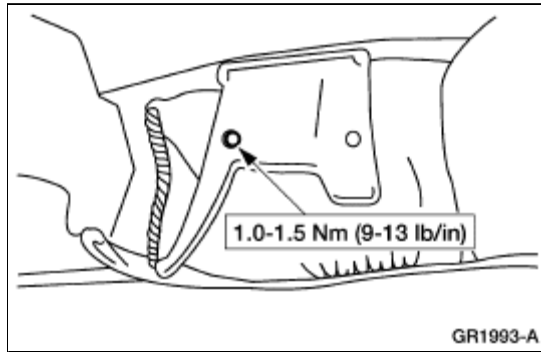
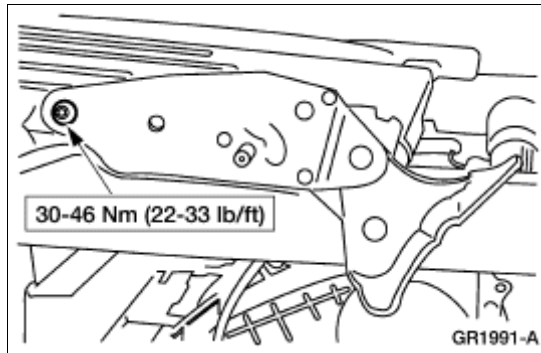


13. Remove the rear seat backrest latch assembly from the seat backrest.
 1. Remove the bolt.
 2. Remove the rear seat backrest latch assembly.



Assembly

1. To assemble, reverse the disassembly procedure.



SECTION 501-10: Seating
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Seat —Cushion, 40% Portion of Front 60/40 Split Bench

Disassembly

1. For the disassembly of the 40 percent front seat cushion, refer to [Seat—Cushion, Front Bucket, Manual](#).

Assembly

1. For the assembly of the 40 percent front seat cushion, refer to [Seat—Cushion, Front Bucket, Manual](#).
-

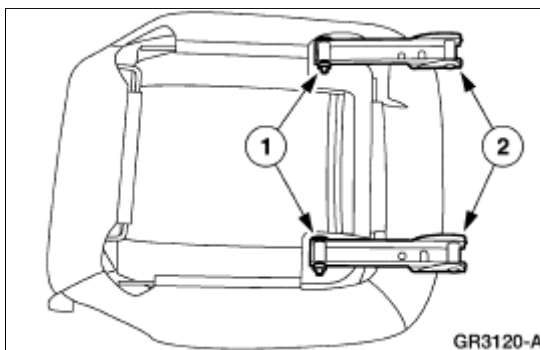
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

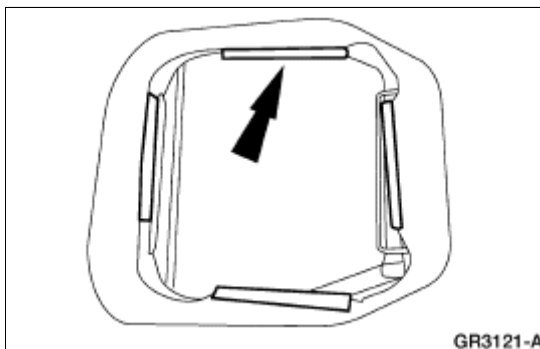
Seat —Cushion, 40% Portion of Rear 60/40 Split Bench

Disassembly

1. Disassemble the rear 40 percent seat. For additional information, refer to [Seat—Rear, 60% Portion of 60/40 Split Bench](#).
2. Remove the rear seat legs.
 1. Remove the pivot bolts.
 2. Remove the rear seat legs.



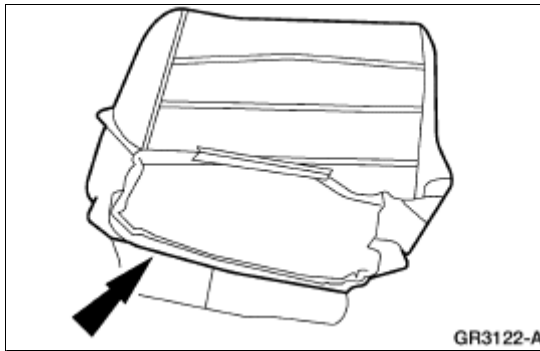
3. Unhook the seat cushion trim cover J-clips.



4.  **CAUTION:** Use care when separating the seat cushion trim cover from the hook and loop strip or the hook and loop strip may be torn from the seat cushion foam.

Remove the seat cushion trim cover.

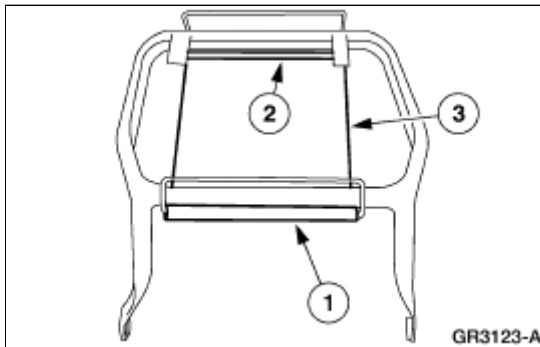
- Separate the seat cushion trim cover from the hook and loop strip.



5. **NOTE:** Use the brackets on the seat cushion frame to obtain the necessary leverage to unhook the rear flex mat J-clip.

Remove the seat cushion flex mat.

1. Unhook the rear flex mat J-clip.
2. Unhook the front flex mat J-clip.
3. Remove the seat cushion flex mat.



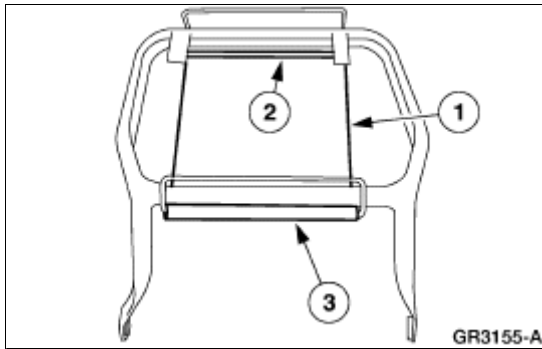
Assembly

1.  **CAUTION:** The flex mat J-clips must be installed with the openings facing down or the seat cushion will be damaged.

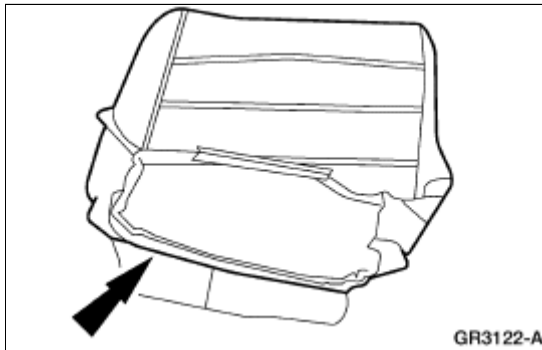
NOTE: Use the brackets on the seat cushion frame to obtain the necessary leverage to hook the rear flex mat J-clip.

Install the seat cushion flex mat.

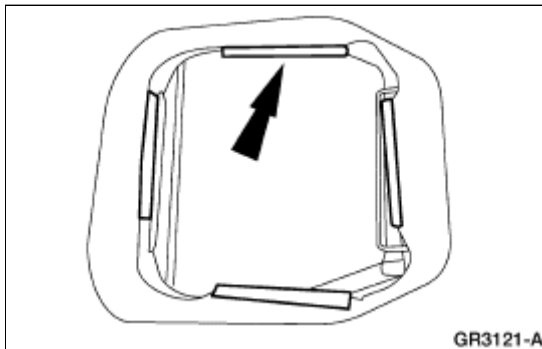
1. Position the seat cushion flex mat.
2. Hook the front flex mat J-clip.
3. Hook the rear flex mat J-clip.



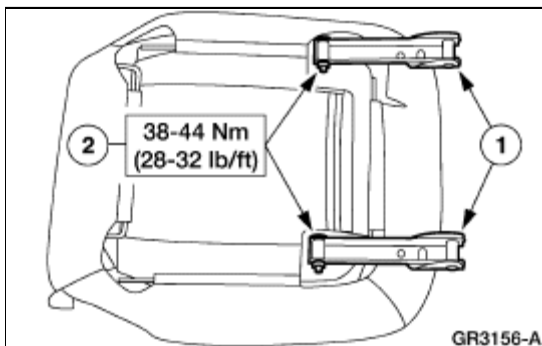
2. Position the seat cushion trim cover on the seat cushion hook and loop strips.



3. Hook the seat cushion trim cover J-clips.



4. Install the rear seat riser pivot bolts.
 1. Position the rear seat legs.
 2. Install the rear seat riser pivot bolts.



5. Assemble the rear 40 percent seat. For additional information, refer to [Seat—Rear, 60% Portion of 60/40 Split Bench](#).
-

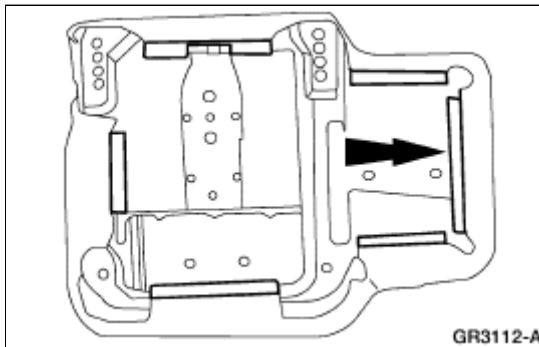
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

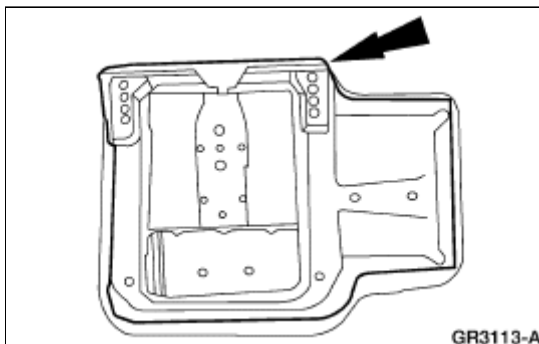
Seat —Cushion, 60% Portion of Front 60/40 Split Bench

Disassembly

1. Disassemble the seat. For additional information, refer to [Seat—60% Portion of Front 60/40 Split Bench](#).
2. Unhook the seat cushion trim cover J-clips.



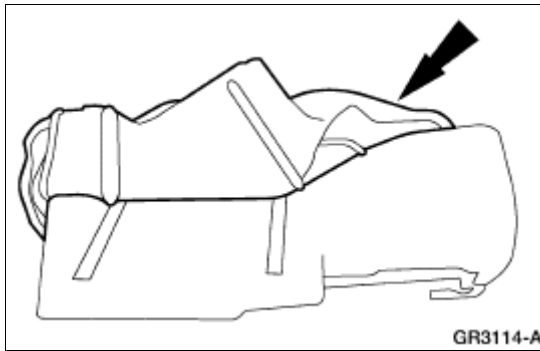
3. Remove the seat cushion frame from the seat cushion foam.



4. Invert the seat cushion trim cover.
5.  **CAUTION:** Use care when separating the seat cushion trim cover from the hook and loop strip or the hook and loop strip may be torn from the seat cushion foam.

Remove the seat cushion trim cover.

- Separate the seat cushion trim cover from the hook and loop strip.

**Assembly**

1. To assemble, reverse the disassembly procedure.
-

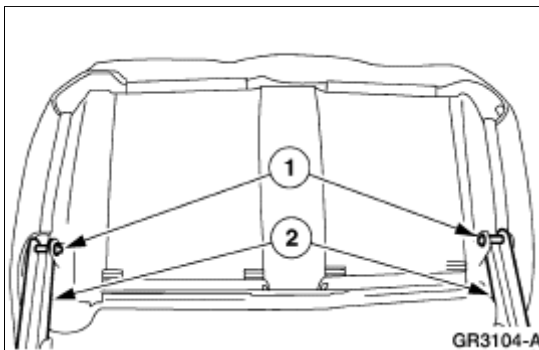
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

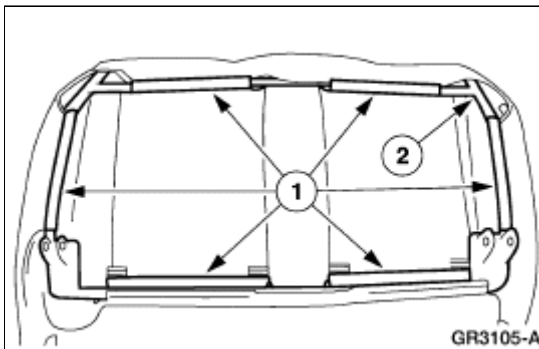
Seat —Cushion, 60% Portion of Rear 60/40 Split Bench

Disassembly

1. Disassemble the 60 percent rear seat. For additional information, refer to [Seat—Rear, 60% Portion of 60/40 Split Bench](#).
2. Remove the seat cushion legs.
 1. Remove the pivot bolts.
 2. Remove the seat cushion legs.



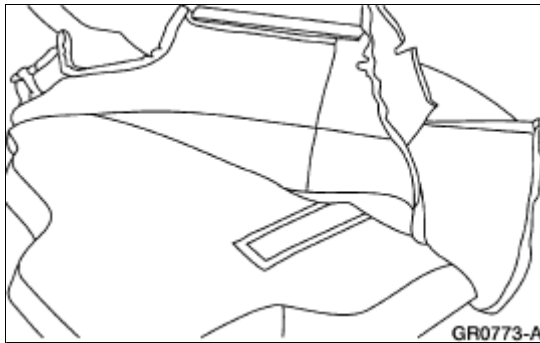
3. Remove the seat cushion frame from the seat cushion foam.
 1. Unhook the seat cushion trim cover J-clips.
 2. Remove the seat cushion frame from the seat cushion foam.



4. Invert the seat cushion trim cover.
5.  **CAUTION:** Use care when separating the seat cushion trim cover from the hook and loop strip or the hook and loop strip may be torn from the seat cushion foam.

Remove the seat cushion trim cover.

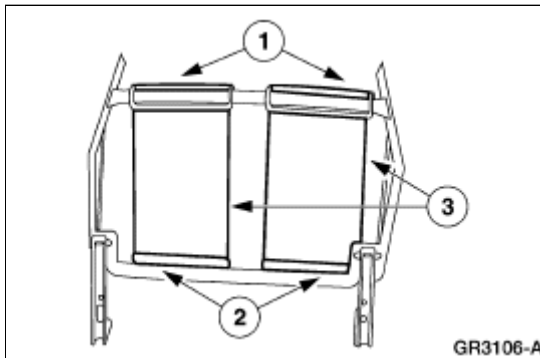
- Separate the seat cushion trim cover from the hook and loop strip.



6. **NOTE:** Use the brackets on the seat cushion frame to obtain the necessary leverage to unhook the rear flex mat J-clip.

Remove the seat cushion flex mats.

1. Unhook the rear flex mat J-clips.
2. Unhook the front flex mat J-clips.
3. Remove the seat cushion flex mats.



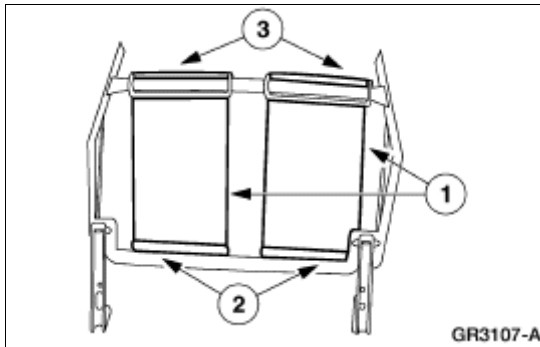
Assembly

1.  **CAUTION:** The flex mat J-clips must be installed with the openings facing down or the seat cushion foam will be damaged.

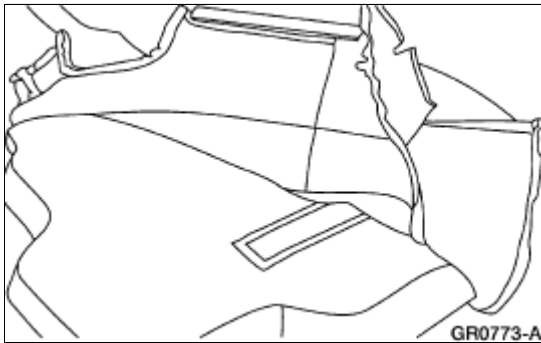
NOTE: Use the brackets on the seat cushion frame to obtain the necessary leverage to hook the rear flex mat clip.

Install the seat cushion flex mats.

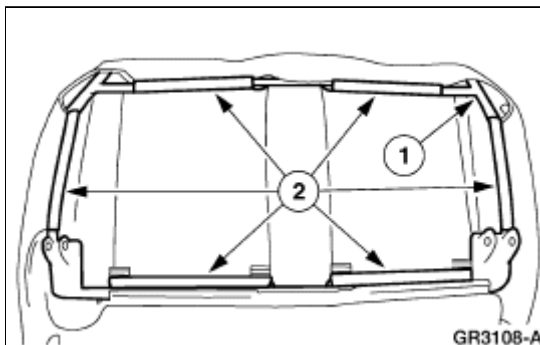
1. Position the seat cushion flex mats.
2. Hook the front flex mat J-clips.
3. Hook the rear flex mat J-clips.



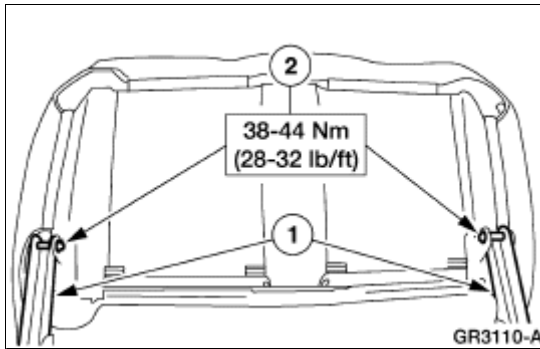
2. Position the seat cushion trim cover on the seat cushion hook and loop strips.



3. Install the seat cushion frame into the seat cushion foam.
 1. Position the seat cushion frame.
 2. Hook the seat cushion trim cover J-clips.



4. Install the seat cushion legs.
 1. Position the seat cushion legs.
 2. Install the rear seat riser pivot bolts.



5. Assemble the 60 percent rear seat. For additional information, refer to [Seat—Rear, 60% Portion of 60/40 Split Bench](#).
-

Seat —Cushion, Front Bucket, 6-Way Power, Except Limited

Disassembly



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

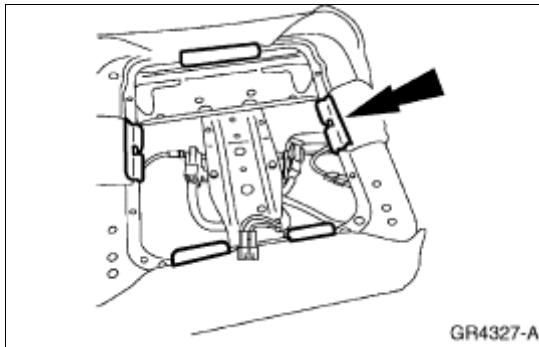
NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.

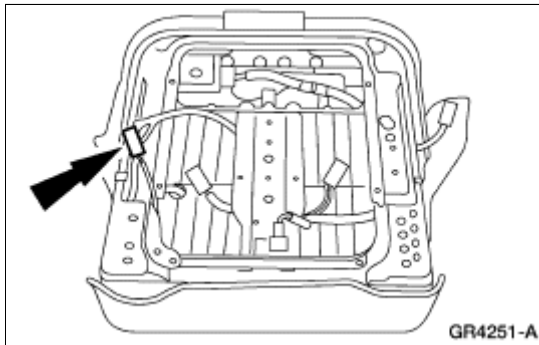
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings in [Seat—Front Bucket, 6-Way Power, Except Limited](#), Disassembly and Assembly.

Disassemble the 6-way power front bucket seat. For additional information, refer to [Seat—Front Bucket, 6-Way Power, Except Limited](#).

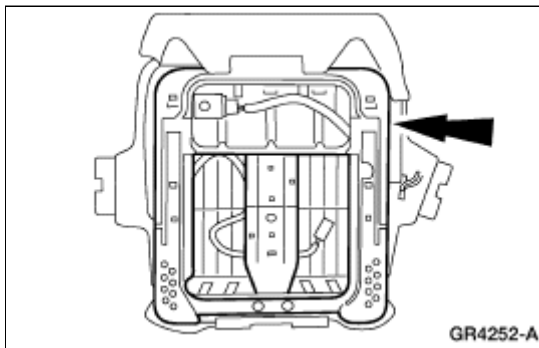
3. Disconnect the seat cushion trim cover J-clips.



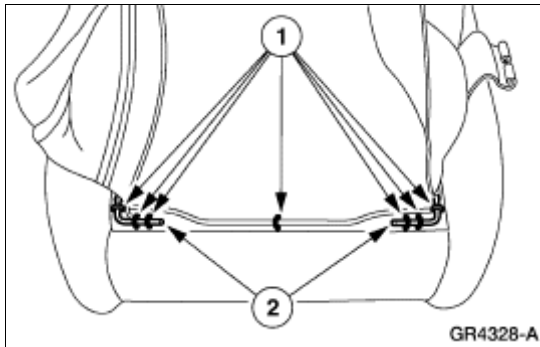
4. If equipped, disconnect the seat cushion heating element electrical connector.



5. Remove the seat cushion frame from the seat cushion foam.

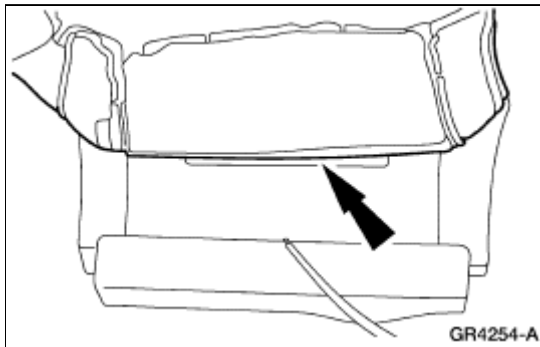


6. Invert the seat cushion trim cover.
7. Remove the swing rods.
 1. Remove and discard the hog rings.
 2. Remove the swing rods.



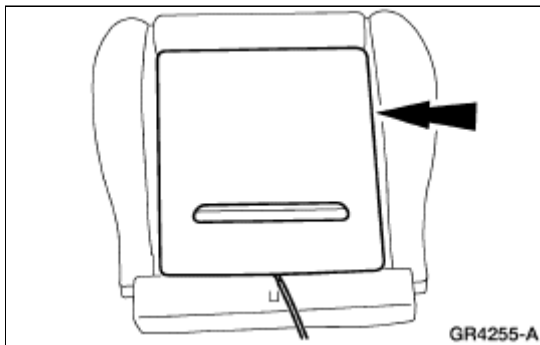
8.  **CAUTION:** Use care when separating the seat cushion trim cover from the hook and loop strip or the hook and loop strip may be torn from the seat cushion foam.

Remove the seat cushion trim cover.

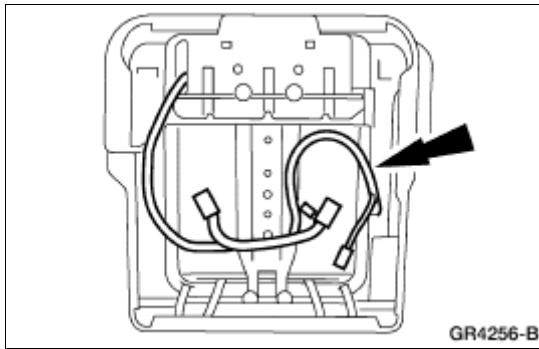


9.  **CAUTION:** Any time the seat cushion heating element is removed from the seat cushion foam, the foam must be replaced.

If equipped, and if necessary, remove the seat cushion heating element from the seat cushion foam.

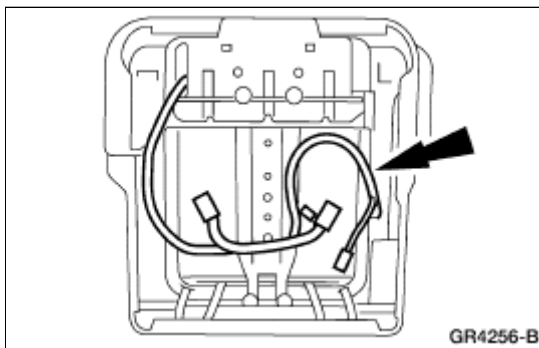


10. Remove the wire harness from the seat cushion frame.

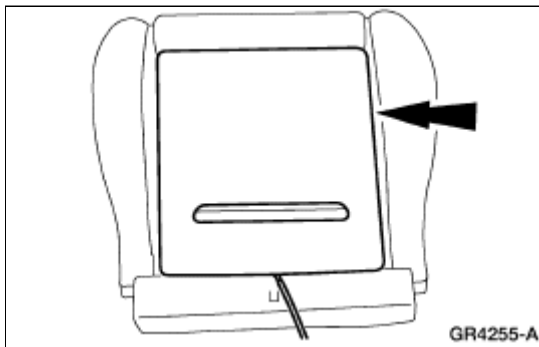


Assembly

1. Install the wire harness.

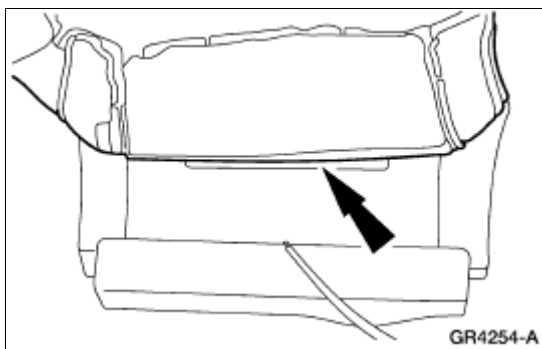


2. If equipped, and if necessary, install the seat cushion heating element.



3. **NOTE:** When installing a new seat cushion trim cover, it may be necessary to cut a hole for the front seat back pad adjusting cable, backrest heating element electrical lead, and the side air bag wiring harness. Use the old seat cushion trim cover as a guide for the location of the hole.

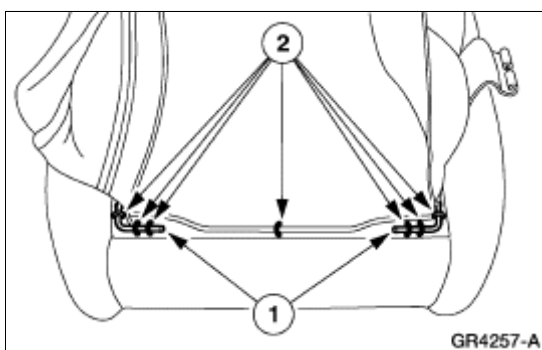
Position the seat cushion trim cover.



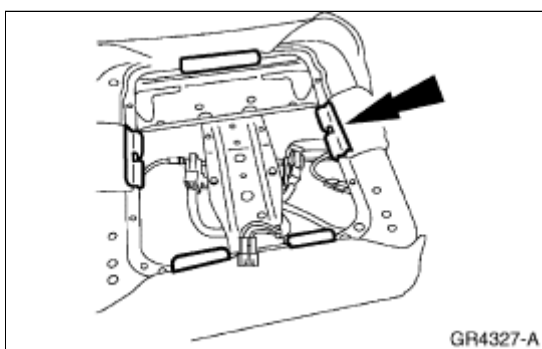
4. Install the seat cushion swing rods.
 1. **NOTE:** Make sure the ends of the swing rods are positioned beneath the listing wires at the rear of the seat cushion foam.

Position the swing rods.

2. Install the hog rings.



5. Invert the seat cushion trim cover.
6. Connect the seat cushion trim cover J-clips.



7. **NOTE:** Be sure to read and follow all air bag warnings in [Seat—Front Bucket, 6-Way Power, Except Limited](#), Disassembly and Assembly.

Assemble the 6-way power front bucket seat. For additional information, refer to [Seat—Front Bucket, 6-Way Power, Except Limited](#).

8.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and

possible violation of vehicle safety standards.

Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

9. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
 10. Check the restraint system for proper operation.
-

Seat —Cushion, Front Bucket, Limited

Disassembly



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterward.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

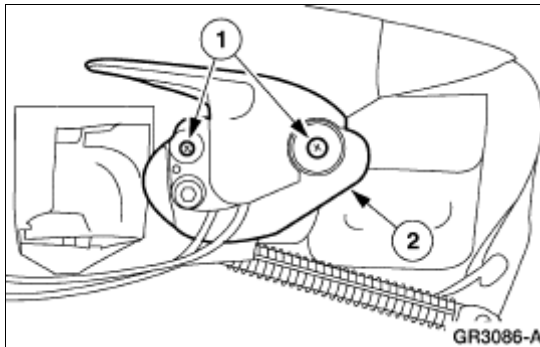
NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

NOTE: Before disconnecting the battery, raise the seat to the highest position, then move and tilt the seat to its most forward position.

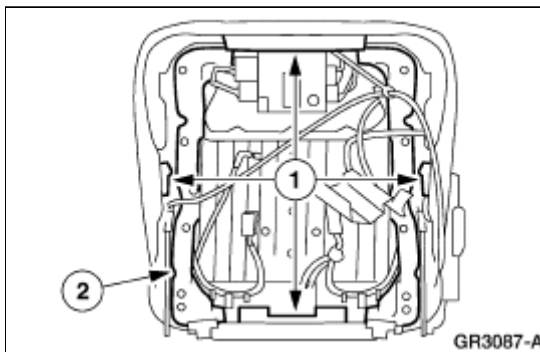
1. Deactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).
2. **NOTE:** Be sure to read and follow all air bag warnings in [Seat—Front Bucket, Limited](#), Disassembly and Assembly.

Disassemble the seat. For additional information, refer to [Seat—Front Bucket, Limited](#).

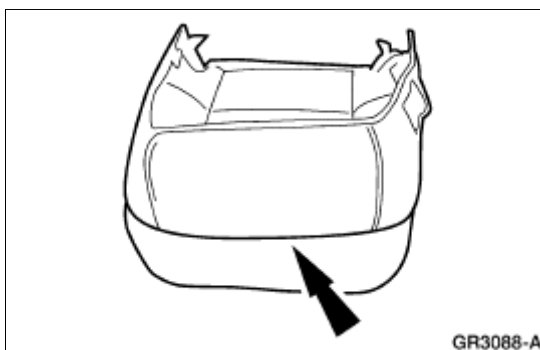
3. Disconnect the seat backrest recliner actuator.
 1. Remove the screws.
 2. Disconnect the seat backrest recliner actuator.



4. If equipped, disconnect the seat cushion heating element electrical connector.
5. Remove the seat cushion frame from the seat cushion foam.
 1. Unhook the seat cushion trim cover J-clips.
 2. Remove the seat cushion frame from the seat cushion foam.



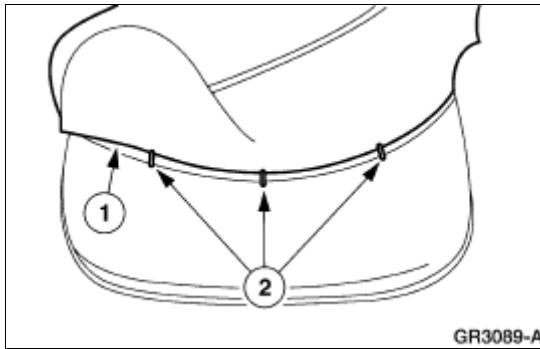
6. Invert the seat cushion trim cover.



7. **NOTE:** The hog rings along the front of the seat are shown, the hog rings along either side are similar.

Remove and discard the hog rings.

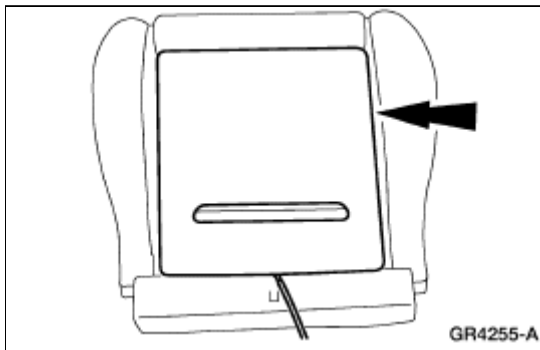
1. Fold back the seat cushion trim cover to expose the hog rings.
2. Remove and discard the hog rings.



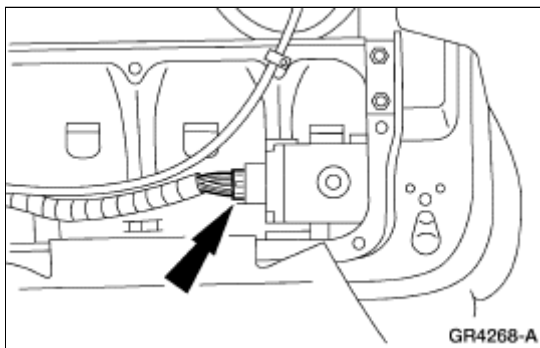
8.  **CAUTION:** Any time the seat cushion heating element is removed from the seat cushion foam, the foam must be replaced.

NOTE: Sport bucket seat shown; Limited seat similar.

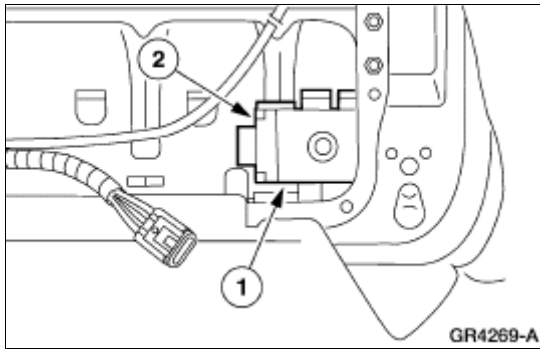
If equipped, and if necessary, remove the seat cushion heating element from the seat cushion foam.



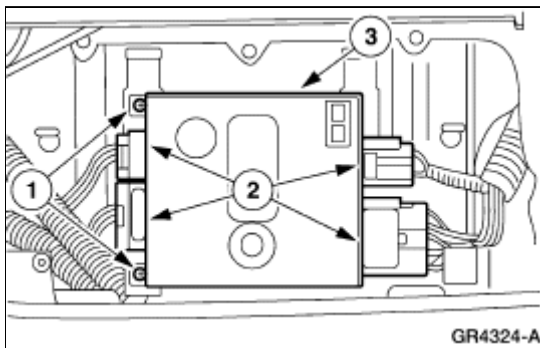
9. Disconnect the heated seat module electrical connector.



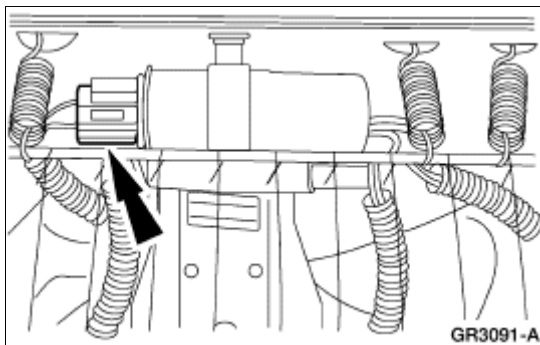
10. Remove the heated seat module.
1. Release the clip.
2. Remove the heated seat module.



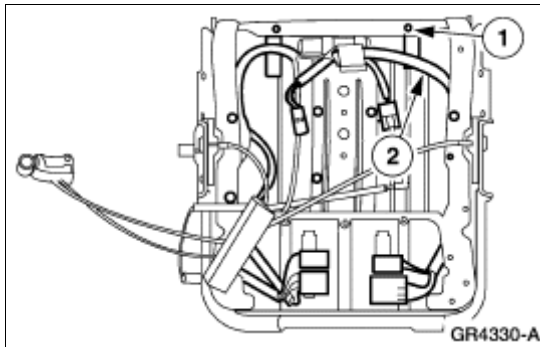
11. Remove the driver seat module (DSM).
 1. Remove the screws.
 2. Disconnect the electrical connectors.
 3. Remove the DSM.



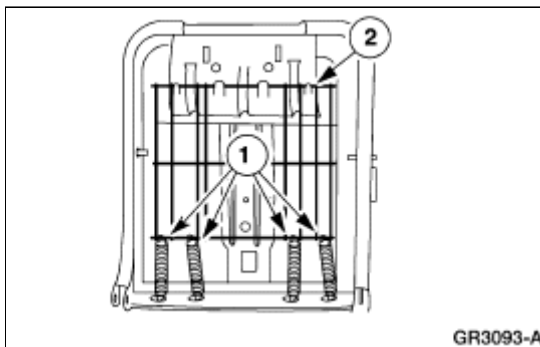
12. Disconnect the lumbar support adjusting pump electrical connector.



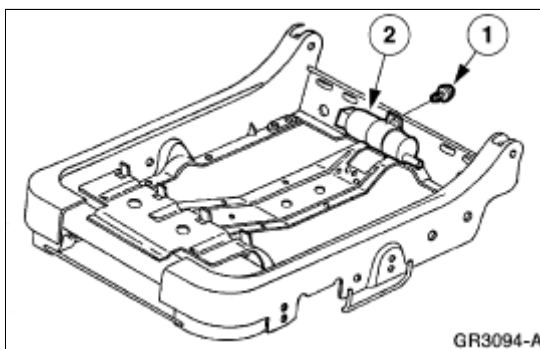
13. Remove the power seat wiring harness.
 1. Disconnect the pin-type retainers.
 2. Remove the power seat wiring harness.



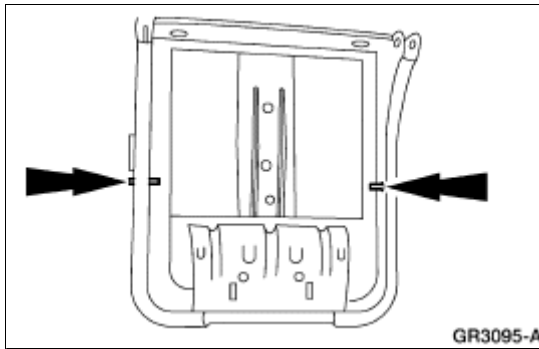
14. Remove the flexilator.
1. Remove the flexilator springs.
 2. Remove the flexilator.



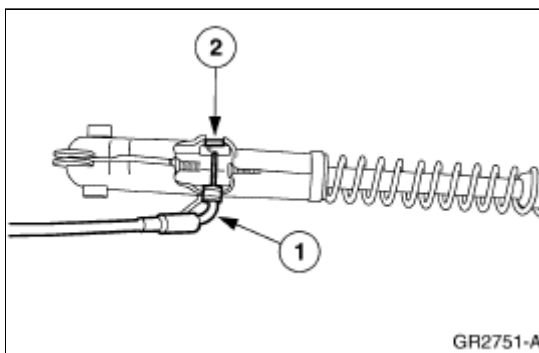
15. Remove the lumbar support adjusting pump.
1. Remove the bolt.
 2. Remove the lumbar support adjusting pump.



16. Remove the seat backrest recliner roll pins and remove the seat backrest recliners.

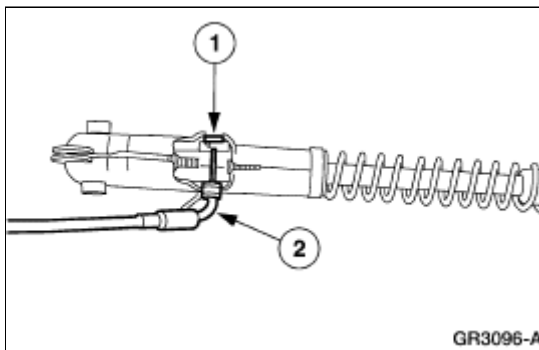


17. Disconnect the seat backrest recliners from the seat backrest recliner actuator.
 1. Disconnect the seat backrest recliner actuator cable housings from the seat backrest recliners.
 2. Unhook the seat backrest recliner actuator cables from the seat backrest recliners.

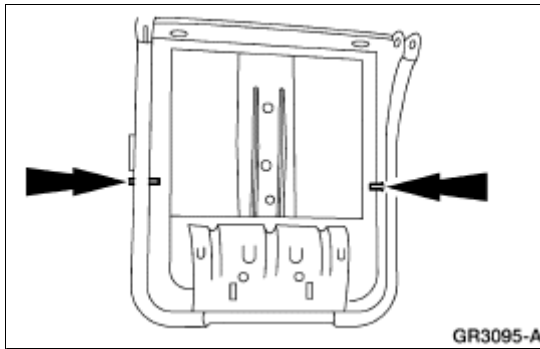


Assembly

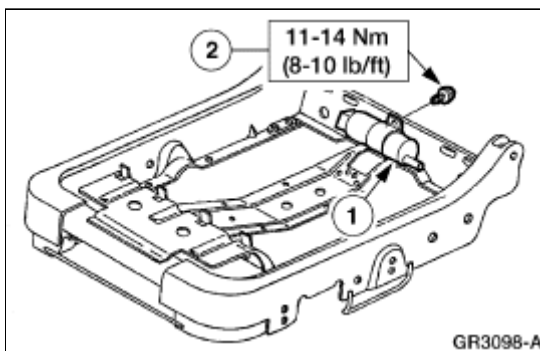
1. Connect the seat backrest recliners to the seat backrest recliner actuator.
 1. Hook the seat backrest recliner actuator cables to the seat backrest recliners.
 2. Connect the seat backrest recliner actuator cable housings to the seat backrest recliners.



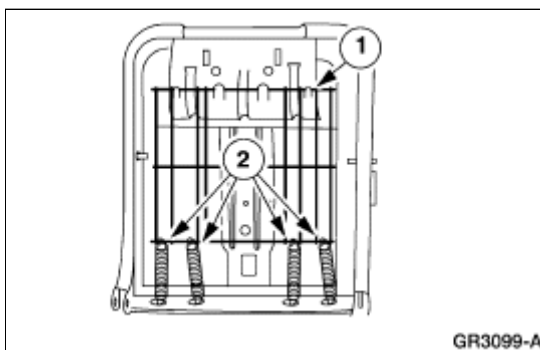
2. Install the seat backrest recliner roll pins.



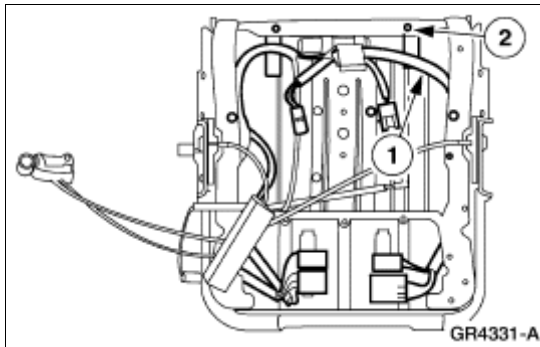
3. Install the lumbar support adjusting pump.
 1. Position the lumbar support adjusting pump.
 2. Install the bolt.



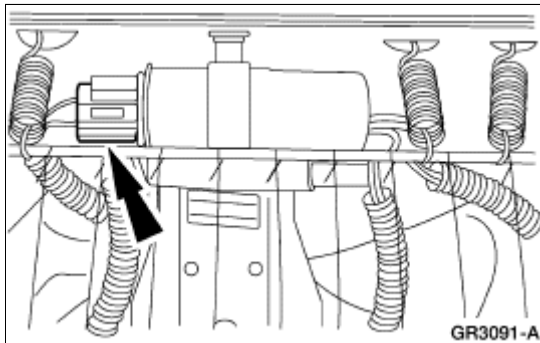
4. Install the flexilator.
 1. Position the flexilator.
 2. Install the flexilator springs.



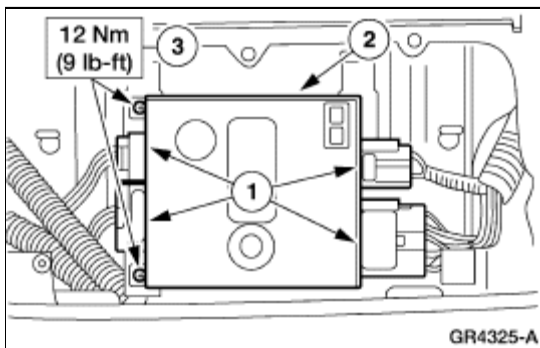
5. Install the power seat wiring harness.
 1. Position the power seat wiring harness.
 2. Install the pin-type retainers.



6. Connect the lumbar support adjusting pump electrical connector.



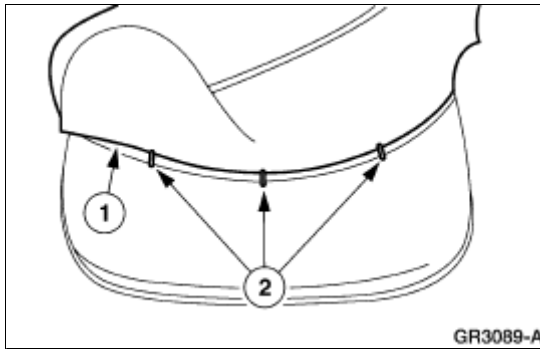
7. Install the DSM.
1. Connect the electrical connectors.
 2. Position the DSM.
 3. Install the screws.



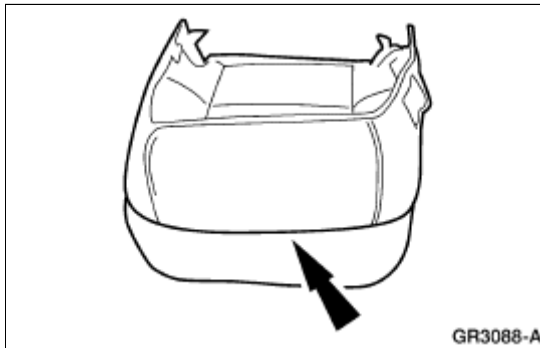
8. **NOTE:** The hog rings along the front of the seat are shown; the hog rings along either side are similar.

Install the hog rings.

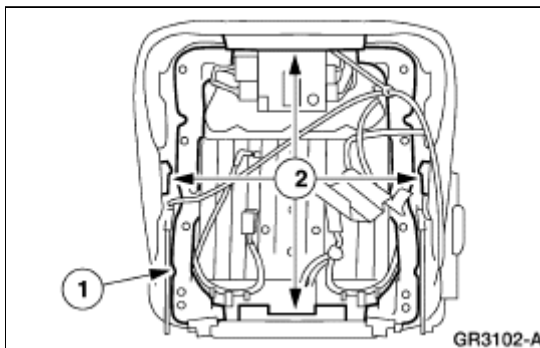
1. Fold back the seat cushion trim cover to the hog ring installation position.
2. Install the hog rings.



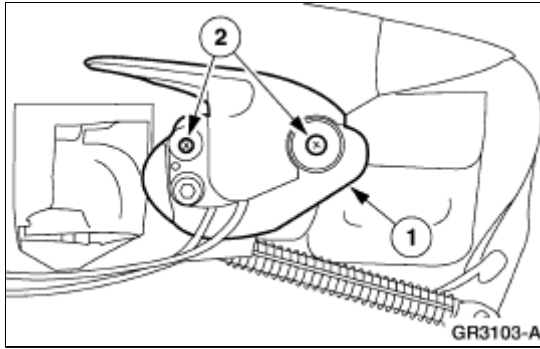
9. Invert the seat cushion trim cover.



10. Install the seat cushion frame.
 1. Position the seat cushion frame.
 2. Hook the seat cushion trim cover J-clips.



11. If equipped, connect the seat cushion heating element electrical connector.
12. Connect the seat backrest recliner actuator.
 1. Connect the seat backrest recliner actuator.
 2. Install the screws.
 - Tighten until the screws are fully seated.



13. **NOTE:** Be sure to read and follow all air bag warnings in [Seat—Front Bucket, Limited](#), Disassembly and Assembly.

Assemble the seat. For additional information, refer to [Seat—Front Bucket, Limited](#).

14.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from the vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Reactivate the supplemental restraint system. For additional information, refer to [Section 501-20B](#).

15. Prove out the air bag system. For additional information, refer to [Section 501-20B](#).
16. Check the restraint system for proper operation.
-

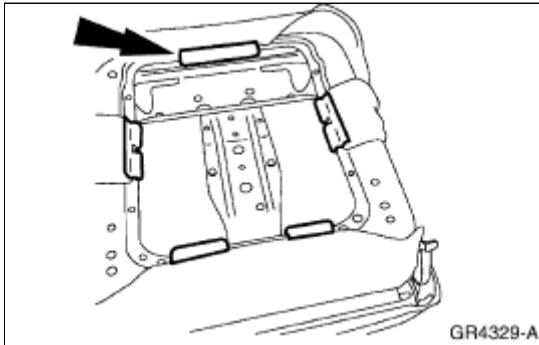
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

Seat —Cushion, Front Bucket, Manual

Disassembly

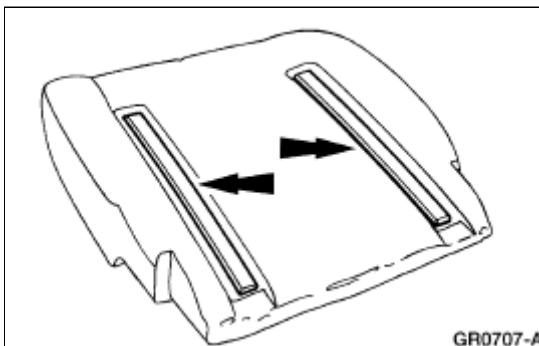
1. Disassemble the manual front bucket seat. For additional information, refer to [Seat—Front Bucket, Manual](#).
2. Disconnect the seat cushion trim cover J-clips.



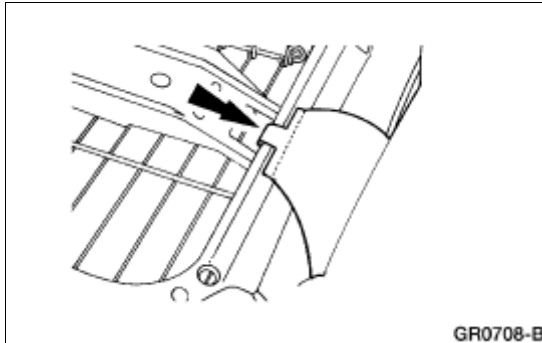
3.  **CAUTION:** Use care when separating the seat cushion trim cover from the hook and loop strip or the hook and loop strip may be torn from the seat cushion foam.

Remove the seat cushion trim cover.

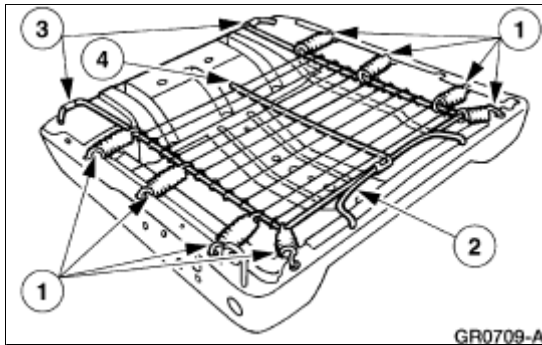
- Disconnect the seat trim cover from the hook and loop strips.



4. Remove the seat cushion.
 - Disconnect the front and rear J-clips.

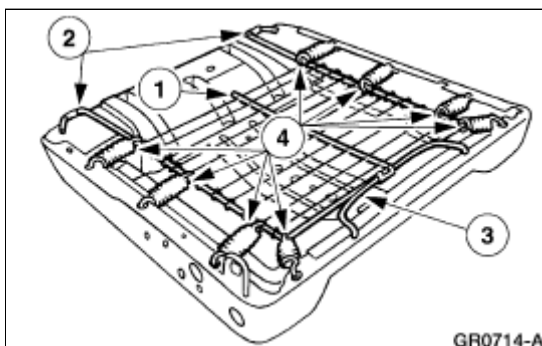


5. Remove the flexilator.
 1. Remove the flexilator to frame springs.
 2. Disengage the spring clip.
 3. Disengage the flexilator hooks from the seat frame.
 4. Remove the flexilator.

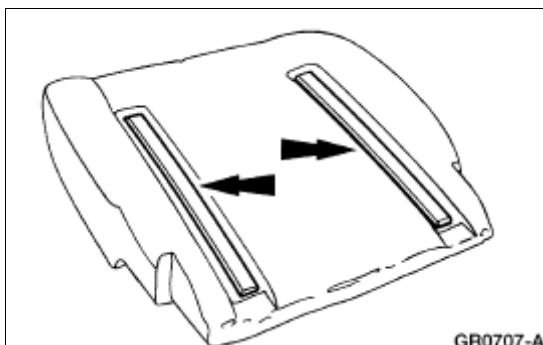


Assembly

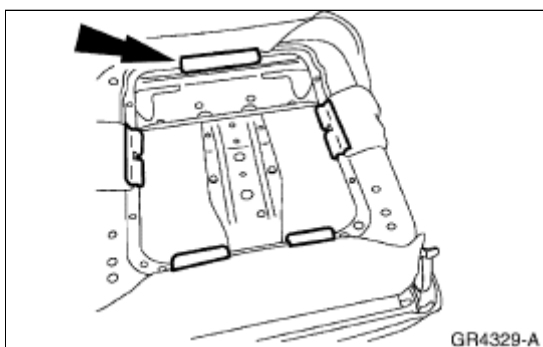
1. Install the flexilator.
 1. Position the flexilator.
 2. Install the flexilator hooks to the seat frame.
 3. Hook the spring clip.
 4. Install the flexilator to frame springs.



2. Position the seat cushion trim cover on the seat cushion hook and loop strips.



3. Connect the seat cushion trim cover J-clips.



4. Assemble the manual front bucket seat. For additional information, refer to [Seat—Front Bucket, Manual](#).
-

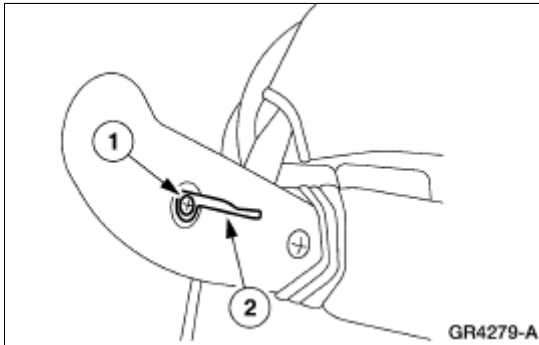
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

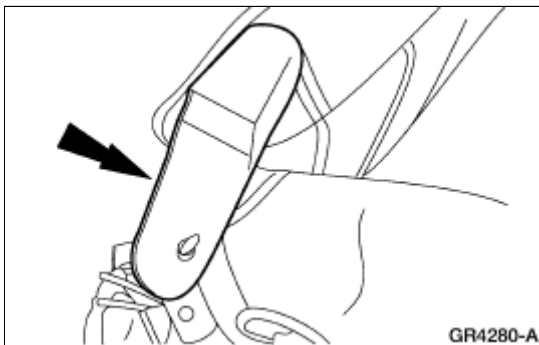
Seat —Rear, 40% Portion of 60/40 Split Bench

Disassembly

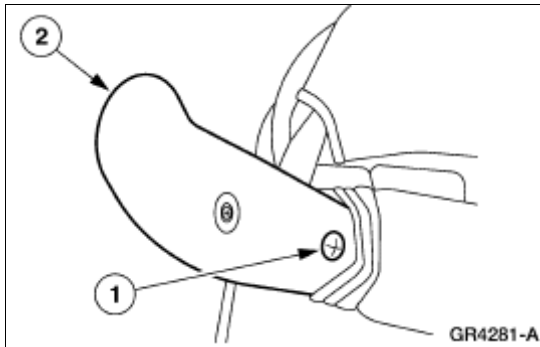
1. Remove the rear seat. For additional information, refer to [Seat—Rear, 40% Portion of 60/40 Split Bench](#).
2. Place the rear seat on a clean workbench.
3. Remove the seat backrest latch handle.
 1. Remove the screws.
 2. Remove the seat backrest latch handle.



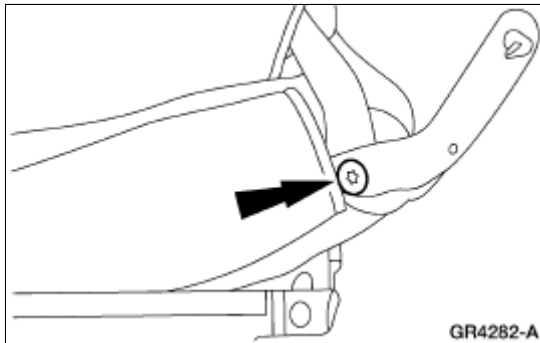
4. Remove the inboard pivot cover.



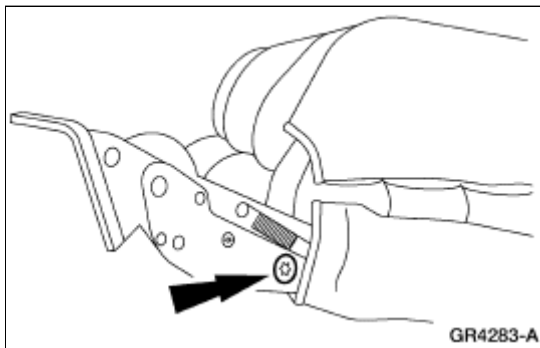
5. Remove the outboard pivot cover.
 1. Remove the screw.
 2. Remove the outboard pivot cover.



6. Remove the inboard pivot bolt.



7. Remove the outboard pivot bolt.

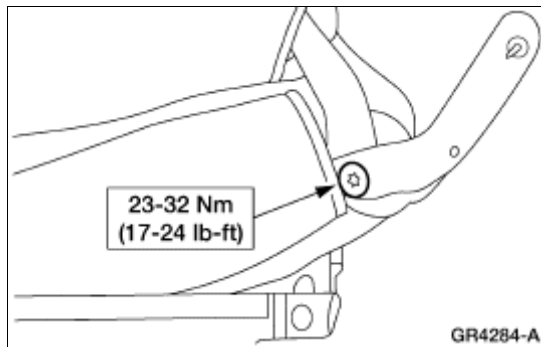


8. Remove the seat cushion.

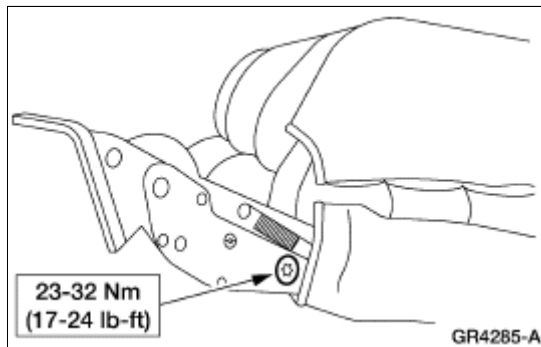
Assembly

1. Position the seat cushion.
2. **NOTE:** Be sure to install the seat pivot washer between the seat cushion and the seat backrest to allow for smooth operation of the seat backrest.

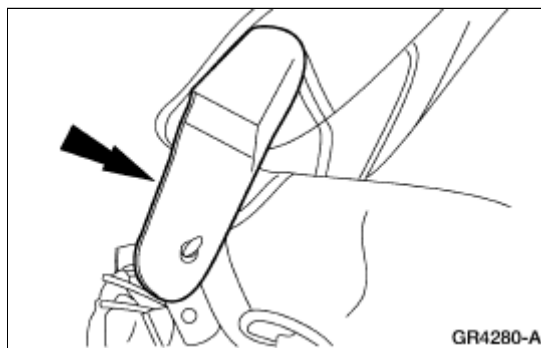
Install the seat inboard pivot bolt.



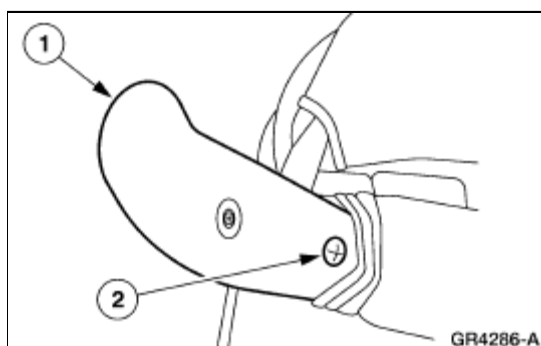
3. Install the outboard pivot bolt.



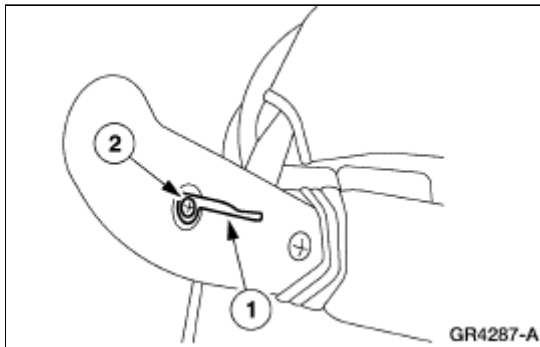
4. Install the inboard pivot cover.



5. Install the outboard pivot cover.
1. Position the outboard pivot cover.
 2. Install the screw.



6. Install the seat backrest latch handle.
 1. Position the seat backrest latch handle.
 2. Install the screws.



7. Install the rear seat. For additional information, refer to [Seat—Rear, 40% Portion of 60/40 Split Bench](#).
-

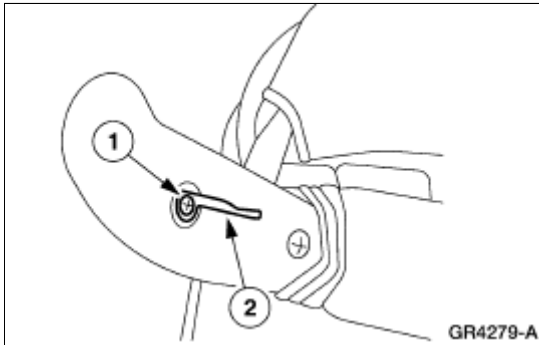
SECTION 501-10: Seating
DISASSEMBLY AND ASSEMBLY

2000 Explorer/Mountaineer Workshop Manual

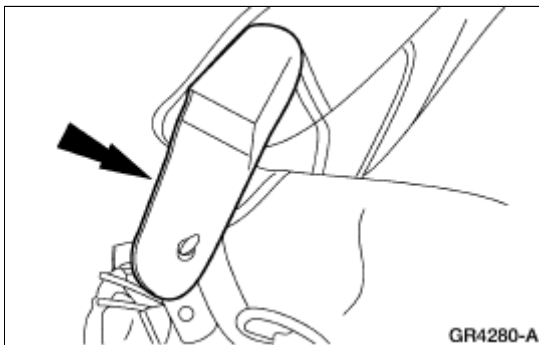
Seat —Rear, 40% Portion of 60/40 Split Bench

Disassembly

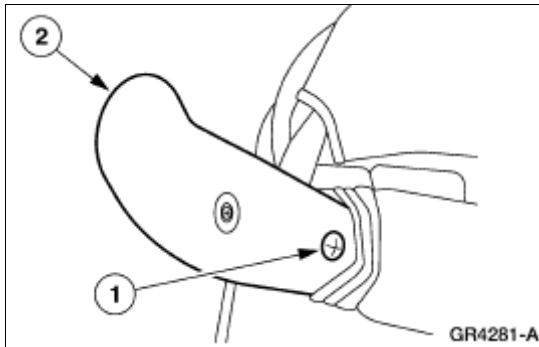
1. Remove the rear seat. For additional information, refer to [Seat—Rear, 40% Portion of 60/40 Split Bench](#).
2. Place the rear seat on a clean workbench.
3. Remove the seat backrest latch handle.
 1. Remove the screws.
 2. Remove the seat backrest latch handle.



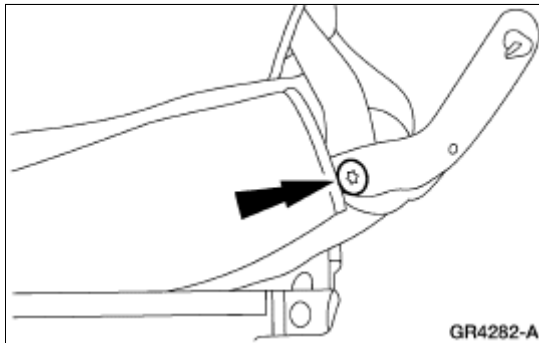
4. Remove the inboard pivot cover.



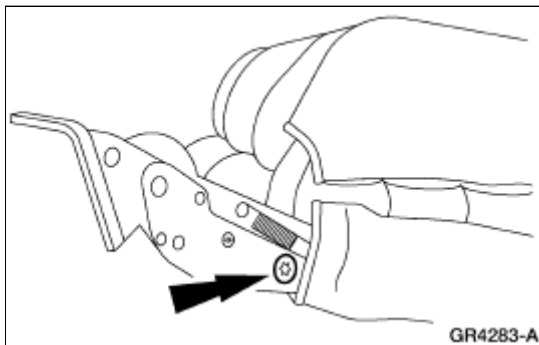
5. Remove the outboard pivot cover.
 1. Remove the screw.
 2. Remove the outboard pivot cover.



6. Remove the inboard pivot bolt.



7. Remove the outboard pivot bolt.

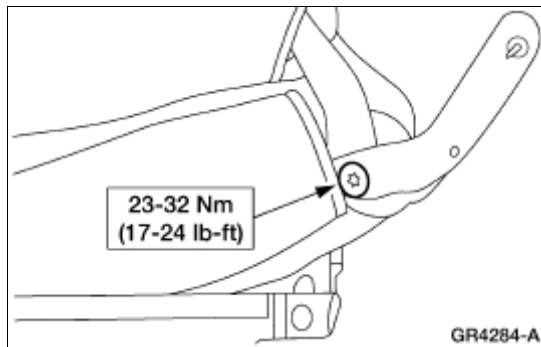


8. Remove the seat cushion.

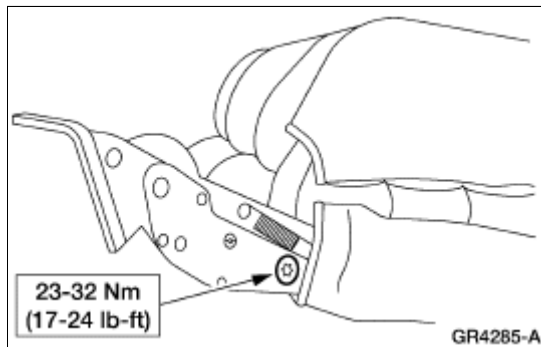
Assembly

1. Position the seat cushion.
2. **NOTE:** Be sure to install the seat pivot washer between the seat cushion and the seat backrest to allow for smooth operation of the seat backrest.

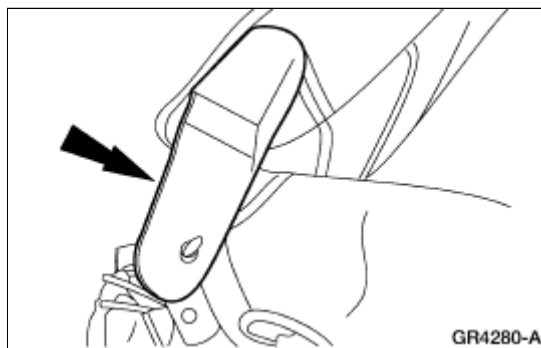
Install the seat inboard pivot bolt.



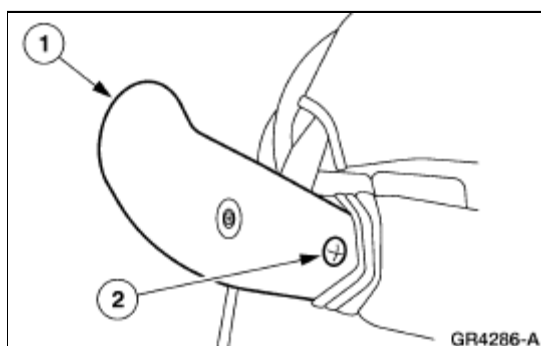
3. Install the outboard pivot bolt.



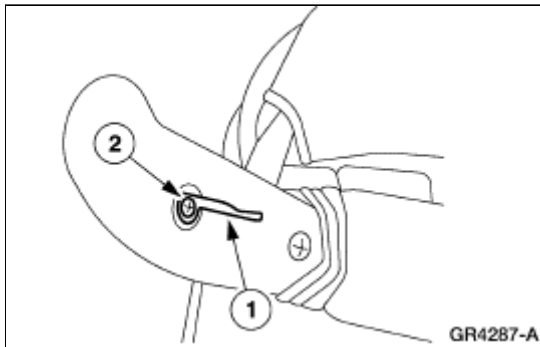
4. Install the inboard pivot cover.



5. Install the outboard pivot cover.
 1. Position the outboard pivot cover.
 2. Install the screw.



6. Install the seat backrest latch handle.
 1. Position the seat backrest latch handle.
 2. Install the screws.



7. Install the rear seat. For additional information, refer to [Seat—Rear, 40% Portion of 60/40 Split Bench](#).
-

SECTION 501-11: Glass, Frames and Mechanisms
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

General Specifications

Item	Specification
Foam Butyl	WSB-M2G234-C
Urethane Glass Prep Essex U-401	WSB-M2G314-B
Urethane Glass Primer Essex U-402	WSB-M5B280-C
Urethane Metal Primer Essex U-413	WSB-M2G234-C
Urethane Sealant Essex U-216	WSB-M2G316-B
Urethane Sealant Essex 400-HV	WSB-M2G316-B

Torque Specifications

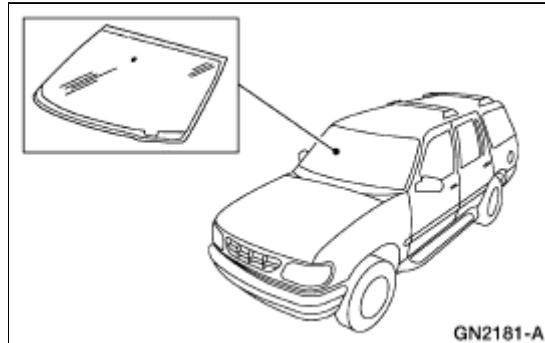
Description	Nm	lb-in
Battery ground cable bolt	7-10	62-89
Door trim panel screws	1.4-2.0	13-17
Equalizer bracket nuts	9-14	80-123
Inside door handle screw	7.5-10.5	67-93
Liftgate window glass-to-window glass hinge nuts	2-3	18-26
Movable quarter window hinge nuts	11-13	99-115
Power window motor nuts	5.6-9.1	50-81
Quarter window glass nuts	3-4	27-35
Rear window glass regulator nut	10-14	90-124
Rear window regulator switch plate screws	1.4-2.0	13-17
Window regulator switch plate harness assembly	2-3	18-26

SECTION 501-11: Glass, Frames and Mechanisms
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Glass, Frames and Mechanisms —Glass

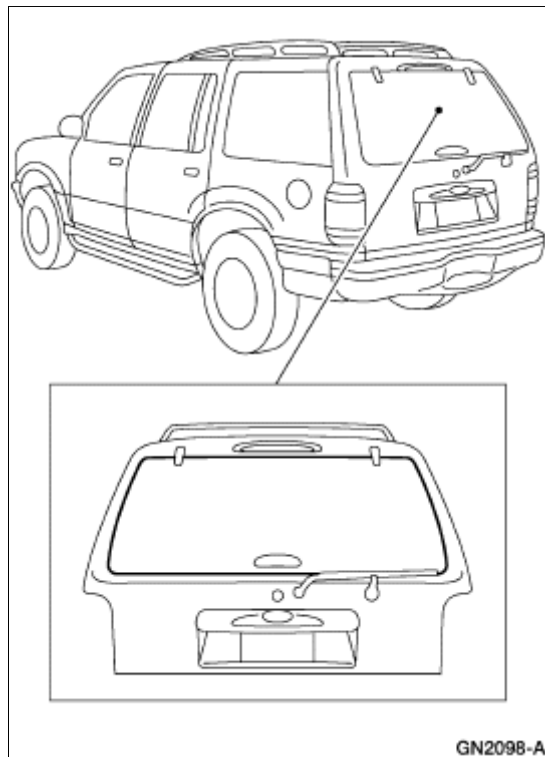
Windshield Glass



The windshield glass (03100) :

- Is standard plastic and glass laminate safety glass.
- Is bonded to the window opening flange with urethane sealant.

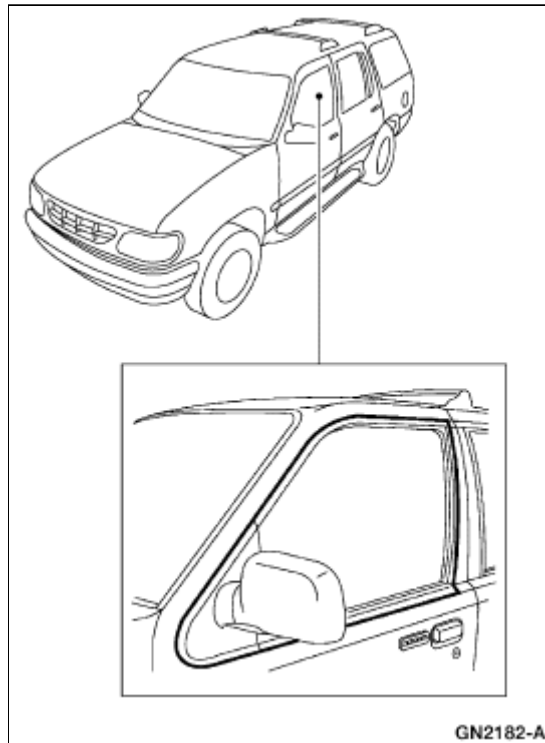
Liftgate Glass



The liftgate window glass:

- Is standard plastic and glass laminate safety glass.
- Houses the rear defogger grid.

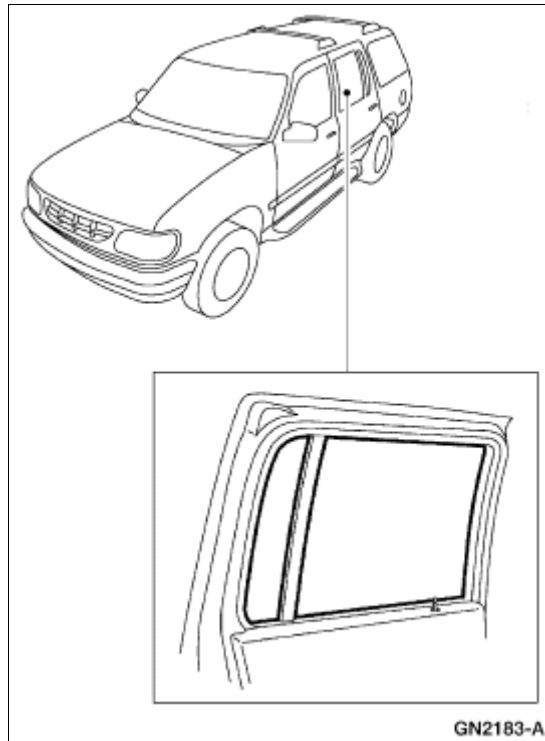
Front Door Glass



The front door window glass:

- Is standard plastic and glass laminate safety glass.
- May be raised and lowered by use of the window regulator handle (standard).
- May be raised and lowered by use of the window regulator control switch (14529) (optional).

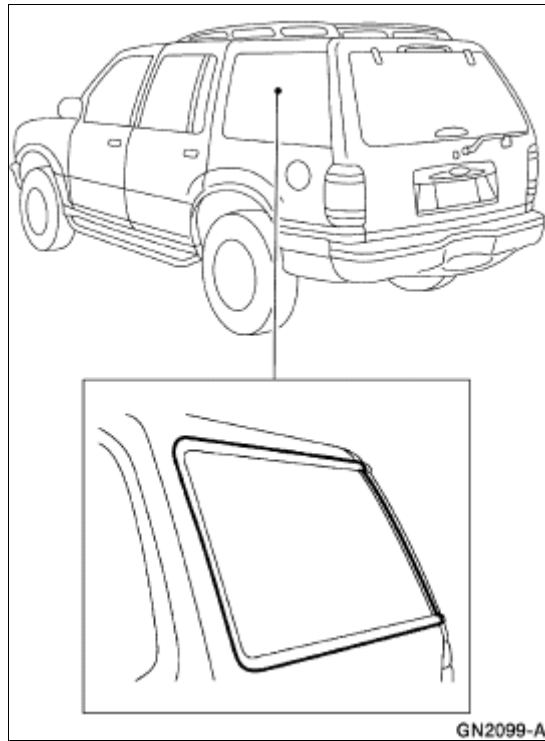
Rear Door Glass



The rear door window glass:

- Is standard plastic and glass laminate safety glass.
- May be raised and lowered by use of the window regulator handle (standard).
- May be raised and lowered by use of the window regulator control switch (optional).

Quarter Window Glass



The quarter window glass:

- Is standard plastic and glass laminate safety glass.
-

SECTION 501-11: Glass, Frames and Mechanisms
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Glass, Frames and Mechanisms —Window Regulator Control

The window regulator control switch:

- Is located on each door trim panel.
 - May be used to raise or lower both LH side and RH side windows from the master control on the driver door.
 - Includes a window lock feature that is controlled through the master control.
 - Can manually lower the driver side window when the master control is depressed longer than 0.4 seconds.
 - The driver side window can be completely lowered when the master control is depressed between 0.04 and 0.4 seconds and then released.
-

SECTION 501-11: Glass, Frames and Mechanisms
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Glass, Frames and Mechanisms —Module

Features and Operation:

The generic electronic module (GEM) controls the opening of the LH driver side power window (window down motion) by activating the one touch down (OTD) window relay.

- The driver side window has two downward motions, manual mode and auto mode. The down window mode is selected by pressing the LH window regulator control switch (master control). When the GEM detects that the master control switch has been depressed for a time greater than 0.4 seconds, it enters the manual mode. If the GEM detects that the master control switch was depressed between 0.04 and 0.4 seconds, it enters the auto mode.

The power window system will operate only if:

- The ignition switch is in the RUN or ACC position (or)
- The delayed accessory feature is in the active mode.

Modes of Operation

There are two modes of operation for the power window system:

Manual Mode:

When the LH window regulator control switch is pressed to the down position, the window will move down when the LH window regulator control switch is depressed longer than 0.4 seconds.

Feature Input:

- **NOTE:** Delayed accessory feature must be active.

LH window regulator control switch, first down position.

Feature Output:

- OTD relay coil output (grounded when activated, open circuit when deactivated).

Auto Mode:

Auto mode provides the OTD feature. The OTD feature is activated when the LH window regulator control switch, for the LH window, is pressed between 0.04 and 0.4 seconds, and then released.

Auto mode will be terminated when any of the follow conditions are met:

- The LH window regulator control switch is pushed to the up position or down position.
- Seven seconds have elapsed since auto mode was initiated.
- A window regulator electric drive stall condition is detected on the OTD sense line inputs.

Feature Inputs:

- LH window regulator control switch inputs; refer to the LH Front Window Regulator Control Switch

Inputs Table.

- OTD sense lines, high and low (voltage difference corresponds to window current).
- **NOTE:** Delayed accessory feature must be active.

Door open warning lamp switches (grounded when door is ajar, open circuit when door is closed).

Feature Output:

- Down window relay coil output (grounded when activated, open circuit when deactivated).

One Touch Down Relay

The GEM controls manual down and OTD window movement with the OTD relay.

The relay is activated by applying ground directly to one side of the down window relay coil, and is deactivated by removing the ground signal.

LH Front Window Regulator Control Switch Inputs Table

Switch Position	Input State		
	UP C4-3	DOWN C4-4	OTD C4-4
OFF	GND	GND	OPEN
UP	12V	GND	OPEN
DOWN	GND	12V	OPEN

Delayed Accessory

Features and Operation:

The delayed accessory feature of the GEM provides power for the power window system. The following components are under the control of the delayed accessory relay:

- LH window regulator electric drives.
- RH window regulator electric drives.

The delayed accessory feature is active when:

- The ignition is in the RUN position or ACC position, (or)
- The ignition switch makes a transition from RUN or ACC to OFF, and all doors are closed.

NOTE: Delayed accessory is suspended (off) while the ignition is in the START position. The delayed accessory feature is re-activated when the ignition makes the transition from START to RUN. The delayed accessory feature becomes deactivated if:

- Any passenger door becomes ajar when the ignition switch is in the OFF or KEY OUT positions.
- Ten minutes have elapsed since the ignition made a transition from RUN or ACC to OFF.

Feature Inputs:

- Ignition switch RUN position: 12V on both RUN and RUN/ACC inputs.

- Ignition switch ACC position: 12V on RUN/ACC input only.
- Door open warning lamp switches (grounded when door is ajar, open when door is closed).

Feature Outputs:

Delayed accessory relay coil output (grounded when active, open circuit when inactive).

Heated Backlite and Mirror Timer

When the rear window defrost switch is pressed, a 10-minute timer is started and the GEM energizes a relay that provides battery voltage to the heated backlite and outside rearview mirror (if equipped). The rear window defrost heats up to defog the rear window or melt accumulated snow or ice.

GEM Controlled Functions

The GEM is equipped on four-wheel drive vehicles with power windows. The central timer modules (CTMs) are equipped only on two-wheel drive vehicles without power windows.

NOTE: GEM diagnostics are compatible with scan tool, while CTM diagnostics are not.

The GEM incorporates the functions of several different modules into one, and offers diagnostics to easily locate and repair concerns affecting the subsystems that it controls.

The GEM constantly monitors the systems under its control and reports a concern in the form of a diagnostic trouble code (DTC). A DTC can be retrieved with scan tool through the communications link.

The scan tool is a menu-driven tester that allows the user to run specific diagnostic tests. Scan tool can isolate faults in the GEM subsystems through a symptom-driven diagnostic procedure. Connecting the tester to the GEM communications link will not alert the GEM. If the GEM is "asleep" when then diagnostic connector is plugged in, the GEM must be "awakened." If the communication link cannot be established, it is advised to turn the ignition to RUN.

The GEM has a sleep function to minimize battery consumption. During the sleep mode, the GEM turns off all outputs and monitors the following:

- Door ajar (Both front and rear doors, and liftgate).
- Key in ignition.
- Key in RUN or ACC.
- Door handles (driver or passenger).
- Two-step unlock switch (disarm switch).
- Neutral safety switch.
- Illuminated entry request — RAP module.

If a change of status occurs at one of these inputs while the GEM is asleep, the GEM will "wake up." When the GEM awakens, it performs an internal self test, and begins normal operation of its functions.

The GEM will go into the sleep mode immediately after both of the following conditions have been met:

- Key in OFF or key not in ignition.
- After 45 minutes have elapsed with no change to any wake-up input.

The GEM control system has two modes of operation, the normal operating mode and tester-dependent diagnostics mode.

The normal operation of the GEM can detect errors. An integral part of the normal GEM operation is the continued diagnostic capability. Continuous diagnostics detects errors, and changes the GEM control strategy. There is no warning lamp for the GEM; therefore, a DTC concern will direct you to the GEM. Examples of faults that may be detected during normal operation include:

- GEM continuous self test (RAM, ROM, EEPROM, A/D checking).
- Output driver monitoring (open circuit/short to GND, short to battery).
- Illogical combinations of input signals.

The GEM can only detect open circuit/short to GND faults when the GEM is not energizing a load, and short to battery faults when the GEM is attempting to energize a load.

Delayed Accessory

The GEM controls the delayed accessory feature and the power supply to the power windows through the delayed accessory relay.

The relay is activated by applying ground directly to one side of the delayed accessory relay coil, and is deactivated by removing the ground signal.

Battery Saver

The following components are under the control of the battery saver relay:

- Delayed accessory relay.
- Overhead interior lamp with map lamps.
- Overhead interior lamp switch.
- Interior lamp relay coil.

The battery saver relay becomes active (relay coil is energized) when the GEM is in the awake mode, and is deactivated (relay coil is de-energized) when the GEM is in the sleep mode.

The battery saver will remain active until the ignition state is not ACC or RUN and 45 minutes have passed since the last active input. At that time, the relay will be deactivated and power to the above circuits will terminate.

Five minutes after the battery saver relay has become deactivated, the GEM will go into a lower power state known as sleep mode. In the sleep mode, the GEM will deactivate all outputs and will monitor only select inputs.

Logical characteristics of the GEM battery saver mode are as follows:

Feature Input:

- Sleep/awake mode status.

Feature Output:

- Battery saver relay control (open circuit in sleep mode, grounded when awake).
-

SECTION 501-11: Glass, Frames and Mechanisms
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop Manual

Glass, Frames and Mechanisms

Refer to Wiring Diagrams Cell [56](#), Rear Window Defrost/Mirror Defrost for schematic and connector information.

Refer to Wiring Diagrams Cell [59](#), Generic Electronic Module (GEM) for schematic and connector information.

Refer to Wiring Diagrams Cell [100](#), Windows for schematic and connector information.

Special Tool(s)

 ST1137-A	73III Automotive Meter or equivalent 105-R0057
 ST2332-A	Worldwide Diagnostic System (WDS) 418-F224, New Generation STAR (NGS) Tester 418-F052, or equivalent scan tool

Inspection and Verification

1. **NOTE:** The generic electronic module (GEM)/central timer module (CTM) must be reconfigured upon replacement. Refer to the scan tool help screen on the configuration card to program the Tire Size, Axle Ratio.

The power windows system and rear window defroster system are (GEM) controlled systems.

2. Verify the customer concern by operating the power windows system or rear window defroster system.
3. Visually inspect for obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
• Window regulator electric drive • Window glass • Heated back window grid	• Fuse(s) • Damaged wiring harness • Loose or corroded connector(s) • Circuitry

4. If the concern remains after the inspection, connect the scan tool to the data link connector (DLC) located beneath the instrument panel and select the vehicle to be tested from the scan tool menu. If the scan tool does not communicate with the vehicle:
 - check that the program card is properly installed.
 - check the connections to the vehicle.
 - check the ignition switch position.
5. If the scan tool still does not communicate with the vehicle, refer to the scan tool manual.
6. Perform the DATA LINK DIAGNOSTIC TEST. If the scan tool responds with:
 - CKT914, CKT915 or CKT70 = ALL ECUS NO RESP/NOT EQUIP, refer to [Section 418-00](#).
 - NO RESP/NOT EQUIP for GEM module, go to Pinpoint Test L.
 - SYSTEM PASSED, retrieve and record the continuous diagnostic trouble codes (DTCs), erase the continuous DTCs and perform self-test diagnostics for the GEM.
7. If the DTCs retrieved are related to the concern, go to the GEM/CTM Diagnostic Trouble Code (DTC) Index to continue diagnostics.
8. If no DTCs related to the concern are retrieved, proceed to Symptom Chart to continue diagnostics.

GEM/CTM Diagnostic Trouble Code (DTC) Index

GEM/CTM Diagnostic Trouble Code (DTC) Index

DTC	Description	DTC Caused By	Action
P0500	Vehicle Speed Signal Circuit Failure	GEM	REFER to Section 308-07A .
B1302	Accessory Delay Relay Coil Circuit Failure	GEM	GO to Pinpoint Test A .
B1304	Accessory Delay Relay Coil Circuit Open or Short to Battery	GEM	GO to Pinpoint Test A .
B1313	Battery Saver Relay Coil — Circuit Failure	GEM/CTM	GO to Pinpoint Test A .
B1315	Battery Saver Relay Coil Circuit Short to Battery	GEM/CTM	GO to Pinpoint Test A .
B1317	Battery Voltage HIGH	GEM/CTM	REFER to Section 414-00 .
B1318	Battery Voltage LOW	GEM/CTM	REFER to Section 414-00 .
B1322	Door Ajar Driver Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1323	Door Ajar Lamp Circuit Failure	GEM/CTM	REFER to Section 413-01 .
B1325	Door Ajar Lamp Circuit Short to Battery	GEM/CTM	REFER to Section 413-01 .
B1330	Door Ajar Passenger Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1334	Decklid Ajar Rear Door Circuit	GEM/CTM	REFER to Section 417-02 .

	Short to Ground		
B1338	RR Door Open Warning Lamp Switch Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1340	Chime Input Request Circuit Short to Ground	GEM/CTM	REFER to Section 413-09 .
B1342	GEM/CTM is Defective	GEM/CTM	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved, REPLACE the GEM/CTM; REFER to Section 419-10 . TEST the system for normal operation.
B1345	Heated Backlite Input Circuit Short to Ground	GEM	GO to Pinpoint Test K .
B1347	Heated Backlite Relay Circuit Failure	GEM	GO to Symptom Chart.
B1349	Heated Backlite Relay Circuit Short to Battery	GEM	GO to Pinpoint Test K .
B1352	Ignition Key-In Circuit Failure	GEM/CTM	REFER to Section 413-09 .
B1355	Ignition RUN Circuit Failure	GEM/CTM	REFER to Section 211-05 , Symptom Chart.
B1359	Ignition RUN/ACC Circuit Failure	GEM/CTM	REFER to Section 211-05 , Symptom Chart.
B1371	Illuminated Entry Relay Circuit Failure	GEM/CTM	REFER to Section 417-02 .
B1398	Power Window Driver One-Touch Window Relay Circuit Failure	GEM	GO to Symptom Chart.
B1400	Power Window Driver One-Touch Window Relay Coil Circuit Short to Battery	GEM	GO to Symptom Chart.
B1404	Power Window Driver Down Circuit Open	GEM	GO to Symptom Chart.
B1405	Power Window Driver Down Circuit to Battery	GEM	GO to Symptom Chart.
B1410	Power Window Driver Motor Circuit Failure	GEM	GO to Symptom Chart.
B1426	Seat Belt Lamp Circuit Short to Battery	GEM/CTM	REFER to Section 413-01 .
B1428	Seat Belt Lamp Circuit Failure	GEM/CTM	REFER to Section 413-01 .
B1431	Wiper Brake/Run Relay — Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1432	Wiper Brake/Run Relay Short to Battery	GEM/CTM	REFER to Section 501-16 .
B1434	Wiper Hi/Lo Speed Relay — Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1436	Wiper Hi/Lo Speed Relay Circuit Short to Battery	GEM/CTM	REFER to Section 501-16 .
B1438	Wiper Mode Select Switch Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1441	Wiper Mode Select Switch	GEM/CTM	REFER to Section 501-16 .

	Input Short to Ground		
B1446	Wiper Park Sense Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1450	Wiper/Wash Interval Delay Switch Input Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1453	Wiper/Wash Interval Delay Switch Input Short to Ground	GEM/CTM	REFER to Section 501-16 .
B1458	Wiper/Washer Pump Motor Relay Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1460	Wiper/Washer Pump Motor Relay Coil Short to Battery	GEM/CTM	REFER to Section 501-16 .
B1462	Seat Belt Switch Circuit Failure	GEM/CTM	REFER to Section 413-09 .
B1466	Wiper Hi/Lo Speed Not Switching	GEM/CTM	REFER to Section 501-16 .
B1467	Wiper Hi/Low Speed Circuit Motor Short to Battery	GEM/CTM	REFER to Section 501-16 .
B1473	Wiper Low Speed Circuit Motor Failure	GEM/CTM	REFER to Section 501-16 .
B1475	Accessory Delay Relay Contacts Short to Battery	GEM/CTM	GO to Symptom Chart.
B1476	Wiper High Speed Circuit Motor Failure	GEM/CTM	REFER to Section 501-16 .
B1483	Brake Pedal Input Circuit Failure	GEM	REFER to Section 308-07A .
B1485	Brake Pedal Input Short Circuit to Battery	GEM	REFER to Section 308-07A .
B1571	LR Door Ajar — Circuit Failure	GEM/CTM	REFER to Section 417-02 .
B1574	LR Door Ajar Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1577	Lamp Park Input Short Circuit to Battery	GEM/CTM	REFER to Section 413-09 .
B1610	Illuminated Entry Input (From RAP Module) Circuit Short to Ground	GEM	REFER to Section 417-02 .
B1611	Wiper Rear Mode Select Switch Circuit Failure	GEM	REFER to Section 501-16 .
B1614	Wiper Rear Mode Select Switch Circuit Short to Ground	GEM	REFER to Section 501-16 .
B1814	Wiper Rear Motor Down Relay Circuit Failure	GEM	REFER to Section 501-16 .
B1816	Wiper Rear Motor Down Relay Coil Circuit Short to Battery	GEM	REFER to Section 501-16 .
B1818	Wiper Rear Motor Up Relay Coil Circuit Failure	GEM	REFER to Section 501-16 .
B1820	Rear Wiper Motor Up Relay Circuit Short to Battery	GEM	REFER to Section 501-16 .

B1833	Door Unlock Switch Circuit Short to Ground	GEM	REFER to Section 501-14B .
B1834	Door Unlock Disarm Output Circuit Failure	GEM	REFER to Section 501-14B .
B1836	Door Unlock Disarm Output Circuit Short to Battery	GEM	REFER to Section 501-14B .
B1839	Rear Wiper Rear Motor Circuit Failure	GEM	REFER to Section 501-16 .
B1840	Wiper Front Power Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B2105	Throttle Position Input (TPI) Signal Out of Range Low	GEM	REFER to Section 308-07A .
B2106	Throttle Position Input (TPI) Signal Out of Range High	GEM	REFER to Section 308-07A .
B2141	NVM Configuration Failure	GEM/CTM	REFER to Section 418-01 .
P1763	Transmission Neutral In Tow Indicator Circuit Short to Battery	GEM	REFER to Section 413-09 .
P1764	Transmission Neutral In Tow Indicator Circuit Fault	GEM	REFER to Section 413-09 .
B1894	Rear Wiper Motor Speed Sense Circuit Failure	GEM	REFER to Section 501-16 .
P1804	4WD High Indicator Circuit Failure	GEM	REFER to Section 308-07A .
P1806	4WD High Indicator Short Circuit to Battery	GEM	REFER to Section 308-07A .
P1808	4WD Low Indicator Circuit Failure	GEM	REFER to Section 308-07A .
P1810	4WD Low Indicator Short Circuit to Battery	GEM	REFER to Section 308-07A .
P1812	4WD Mode Select Circuit Failure	GEM	REFER to Section 308-07A .
P1815	4WD Mode Select Short Circuit to Ground	GEM	REFER to Section 308-07A .
P1820	Transfer Case CW Shift Relay Coil	GEM	REFER to Section 308-07A .
P1822	Transfer Case CW Shift Relay Coil Short to Power	GEM	REFER to Section 308-07A .
P1824	4WD Electric Clutch Relay Circuit Failure	GEM	REFER to Section 308-07A .
P1826	4WD Low Clutch Relay Short to Battery	GEM	REFER to Section 308-07A .
P1828	Transfer Case CCW Shift Relay Circuit Failure	GEM	REFER to Section 308-07A .
P1830	Transfer Case HI to LO Shift Relay Coil Short to Battery	GEM	REFER to Section 308-07A .
P1836	Transfer Case Front Shaft	GEM	REFER to Section 308-07A .

	Speed Sensor Circuit Failure		
P1837	Transfer Case Rear Shaft Speed Sensor Circuit Failure	GEM	REFER to Section 308-07A .
P1838	Transfer Case Shift Motor Circuit Failure	GEM	REFER to Section 308-07A .
P1846	Transfer Case CONTACT PLATE "A" Circuit Failure	GEM	REFER to Section 308-07A .
P1850	Transfer Case CONTACT PLATE "B" Circuit Failure	GEM	REFER to Section 308-07A .
P1854	Transfer Case CONTACT PLATE "C" Circuit Failure	GEM	REFER to Section 308-07A .
P1858	Transfer Case CONTACT PLATE "D" Circuit Failure	GEM	REFER to Section 308-07A .
P1866	Transfer Case System Concern	GEM	REFER to Section 308-07A .
P1867	Transfer Case Contact Plate General Circuit Failure	GEM	REFER to Section 308-07A .
P1874	Automatic Hall Effect Sensor Power Circuit Failure	GEM	REFER to Section 308-07A .
P1875	Automatic Hall Effect Sensor Power Circuit Short to Battery	GEM	REFER to Section 308-07A .
P1891	Transfer Case Contact Plate Ground Return Open Circuit	GEM	REFER to Section 308-07A .

GEM/CTM Parameter Identification (PID) Index

GEM/CTM Parameter Identification (PID) Index

PID	Description	Expected Values
VSS_GEM	Vehicle Speed Input	0 - 255 KPH
PARK_SW	External Access Ajar Switch Status	OFF, ON
D_DR_SW	Driver Door Ajar Switch Status	CLOSED, AJAR
DR_DSRM	Door Disarm Switch Status	L_DOOR, R_DOOR, LIFT_G, OFF
DR_UNLK	All Doors Unlock Output State	ON---, OFF---, ON-B-, OFFO-G
P_DR_SW	Passenger Door Ajar Switch Status	CLOSED, AJAR
IGN_KEY	Key-In-Ignition Status	IN, OUT
IGN_GEM	Ignition Switch Status	START, RUN, OFF, ACCY
BATSAV	Battery Saver Relay Circuit	ON---, OFF---, ON-B-, OFFO-G
VBATGEM	Battery Voltage	0.0 VDC - 14.3 VDC
LGATESW	Liftgate Ajar Switch Status	CLOSED - AJAR
LRDR_SW	Left Rear Door Ajar Switch Status	CLOSED - AJAR
RRDR_SW	Right Rear Door Ajar Switch Status	CLOSED - AJAR
INTLMP	Illuminated Entry Relay Circuit	ON---, OFF---, ON-B-, OFFO-G

CLTCHSW	Transmission Clutch Interlock Switch (GEM Only)	ENGAGED, NOT ENGAGED
NTRL_SW	Neutral Safety Switch Input (GEM Only)	NTRL, not NTRL
MTR_CCW	Transmission Transfer CCW Motor Output (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
MTR_CW	CW Shift Relay Coil Status (GEM Only)	OFF---, ON---, ON-B-, OFFO-G
4WD_SW	4WD Switch Status (GEM Only)	AUTO, 4WDLOW, 4WDHIGH
4WDELCL	4WD Electric Clutch	ON---, OFF---, ON-B-, OFFO-G
TRANSGR	Transmission Gear Status	REV, notREV
4WDCCLCH	4WD Electronic Clutch Output Status (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
4WDLOW	4WD Low Indicator Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
4WDHIGH	4WD High Indicator Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
PLATE_A	Transfer Case Contact Plate Switch A (GEM Only)	OPEN, CLOSED
PLATE_B	Transfer Case Contact Plate Switch B (GEM Only)	OPEN, CLOSED
PLATE_C	Transfer Case Contact Plate Switch C (GEM Only)	OPEN, CLOSED
PLATE_D	Transfer Case Contact Plate Switch D (GEM Only)	OPEN, CLOSED
BOO_GEM	Brake Pedal Position (BPP) Switch Input (GEM Only)	ON, OFF
HALLPWR	Hall Effect Speed Sensor Power (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
4WDCCLST	4WD Clutch PWM Output Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
TRA_RSP	Rear Shaft Speed (GEM Only)	0-255 mph
TRA_FSP	Front Shaft Speed (GEM Only)	0-225 mph
PLATEPW	Contact Plate Ground Output (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
PWR_RLY	ABS Active Input	ON, OFF
NTF	Neutral Tow Function (GEM Only)	ON, OFF
NTF_LMP	Neutral Tow Light (GEM Only)	ON, OFF
D_SBELT	Driver Seat Belt Status	OUT, IN
IPCHIME	External Chime Request	ON, OFF
SBLTMP	Seat Belt Indicator Status	OFF, ON, OFFO-G, ON-B-
DRAJR_L	Door Ajar Warning Lamp Circuit	OFF, ON
D_PWRLY	One Touch Down Relay Coil Circuit Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
D_PWAMP	Driver Power Window Regulator Electric Drive Current (GEM Only)	0.25 amp increments
D_PWPK	Driver Power Window Regulator Electric Drive Peak Current (GEM Only)	0.25 amp increments
ACCDLY	Accessory Delay Relay Coil Circuit (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
RDEF_SW	Rear Defrost Control Switch Status	ON, OFF
RDEFRLY	Rear Window Defrost Relay Coil Circuit	ON---, OFF---, ON-B-, OFFO-G
WASHRLY	Washer Relay Status	ON---, OFF---, ON-B-, OFFO-G
WPPK_PK	Wiper Park-to-Park Time	0 - 65 Seconds

WPMODE	Wiper Control Mode Status	WASH, OPEN, INVLD, OFF, INTVL 1-7, LOW, HIGH
WPPRKSW	Wiper Motor Status	PARKED, notPRK
WPRUN	Wiper Mode Run Relay	ON---, OFF---, ON-B-, OFFO-G
WPHISP	Windshield Wiper HI/LO Relay Status	ON---, OFF---, ON-B-, OFFO-G
WASH_SW	Washer Pump Relay Switch Status	OFF, ON, ON-B-, OFFO-G
R_WP_UP	Rear Wiper Up Relay Status (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
R_WP_DN	Rear Wiper Down Relay Status (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
R_WP_SW	Rear Wiper Input Switch Status (GEM Only)	WPLOW, OFF, WPHIGH
R_WP_MD	Rear Wiper Mode Switch Status (GEM Only)	OFF, INTVL 1-2, LOW WASH
R_WP_PK	Rear Wiper Park Status (GEM Only)	PARKED, notPRK

GEM/CTM Active Command Index

GEM/CTM Active Command Index

Active Command	Display	Action
PID LATCH	PID LATCH	ON, OFF
FRONT WIPER	WIPER RLY	ON, OFF
FRONT WIPER	SPEED RLY	ON, OFF
FRONT WIPER	WASH RLY	ON, OFF
WARNING LAMPS AND CHIME	SBLT LAMP	ON, OFF
WARNING LAMPS AND CHIME	CHIME	ON, OFF
WARNING LAMPS AND CHIME	AJAR LAMP	ON, OFF
BATTERY SAVER	BATT SAVR	ON, OFF
INTERIOR COURTESY LAMPS	INT LAMPS	ON, OFF
ONE TOUCH DOWN AND ACCY DELAY (GEM only)	ACCY RLY	ON, OFF
ONE TOUCH DOWN AND ACCY DELAY (GEM only)	ONE TOUCH	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM only)	CW/CCW	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM only)	HIGH LAMP	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM only)	LOW LAMP	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM only)	PLATE PWR	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM only)	SHFT CLCH	ON, OFF
SHIFT CLUTCH CONTROL	CLUTCH SOL	ANALOG %
NEUTRAL IN TOW LAMP	NTFLAMP	ON, OFF
REAR WIPER (GEM only)	UP RELAY	ON, OFF
REAR WIPER (GEM only)	DWN RELAY	ON, OFF
HEATED BACKLIGHT	RLY CNTRL	ON, OFF
DOOR LOCK CONTROL	DD UNLOCK	ON, OFF

GEM/CTM Wiggle Test Diagnostic Trouble Code (DTC) Index**GEM/CTM Wiggle Test Diagnostic Trouble Code (DTC) Index**

DTC	Description	DTC Caused By
B1317	Battery Voltage HIGH	GEM/CTM
B1318	Battery Voltage LOW	GEM/CTM
B1322	Door Ajar Driver Circuit Short to Ground	GEM/CTM
B1330	Door Ajar Passenger Circuit Short to Ground	GEM/CTM
B1352	Ignition Key-In Circuit Failure	GEM/CTM
B1410	Power Window Driver Motor Circuit Failure	GEM
B1438	Wiper Mode Select Switch Circuit Failure	GEM/CTM
B1441	Wiper Mode Select Switch Input Short to Ground	GEM/CTM
B1446	Wiper Park Sense Circuit Failure	GEM/CTM
B1450	Wiper/Wash Interval Delay Switch Input Circuit Failure	GEM/CTM
B1453	Wiper/Wash Interval Delay Switch Input Short to Ground	GEM/CTM
B1462	Seat Belt Switch Circuit Failure	GEM/CTM
B1577	Lamp Park Input Short Circuit to Battery	GEM/CTM
B1610	Illuminated Entry Input (From RAP Module) Circuit Short to Ground	GEM
B1833	Door Unlock Disarm Switch Circuit Short to Ground	GEM

Symptom Chart**Symptom Chart**

Condition	Possible Sources	Action
All Power Windows Are Inoperative — (2 Door and 4 Door)	- Fuse(s). - Circuitry. - GEM. - Battery saver relay. - Accessory delay relay. - Driver window regulator control switch (14529) . - DTC B1302. - DTC B1304. - DTC B1313. - DTC B1315. - DTC B1342.	GO to Pinpoint Test A .
Single Power Window Is Inoperative — Driver Power Window	- GEM. - One touch down relay.	GO to Pinpoint Test B .

(4 Door)	• Circuitry. • Driver window regulator control switch . • Driver window regulator electric drive (23394) . • DTC B1398. • DTC B1400. • DTC B1404. • DTC B1405. • DTC B1410. • DTC B1342.	
• Single Power Window Is Inoperative — Driver Power Window (2 Door)	• Circuitry. • Driver power window regulator control switch. • Driver power window motor. • DTC B1398. • DTC B1400. • DTC B1404. • DTC B1405. • DTC B1410. • DTC B1342.	• GO to Pinpoint Test C.
• Single Power Window Is Inoperative — Passenger Power Window (4 Door)	• Circuitry. • Master window/door lock control switch. • Passenger window regulator control switch. • Passenger window regulator electric drive .	• GO to Pinpoint Test D.
• Single Power Window Is Inoperative — Passenger Power Window (2 Door)	• Circuitry. • Passenger power window regulator control switch. • Passenger power window motor. • Driver power window regulator control switch.	• GO to Pinpoint Test E.
• Single Power Window Is Inoperative — LR Power Window	• Circuitry. • Master window/door lock control switch. • LR window regulator control switch . • LR window regulator electric	• GO to Pinpoint Test F.

	drive .	
Single Power Window Is Inoperative — RR Power Window	- Circuitry. - Master window/door lock control switch. - RR window regulator control switch . - RR window regulator electric drive .	GO to Pinpoint Test G .
The One Touch Down Feature Is Inoperative	- GEM. - Driver window regulator control switch (2 door). - Master window/door lock control switch (4 door). - Circuitry. - DTC B1398. - DTC B1400. - DTC B1342.	GO to Pinpoint Test H .
All Windows Operate With the Ignition in the OFF Position	- Circuitry. - Accessory delay relay.	CHECK the accessory delay relay; REFER to Component Test. If OK, REPAIR circuit 400 (LB/BK). If not OK, REPLACE the accessory delay relay. TEST the system for normal operation.
The Back Window Will Not Defrost	- GEM. - Circuitry. - Heated back window relay. - Heated backlite. - Heated back window grid. - DTC B1347. - DTC B1349. - DTC B1342.	GO to Pinpoint Test J .
The Back Window Defroster Will Not Shut Off Automatically	- Heated back window relay. - Circuitry. - GEM. - Heated backlite. - Heated back window grid. - DTC B1345. - DTC B1347. - DTC B1342.	GO to Pinpoint Test K .
No Communication With the Module — Generic Electronic Module	- Fuse. - Circuitry. - GEM.	GO to Pinpoint Test L .

Pinpoint Test



CAUTION: Electronic modules are sensitive to electrostatic discharges. If exposed to these charges, damage may result.



CAUTION: Disconnect the battery before removing and installing the generic electronic module (GEM) or its connectors. Failure to follow this caution will result in the GEM storing many erroneous DTCs and possibly exhibiting erratic operation after installation.



CAUTION: Be careful when probing the I/P fuse panel, power distribution box or any connectors. Damage will result to the connector receptacle if the probe or terminal being used is too large.

NOTE: If continuous diagnostic trouble codes (DTCs) are recorded and the symptom is not present when performing the pinpoint tests, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.

NOTE: Complete the entire pinpoint test related to the symptom before replacing the GEM.

PINPOINT TEST A: ALL POWER WINDOWS ARE INOPERATIVE — (2 DOOR AND 4 DOOR)

CONDITIONS	DETAILS/RESULTS/ACTIONS
A1 CHECK THE IGNITION STATES — MONITOR THE GEM PID IGN_GEM	
1  2  3  Scan Tool	3 Monitor the GEM PID IGN_GEM while turning the ignition switch (11572) through the START, RUN, OFF, and ACC positions. • Do the PID values agree with the ignition switch positions? → Yes GO to A2. → No REFER to Section 417-02

A2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)**1****2**

Clear Continuous DTCs

3

GEM On-Demand Self-Test

1

Retrieve and document continuous DTCs.

- **Are any DTCs recorded?**

→ **Yes**If DTC B1302, GO to [A4](#).If DTC B1304, GO to [A4](#).If DTC B1313, GO to [A3](#).If DTC B1315, GO to [A3](#).

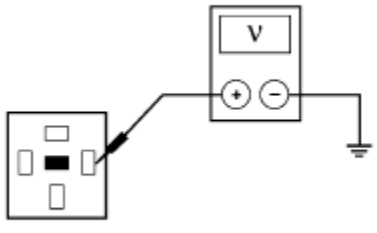
If DTC B1342, REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

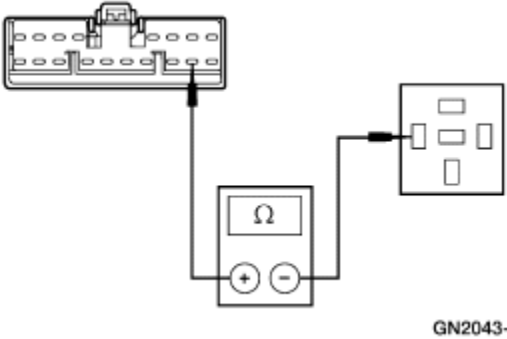
→ **No**GO to [A3](#).**A3 CHECK THE BATTERY SAVER RELAY COIL CIRCUIT — MONITOR THE GEM PID BATSAV****1****2****2**

Monitor the GEM PID BATSAV while triggering the GEM active command BATT SAVR ON and OFF.

- **Does the GEM PID BATSAV value agree with the command mode?**

→ **Yes**GO to [A4](#).

	→ No If the GEM PID BATSAV displays OFFO-G; REFER to Section 417-02. If the GEM PID BATSAV displays ON-B-; REFER to Section 417-02.
A4 CHECK THE ACCESSORY DELAY RELAY COIL CIRCUIT — MONITOR THE GEM PID ACCDLY	
1 	1 Monitor the GEM PID ACCDLY while triggering the GEM active command ACCY RLY ON and OFF. • Does the GEM PID ACCDLY value agree with the command mode? → Yes If the vehicle is a two door, GO to A11. If the vehicle is a four door, GO to A10. → No If the GEM PID ACCDLY displays OFFO-G, GO to A5. If the GEM PID ACCDLY displays ON-B-, GO to A8.
A5 CHECK THE VOLTAGE TO THE ACCESSORY DELAY RELAY COIL — CIRCUIT 705 (LG/O)	
1  2  Accessory Delay Relay 3  GN0103-A	3 Measure the voltage between accessory delay relay connector pin 86, circuit 705 (LG/O), and ground.

	• Is the voltage greater than 10 volts? → Yes GO to A6. → No REPAIR circuit 705 (LG/O). TEST the system for normal operation.
A6 CHECK THE ACCESSORY DELAY RELAY	
	1 Check the accessory delay relay; refer to Component Test. • Is the accessory delay relay OK? → Yes GO to A7. → No REPLACE the accessory delay relay. CLEAR the DTCs. TEST the system for normal operation.
A7 CHECK CIRCUIT 1004 (LB/R) FOR OPEN	
1  GEM C283 2  GN2043-A	2 Measure the resistance between accessory delay relay connector pin 85, circuit 1004 (LB/R), and GEM C283-17, circuit 1004 (LB/R). • Is the resistance less than 5 ohms? → Yes REPLACE the GEM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 1004 (LB/R). CLEAR the DTCs. TEST the system for normal operation.

A8 CHECK THE ACCESSORY DELAY RELAY**1****2**

Accessory Delay Relay

3 Check the accessory delay relay; refer to Component Test.

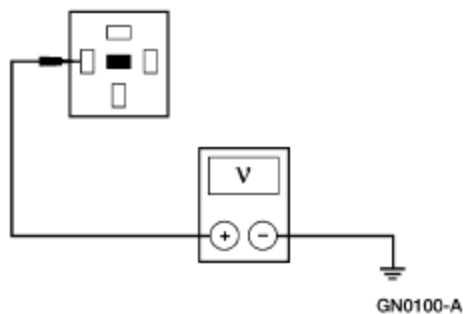
- Is the accessory delay relay OK?

→ **Yes**
GO to [A9](#).

→ **No**
REPLACE the accessory delay relay. CLEAR the DTCs. TEST the system for normal operation.

A9 CHECK CIRCUIT 1004 (LB/R) FOR SHORT TO POWER**1**

GEM C283

2**3**

3 Measure the voltage between accessory delay relay connector pin 85, circuit 1004 (LB/R), and ground.

- Is any voltage indicated?

→ **Yes**

REPAIR circuit 1004 (LB/R). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

A10 CHECK THE VOLTAGE TO THE MASTER WINDOW/DOOR LOCK CONTROL SWITCH — CIRCUIT 400 (LB/BK)

1



2



Master Window/Door Lock Control Switch C501

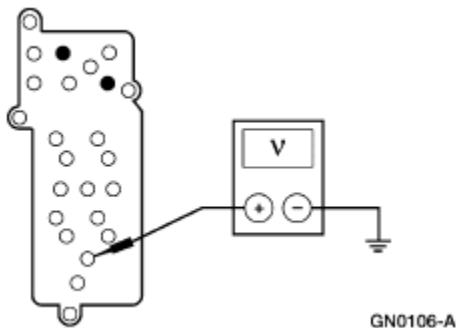
3



4



5



4 Trigger the GEM active command ACCY RLY to ON.

5 Measure the voltage between master window/door lock control switch C501-19, circuit 400 (LB/BK), and ground.

• Is the voltage greater than 10 volts?

→ **Yes**
GO to [A14](#).

→ **No**
GO to [A11](#).

A11 CHECK POWER DISTRIBUTION BOX MAXI-FUSE 4 (30A)

1



2



Maxi-Fuse 4 (30A)

- Is the fuse OK?

→ Yes

GO to [A12](#).

→ No

REPLACE maxi-fuse 4 (30A). CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.

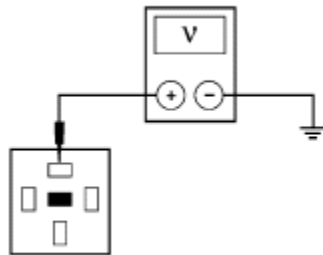
A12 CHECK THE VOLTAGE TO THE ACCESSORY DELAY RELAY SWITCH — CIRCUIT 170 (R/LB)

1



Accessory Delay Relay

2



GN0105-A

2

Measure the voltage between accessory delay relay connector pin 87, circuit 170 (R/LB), and ground.

- Is the voltage greater than 10 volts?

→ Yes

GO to [A13](#).

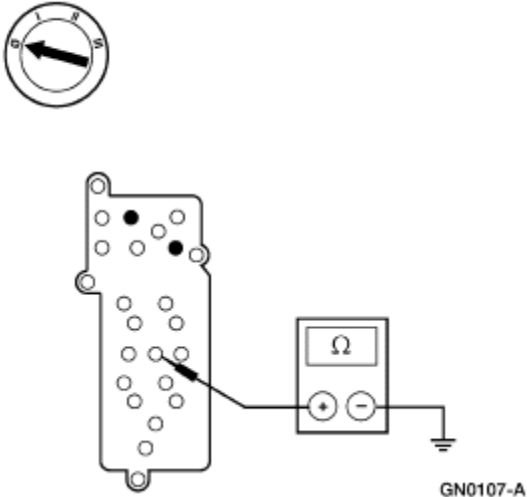
→ No

REPAIR circuit 170 (R/LB). CLEAR the DTCs. TEST the system for normal operation.

A13 CHECK THE ACCESSORY DELAY RELAY

1

Check the accessory delay relay; refer to

	Component Test. • Is the accessory delay relay OK? → Yes REPAIR circuit 400 (LB/BK). CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the accessory delay relay. CLEAR the DTCs. TEST the system for normal operation.
A14 CHECK THE GROUND TO THE MASTER WINDOW/DOOR LOCK CONTROL SWITCH — CIRCUIT 57 (BK)	
1  2	2 Measure the resistance between master window/door lock control switch C501-13, circuit 57 (BK), and ground. • Is the resistance less than 5 ohms? → Yes REPLACE the master window/door lock control switch; REFER to Switch—Window Regulator Control, Driver Door. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 57 (BK). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST B: SINGLE POWER WINDOW IS INOPERATIVE — DRIVER POWER WINDOW (4 DOOR)

CONDITIONS	DETAILS/RESULTS/ACTIONS
B1 CHECK THE IGNITION STATES — MONITOR THE GEM PID IGN_GEM	
1	



2



Scan Tool

3



3

Monitor the GEM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions.

- Do the PID values agree with the ignition switch positions?

→ Yes

GO to [B2](#).

→ No

REFER to [Section 417-02](#).

B2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)

1



2



Clear Continuous DTCs

3



GEM On-Demand Self-Test

1

Retrieve and document continuous DTCs.

- Are any DTCs recorded?

→ Yes

If DTC B1398, GO to [B3](#).If DTC B1400, GO to [B3](#).If DTC B1404, GO to [B9](#).If DTC B1405, GO to [B12](#).

	If DTC B1410, GO to B9. If DTC B1342, REPLACE the GEM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No GO to B13.
B3 CHECK THE ONE TOUCH DOWN RELAY COIL CIRCUIT — MONITOR THE GEM PID D_PWRLY	
1  2  3 	2 Trigger the GEM active command ACCY RLY to ON. 3 Monitor the GEM PID D_PWRLY while triggering the active command ONE TOUCH ON and OFF. • Does the GEM PID D_PWRLY value agree with the command mode? → Yes GO to B9. → No If the GEM PID D_PWRLY displays OFFO-G, GO to B4. If the GEM PID D_PWRLY displays ON-B-, GO to B7.
B4 CHECK THE ONE TOUCH DOWN RELAY	
1  2  One Touch Down Relay	3 Check the one touch down relay; refer to Component Test.

- Is the one touch down relay OK?

→ **Yes**

GO to [B5](#).

→ **No**

REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.

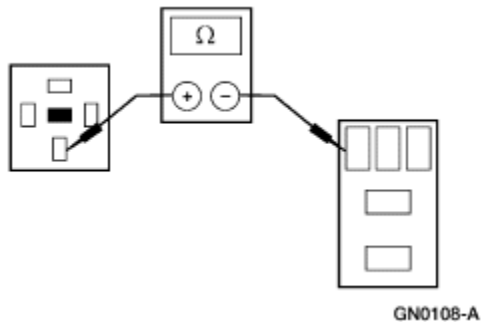
B5 CHECK CIRCUIT 400 (LB/BK) FOR OPEN BETWEEN THE ACCESSORY DELAY RELAY AND THE ONE TOUCH DOWN RELAY

1



Accessory Delay Relay

2



2

Measure the resistance between accessory delay relay connector pin 30, circuit 400 (LB/BK), and one touch down relay connector pin 2, circuit 400 (LB/BK).

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [B6](#).

→ **No**

REPAIR circuit 400 (LB/BK). CLEAR the DTCs. TEST the system for normal operation.

B6 CHECK CIRCUIT 1007 (Y/R) FOR OPEN

1

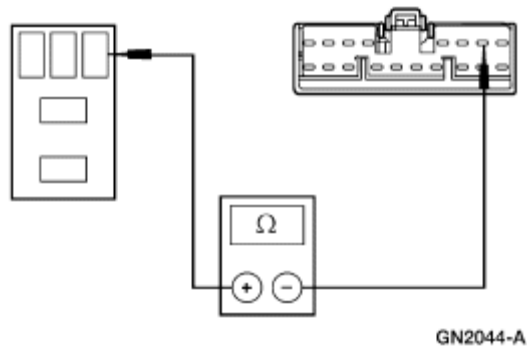


GEM C283

2

2

Measure the resistance between one touch down relay connector pin 1, circuit 1007 (Y/R), and GEM C283-7, circuit 1007 (Y/R).



- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 1007 (Y/R). CLEAR the DTCs. TEST the system for normal operation.

B7 CHECK THE ONE TOUCH DOWN RELAY

1



2



One Touch Down Relay

3

Check the one touch down relay; refer to Component Test.

- Is the one touch down relay OK?

→ **Yes**

GO to [B8](#).

→ **No**

REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.

B8 CHECK CIRCUIT 1007 (Y/R) FOR SHORT TO POWER

1

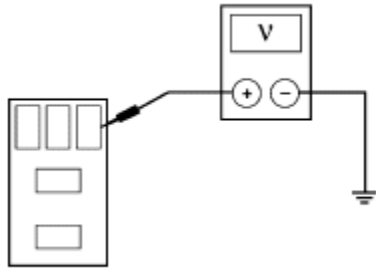


GEM C283

2



3



GN0110-A

3

Measure the voltage between one touch down relay connector pin 1, circuit 1007 (Y/R), and ground.

- Is any voltage indicated?

→ Yes

REPAIR circuit 1007 (Y/R). CLEAR the DTCs. TEST the system for normal operation.

→ No

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

B9 CHECK THE DRIVER POWER WINDOW DOWN OPERATION

1

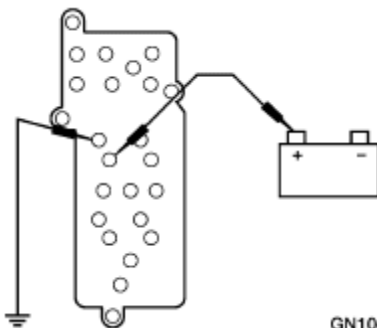


2



Master Window/Door Lock Control Switch C501

3



GN1043-A

3

Connect a jumper wire between master window/door lock control switch C501-8, circuit 992 (R/Y), and ground; and between master window/door lock control switch C501-10, circuit 991 (T/LB), and the positive battery terminal.

4



- Does the driver power window go down?

→ Yes

REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ No

Remove the jumper wires; GO to [B10](#).

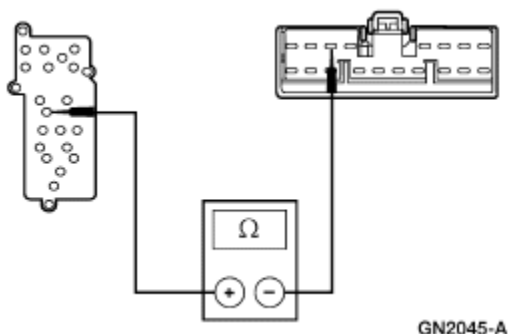
B10 CHECK CIRCUIT 991 (T/LB) FOR OPEN

1



GEM C283

2



GN2045-A

2

Measure the resistance between GEM C283-3, circuit 991 (T/LB), and master window/door lock control switch C501-10, circuit 991 (T/LB).

- Is the resistance less than 5 ohms?

→ Yes

GO to [B11](#).

→ No

REPAIR circuit 991 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

B11 CHECK CIRCUIT 991 (T/LB) FOR SHORT TO GROUND

1

Measure the resistance between GEM C283-3, circuit 991 (T/LB), and ground.

- Is the resistance greater than 10,000 ohms?

→ Yes

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 991 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

B12 CHECK CIRCUIT 991 (T/LB) FOR SHORT TO POWER

1



2



Master Window/Door Lock Control Switch C501

3

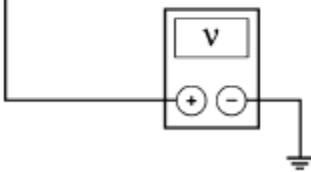
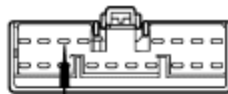


GEM C283

4



5



GN2046-A

5 Measure the voltage between GEM C283-3, circuit 991 (T/LB), and ground.

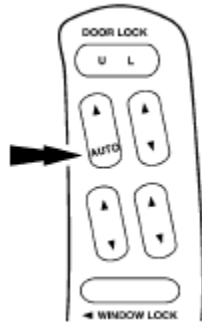
• Is any voltage indicated?

→ **Yes**
REPAIR circuit 991 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

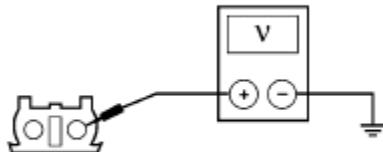
→ **No**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

B13 CHECK THE VOLTAGE TO THE DRIVER POWER WINDOW MOTOR — DOWN CONDITION**1****2**

Driver Power Window Motor C504

3**4**

GN1045-A

5

GN0114-A

4

Depress the DOWN position and hold on the master window/door lock control switch.

5

Measure the voltage between driver power window motor C504, circuit 903 (R), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**GO to [B16](#).→ **No**GO to [B14](#).**B14 CHECK CIRCUIT 903 (R) FOR OPEN****1**

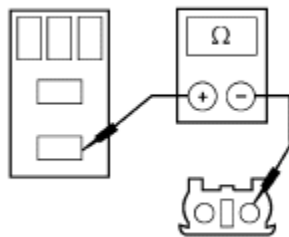


2



One Touch Down Relay

3



GN0115-A

3

Measure the resistance between one touch down relay connector pin 3, circuit 903 (R), and LF power window motor C504, circuit 903 (R).

- Is the resistance less than 5 ohms?

→ Yes

GO to [B15](#).

→ No

REPAIR circuit 903 (R). CLEAR the DTCs. TEST the system for normal operation.

B15 CHECK CIRCUIT 991 (T/LB) FOR OPEN

1



Master Window/Door Lock Control Switch C501

2

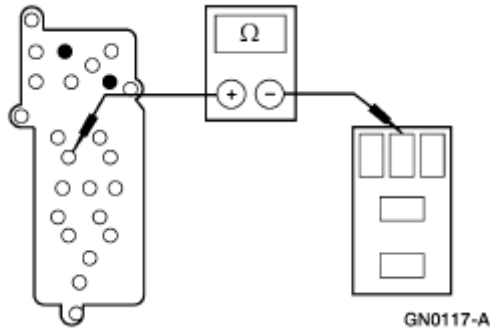


One Touch Down Relay

3

3

Measure the resistance between master window/door lock control switch, C501-10, circuit 991 (T/LB), and one touch down relay connector pin 4, circuit 991 (T/LB).



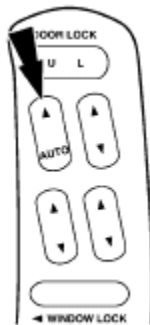
- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 991 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

B16 CHECK THE VOLTAGE TO THE DRIVER POWER WINDOW MOTOR — UP CONDITION

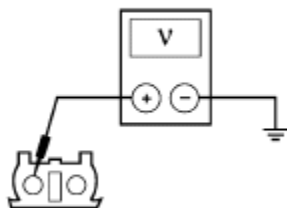
1



1

Depress the UP position and hold on the master window/door lock control switch.

2



2

Measure the voltage between driver power window motor C504, circuit 992 (W/BK), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
REPLACE the driver power window motor;
REFER to [Motor and Window Regulator—](#)

	Front Door . CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 992 (W/BK). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST C: SINGLE POWER WINDOW IS INOPERATIVE — DRIVER POWER WINDOW (2 DOOR)

CONDITIONS	DETAILS/RESULTS/ACTIONS
C1 CHECK THE IGNITION STATES — MONITOR THE GEM PID IGN _GEM	
1  2  3  Scan Tool	3 Monitor the GEM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions. Do the PID values agree with the ignition switch positions? → Yes GO to C2 . → No REFER to Section 417-02 .
C2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)	
1  2  3  Clear Continuous DTCs	1 Retrieve and document continuous DTCs.



GEM On-Demand Self-Test

- **Are any DTCs recorded?**

→ **Yes**

If DTC B1398, GO to [C3](#).

If DTC B1400, GO to [C3](#).

If DTC B1404, GO to [C9](#).

If DTC B1405, GO to [C12](#).

If DTC B1410, GO to [C9](#).

If DTC B1342, REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [C13](#).

C3 CHECK THE ONE TOUCH DOWN RELAY COIL CIRCUIT — MONITOR THE GEM PID D_PWRLY

1



2



3



2

Trigger the GEM active command ACCY RLY to ON.

3

Monitor the GEM PID D_PWRLY while triggering the active command ONE TOUCH ON and OFF.

- **Does the GEM PID D_PWRLY value agree with the command mode?**

→ **Yes**

GO to [C9](#).

→ **No**

If the GEM PID D_PWRLY displays OFFO-G, GO to [C4](#).

If the GEM PID D_PWRLY displays ON-B-, GO

to [C7](#).**C4 CHECK THE ONE TOUCH DOWN RELAY****1****2**

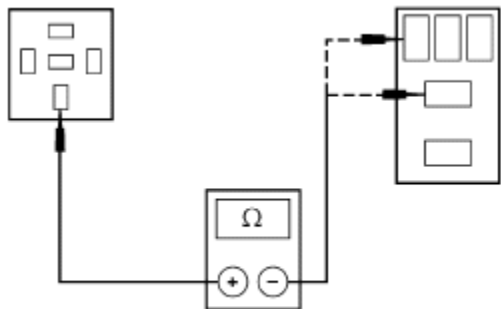
One Touch Down Relay

3 Check the one touch down relay; refer to Component Test.

- **Is the one touch down relay OK?**

→ **Yes**
GO to [C5](#).→ **No**
REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.**C5 CHECK CIRCUIT 400 (LB/BK) FOR OPEN BETWEEN THE ACCESSORY DELAY RELAY AND THE ONE TOUCH DOWN RELAY****1**

Accessory Delay Relay

2

GN2047-A

2 Measure the resistance between accessory delay relay connector pin 30, circuit 400 (LB/BK), and one touch down relay connector pin 2, circuit 400 (LB/BK); and between accessory delay relay connector pin 30, circuit 400 (LB/BK), and one touch down relay connector pin 5, circuit 400 (LB/BK).

- **Are the resistances less than 5 ohms?**

→ **Yes**
GO to [C6](#).→ **No**

REPAIR circuit 400 (LB/BK). CLEAR the DTCs. TEST the system for normal operation.

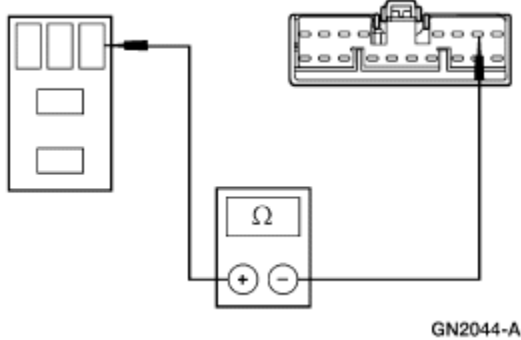
C6 CHECK CIRCUIT 1007 (Y/R) FOR OPEN

1



GEM C283

2



2

Measure the resistance between one touch down relay connector pin 1, circuit 1007 (Y/R), and GEM C283-7, circuit 1007 (Y/R).

- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 1007 (Y/R). CLEAR the DTCs. TEST the system for normal operation.

C7 CHECK THE ONE TOUCH DOWN RELAY

1



2



One Touch Down Relay

3

Check the one touch down relay; refer to Component Test.

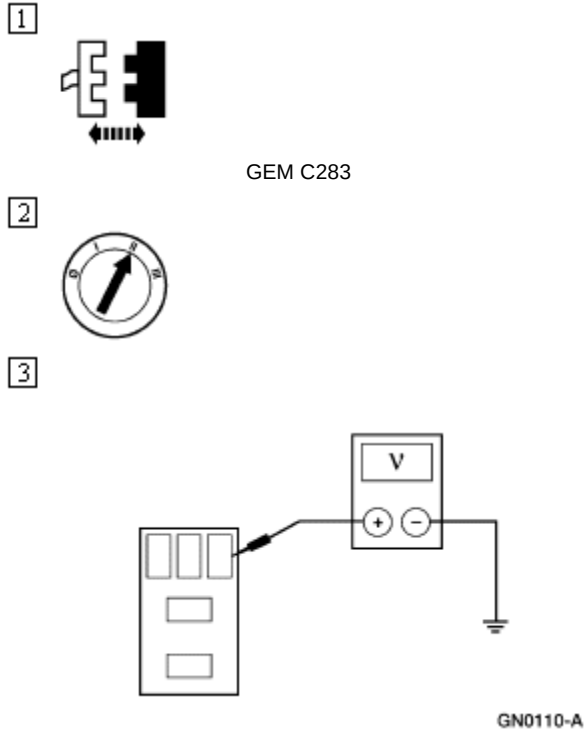
- Is the one touch down relay OK?

→ **Yes**

GO to [C8](#).

→ **No**
REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.

C8 CHECK CIRCUIT 1007 (Y/R) FOR SHORT TO POWER



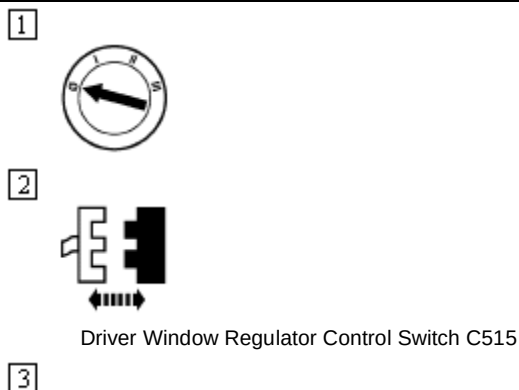
3 Measure the voltage between one touch down relay connector pin 1, circuit 1007 (Y/R), and ground.

• Is any voltage indicated?

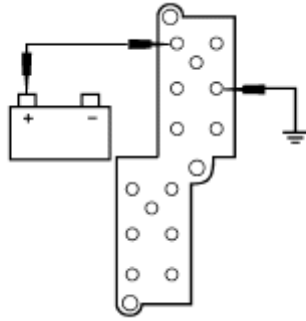
→ **Yes**
REPAIR circuit 1007 (Y/R). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

C9 CHECK THE DRIVER POWER WINDOW DOWN OPERATION



3 Connect a jumper wire between driver window



GN1369-A

4



regulator control switch C515-5, circuit 992 (R/Y), and ground; and between driver window regulator control switch C515-1, circuit 991 (T/LB), and the positive battery terminal.

- Does the driver power window go down?

→ **Yes**

REPLACE the driver window regulator control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

Remove the jumper wires; GO to [C10](#).

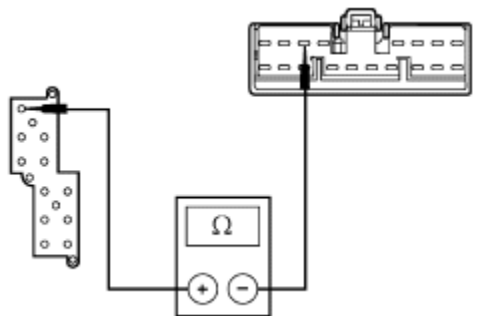
C10 CHECK CIRCUIT 991 (T/LB) FOR OPEN

1



GEM C283

2



GN2048-A

- 2 Measure the resistance between GEM C283-3, circuit 991 (T/LB), and driver window regulator control switch C515-1, circuit 991 (T/LB).

- Is the resistance less than 5 ohms?

→ **Yes**

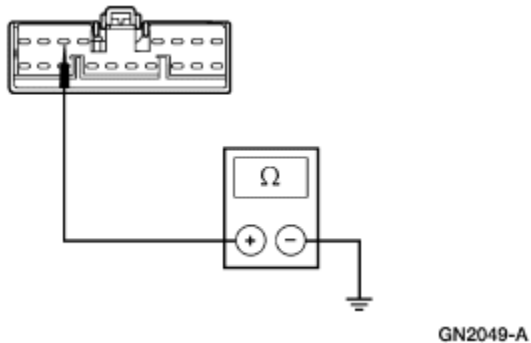
GO to [C11](#).

→ **No**

REPAIR circuit 991 (T/LB). CLEAR the DTCs.
TEST the system for normal operation.

C11 CHECK CIRCUIT 991 (T/LB) FOR SHORT TO GROUND

1



1

Measure the resistance between GEM C283-3, circuit 991 (T/LB), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 991 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

C12 CHECK CIRCUIT 991 (T/LB) FOR SHORT TO POWER

1



2



Driver Window Regulator Control Switch C515

3



GEM C283

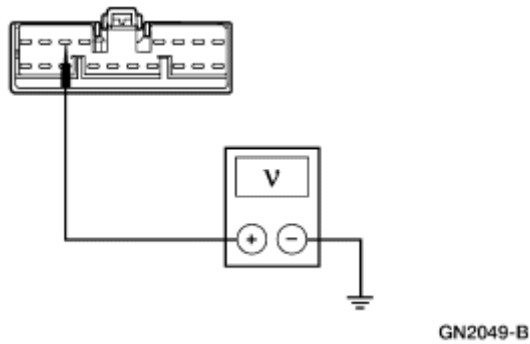
4



5

5

Measure the voltage between GEM C283-3, circuit 991 (T/LB), and ground.



- Is any voltage indicated?

→ **Yes**
REPAIR circuit 991 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

C13 CHECK THE VOLTAGE TO THE DRIVER POWER WINDOW MOTOR — DOWN CONDITION

1



2



Driver Power Window Motor C504

3



4

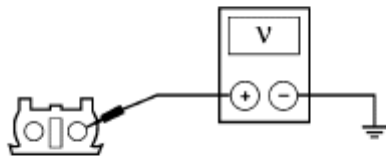


GN1393-A

5

4 Depress the DOWN position and hold on the master window/door lock control switch.

5 Measure the voltage between driver power window motor C504, circuit 903 (R), and



GN0114-A

ground.

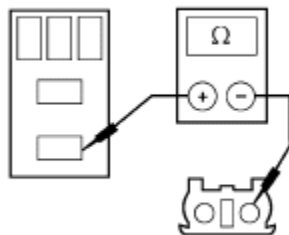
- Is the voltage greater than 10 volts?

→ **Yes**
GO to [C16](#).

→ **No**
GO to [C14](#).

C14 CHECK CIRCUIT 903 (R) FOR OPEN**1****2**

One Touch Down Relay

3

GN0115-A

- 3** Measure the resistance between one touch down relay connector pin 3, circuit 903 (R), and driver power window motor C504, circuit 903 (R).

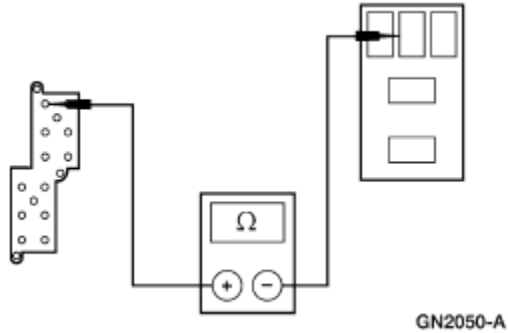
- Is the resistance less than 5 ohms?

→ **Yes**
GO to [C15](#).

→ **No**
REPAIR circuit 903 (R). CLEAR the DTCs.
TEST the system for normal operation.

C15 CHECK CIRCUIT 991 (T/LB) FOR OPEN**1**

Driver Power Window Switch C515

2**2**

Measure the resistance between driver power window switch C515-1, circuit 991 (T/LB), and one touch down relay connector pin 4, circuit 991 (T/LB).

- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 991 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

C16 CHECK THE VOLTAGE TO THE DRIVER POWER WINDOW MOTOR — UP CONDITION**1**

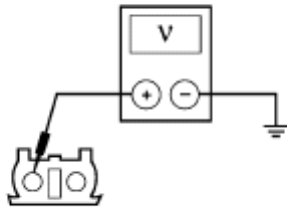
GN1394-A

2**1**

Depress the UP position and hold on the driver power window switch.

2

Measure the voltage between driver power window motor C504, circuit 992 (W/BK), and ground.



GN0119-A

- Is the voltage greater than 10 volts?

→ **Yes**

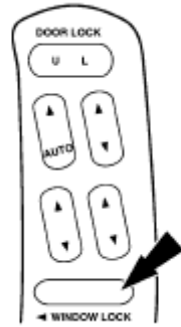
REPLACE the driver power window motor;
REFER to [Motor and Window Regulator—
Front Door](#) . CLEAR the DTCs. TEST the
system for normal operation.

→ **No**

REPAIR circuit 992 (W/BK). CLEAR the DTCs.
TEST the system for normal operation.

PINPOINT TEST D: SINGLE POWER WINDOW IS INOPERATIVE — PASSENGER POWER WINDOW (4 DOOR)

CONDITIONS	DETAILS/RESULTS/ACTIONS
D1 CHECK THE VOLTAGE TO THE PASSENGER WINDOW REGULATOR CONTROL SWITCH — CIRCUIT 170 (R/LB)	
1  2  Passenger Window Regulator Control Switch C615 3	3 Depress the right side of the window lock switch.

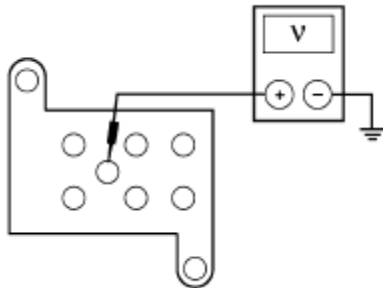


GN0120-A

4



5



GN0121-A

- 5 Measure the voltage between passenger window regulator control switch C615-4, circuit 170 (R/LB), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [D2](#).

→ **No**
GO to [D3](#).

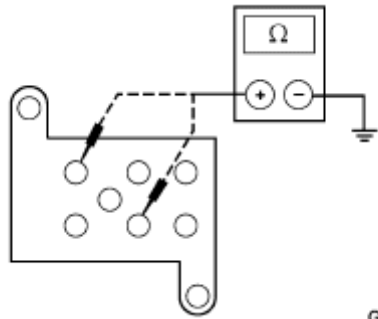
D2 CHECK THE GROUNDS TO THE PASSENGER WINDOW REGULATOR CONTROL SWITCH
— CIRCUITS 313 (W/Y) AND 314 (T/LB)

1



2

- 2 Measure the resistance between passenger window regulator control switch C615-1, circuit 313 (W/Y), C615-6, circuit 314 (T/LB), and ground.



GN0122-A

- Are the resistances less than 14 ohms?

→ **Yes**
GO to [D5](#).

→ **No**
GO to [D4](#).

D3 CHECK THE DRIVER MASTER WINDOW/DOOR LOCK CONTROL SWITCH

1

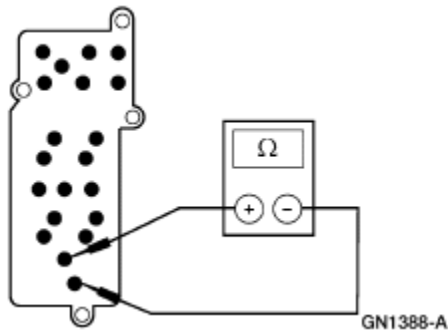


2



Master Window/Door Lock Control Switch C501

3



GN1388-A

- 3 NOTE:** Set the window lock switch in the UNLOCK position.

Measure the resistance between master window/door lock control switch terminals 19 and 20.

- Is the resistance less than 5 ohms?

→ **Yes**
REPAIR circuit 170 (R/LB). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator](#)

[Control, Driver Door](#) . CLEAR the DTCs. TEST the system for normal operation.

D4 CHECK CIRCUITS 313 (W/Y) AND 314 (T/LB) FOR OPEN

1

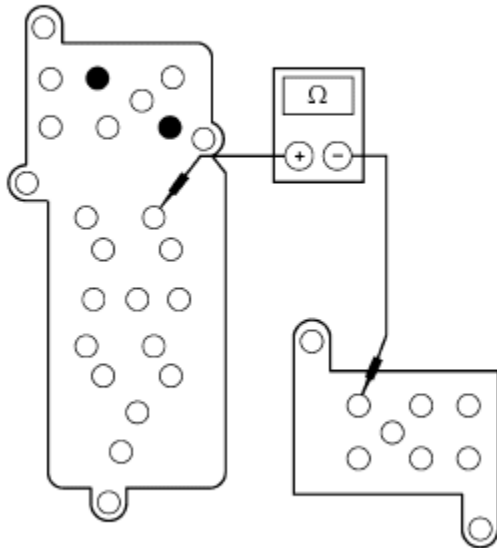


2



Master Window/Door Lock Control Switch C501

3



GN0123-A

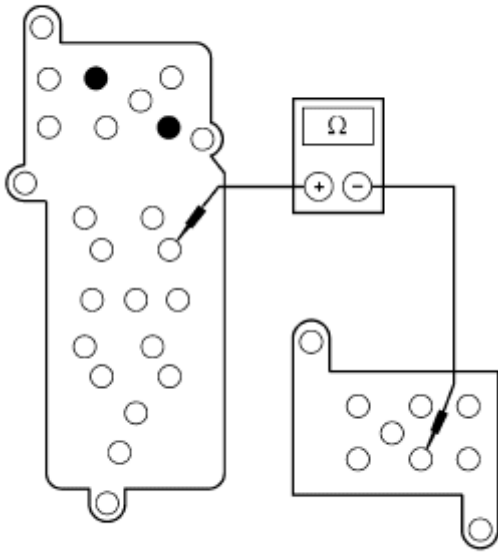
3

Measure the resistance between master window/door lock control switch C501-9, circuit 313 (W/Y), and passenger power window switch C615-1, circuit 313 (W/Y).

4

4

Measure the resistance between master window/door lock control switch C501-11, circuit 314 (T/LB), and passenger window regulator control switch C615-6, circuit 314 (T/LB).



GN0124-A

- Are the resistances less than 5 ohms?

→ **Yes**

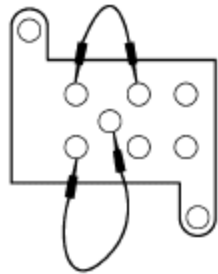
REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 313 (W/Y) and/or circuit 314 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

D5 CHECK THE PASSENGER WINDOW REGULATOR CONTROL SWITCH — DOWN DIRECTION

1



GN0125-A

1

Connect a jumper wire between passenger window regulator control switch C615-1, circuit 313 (W/Y), and C615-2, circuit 333 (Y/R); and between passenger window regulator control switch C615-4, circuit 170 (R/LB), and C615-5, circuit 334 (R/Y).

2



- Does the window operate in the downward direction?

→ **Yes**

If the passenger power window did not operate with the passenger window regulator control switch, REPLACE the passenger window regulator control switch; REFER to [Switch—Window Regulator Control, Rear Door](#). CLEAR the DTCs. TEST the system for normal operation.

If the passenger power window did operate with the passenger window regulator control switch but not with the master window/door lock control switch, REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

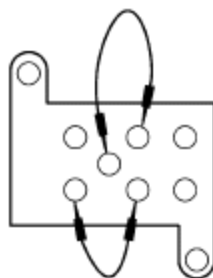
Remove the jumper wires; GO to [D6](#).

D6 CHECK THE PASSENGER WINDOW REGULATOR CONTROL SWITCH — UP DIRECTION

1



2



GN0126-A

3



- 2 Connect a jumper wire between passenger window regulator control switch C615-5, circuit 334 (R/Y), and C615-6, circuit 314 (T/LB); and between passenger window regulator control switch C615-2, circuit 333 (Y/R), and C615-4, circuit 170 (R/LB).

- Does the window operate in the upward direction?

→ **Yes**

If the passenger power window does not operate with the passenger window regulator control switch, REPLACE the passenger window regulator control switch; REFER to [Switch—Window Regulator Control, Rear Door](#). CLEAR the DTCs. TEST the system for normal operation.

If the passenger power window did operate with the passenger window regulator control switch but not with the master window/door lock control switch, REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

Remove the jumper wires; GO to [D7](#).

D7 CHECK CIRCUIT 333 (Y/R) FOR OPEN

1

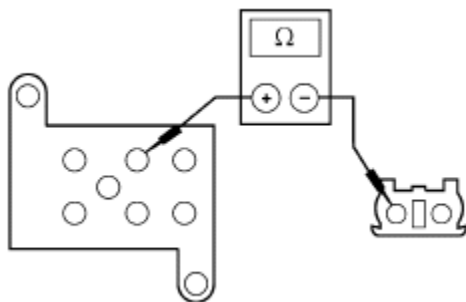


2



RF Power Window Motor C604

3



GN0127-A

3

Measure the resistance between passenger window regulator control switch C615-2, circuit 333 (Y/R), and passenger window motor C604, circuit 333 (Y/R).

- Is the resistance less than 5 ohms?

→ **Yes**

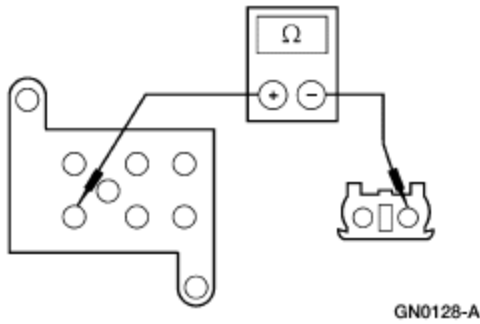
GO to [D8](#).

→ **No**

REPAIR circuit 333 (Y/R). CLEAR the DTCs. TEST the system for normal operation.

D8 CHECK CIRCUIT 334 (R/Y) FOR OPEN

1



1

Measure the resistance between passenger power window switch C615-5, circuit 334 (R/Y), and passenger power window motor C604, circuit 334 (R/Y).

- Is the resistance less than 5 ohms?

→ Yes

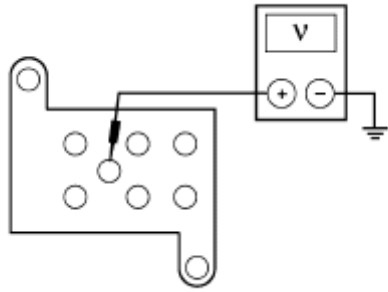
REPLACE the passenger power window motor; REFER to [Motor and Window Regulator—Front Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ No

REPAIR circuit 334 (R/Y). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST E: SINGLE POWER WINDOW IS INOPERATIVE — PASSENGER WINDOW REGULATOR CONTROL (2 DOOR)

CONDITIONS	DETAILS/RESULTS/ACTIONS
E1 CHECK THE VOLTAGE TO THE PASSENGER WINDOW REGULATOR CONTROL SWITCH — CIRCUIT 400 (LB/BK)	
1 2 Passenger Power Window Switch C615 3 4	4 Measure the voltage between passenger window regulator control switch C615-4, circuit 400 (LB/BK), and ground.



GN0121-A

- Is the voltage greater than 10 volts?

→ **Yes**

GO to [E2](#).

→ **No**

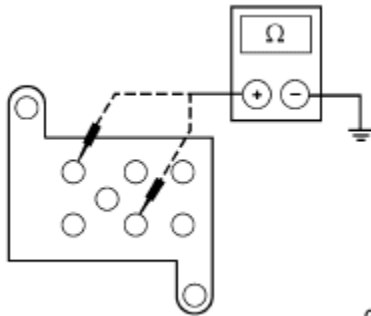
REPAIR circuit 400 (LB/BK). CLEAR the DTCs. TEST the system for normal operation.

E2 CHECK THE GROUNDS TO THE PASSENGER WINDOW REGULATOR CONTROL SWITCH — CIRCUITS 313 (W/Y) AND 314 (T/LB)

1



2



GN0122-A

2

Measure the resistance between passenger window regulator control switch C615-1, circuit 313 (W/Y), C615-6, circuit 314 (T/LB), and ground.

- Are the resistances less than 14 ohms?

→ **Yes**

GO to [E4](#).

→ **No**

GO to [E3](#).

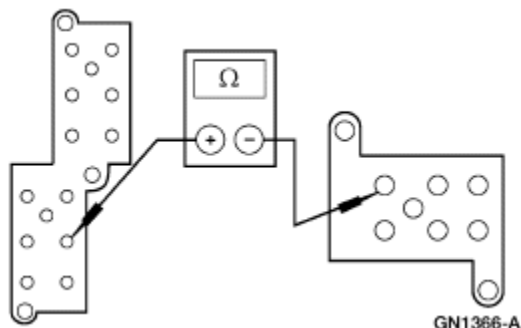
E3 CHECK CIRCUITS 313 (W/Y) AND 314 (T/LB) FOR OPEN

1

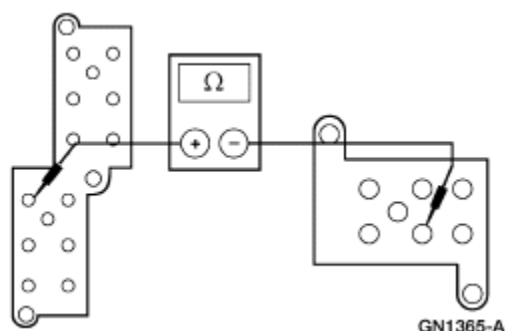


Driver Window Regulator Control Switch C515

2



3



2

Measure the resistance between driver window regulator control switch C515-12, circuit 313 (W/Y), and passenger window regulator control switch C615-1, circuit 313 (W/Y).

3

Measure the resistance between driver window regulator control switch C515-8, circuit 314 (T/LB), and passenger window regulator control switch C615-6, circuit 314 (T/LB).

• Are the resistances less than 5 ohms?

→ **Yes**

REPLACE the passenger window regulator control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

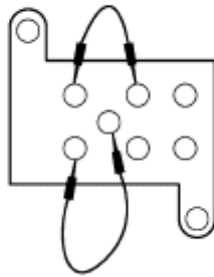
REPAIR circuit 313 (W/Y) and/or circuit 314 (T/LB). CLEAR the DTCs. TEST the system for normal operation.

F4 CHECK THE PASSENGER WINDOW REGULATOR CONTROL SWITCH — DOWN DIRECTION

1

1

Connect a jumper wire between passenger window regulator control switch C615-1, circuit 313 (W/Y), and C615-2, circuit 333 (Y/R); and between passenger window regulator control switch C615-4, circuit 400 (LB/BK), and C615-5, circuit 334 (R/Y).



GN0125-A

2



- Does the window operate in the downward direction?

→ Yes

If the passenger power window did not operate with the passenger window regulator control switch, REPLACE the passenger window regulator control switch; REFER to [Switch—Window Regulator Control, Rear Door](#). CLEAR the DTCs. TEST the system for normal operation.

If the passenger power window did operate with the passenger window regulator control switch but not with the driver window regulator control switch, REPLACE the driver window regulator control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ No

Remove the jumper wires; GO to [E5](#).

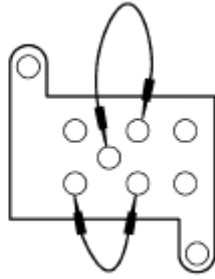
E5 CHECK THE PASSENGER WINDOW REGULATOR CONTROL SWITCH — UP DIRECTION

1



2

- 2 Connect a jumper wire between passenger window regulator control switch C615-5, circuit 334 (R/Y), and C615-6, circuit 314 (T/LB); and between passenger window regulator control switch C615-2, circuit 333 (Y/R), and C615-4, circuit 400 (LB/BK).



GN0126-A

3



- Does the window operate in the upward direction?

→ **Yes**

If the passenger power window does not operate with the passenger window regulator control switch, REPLACE the passenger window regulator control switch; REFER to [Switch—Window Regulator Control, Rear Door](#). CLEAR the DTCs. TEST the system for normal operation.

If the passenger power window did operate with the passenger window regulator control switch but not with the driver window regulator control switch, REPLACE the driver window regulator control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

Remove the jumper wires; GO to [E6](#).

E6 CHECK CIRCUIT 333 (Y/R) FOR OPEN

1



2

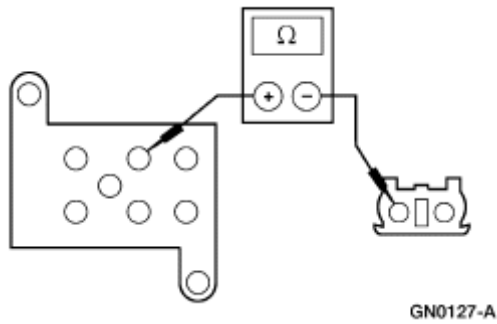


Passenger Power Window Motor C604

3

3

Measure the resistance between passenger window regulator control switch C615-2, circuit 333 (Y/R), and passenger power



window motor C604, circuit 333 (Y/R).

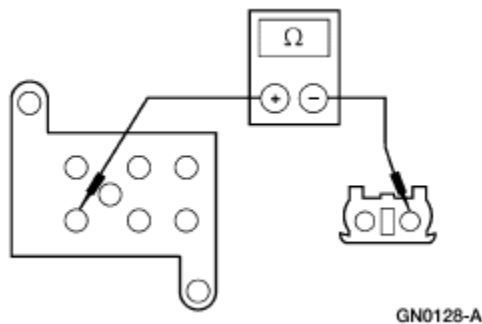
- Is the resistance less than 5 ohms?

→ **Yes**
GO to [E7](#).

→ **No**
REPAIR circuit 333 (Y/R). CLEAR the DTCs. TEST the system for normal operation.

E7 CHECK CIRCUIT 334 (R/Y) FOR OPEN

1



1

Measure the resistance between passenger window regulator control switch C615-5, circuit 334 (R/Y), and passenger power window motor C604, circuit 334 (R/Y).

- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the passenger power window motor; REFER to [Motor and Window Regulator—Front Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 334 (R/Y). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST F: SINGLE POWER WINDOW IS INOPERATIVE — LR POWER WINDOW

CONDITIONS	DETAILS/RESULTS/ACTIONS
F1 CHECK THE VOLTAGE TO THE LR WINDOW REGULATOR CONTROL SWITCH — CIRCUIT 170 (R/LB)	

1

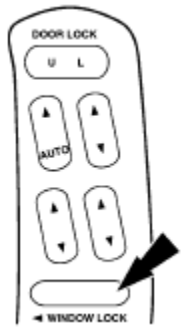


2



LR Power Window Switch C702

3

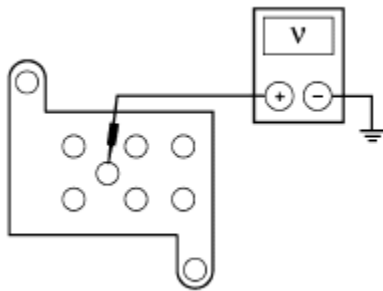


GN0120-A

4



5



GN0121-A

3

Depress the right side of the window lock switch.

5

Measure the voltage between LR window regulator control switch C702-4, circuit 170 (R/LB), and ground.

- Is the voltage greater than 10 volts?

→ Yes
GO to [F2](#).

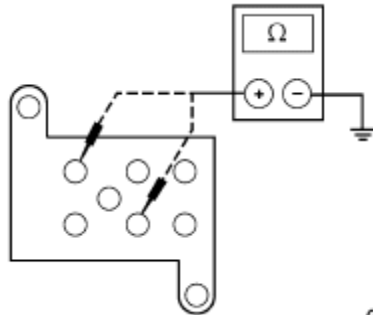
→ No
GO to [F3](#).

F2 CHECK THE GROUNDS TO THE LR WINDOW REGULATOR CONTROL SWITCH — CIRCUITS 316 (Y/LB) AND 317 (GY/O)

1



2



GN0122-A

2

Measure the resistance between LR window regulator control switch C702-1, circuit 317 (GY/O), C702-6, circuit 316 (Y/LB), and ground.

- Are the resistances less than 5 ohms?

→ **Yes**
GO to [F6](#).

→ **No**
GO to [F4](#).

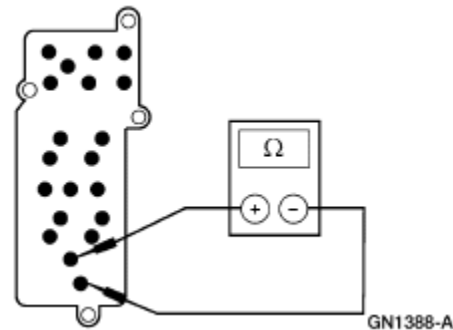
F3 CHECK THE MASTER WINDOW/DOOR LOCK CONTROL SWITCH

1



Master Window/Door Lock Control Switch C501

2



GN1388-A

2

Measure the resistance between master window/door lock control switch terminals 19 and 20.

- Is the resistance less than 5 ohms?

→ **Yes**
REPAIR circuit 170 (R/LB). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator](#)

[Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

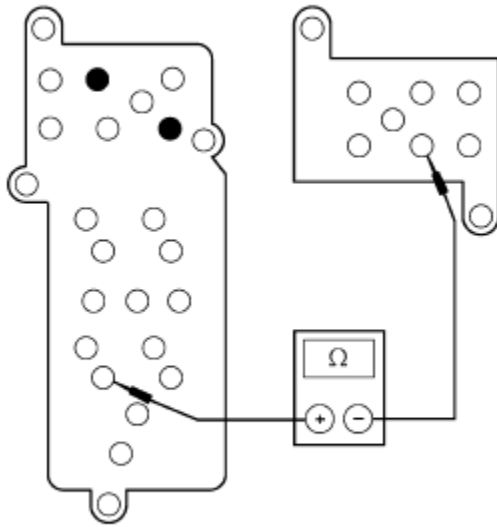
F4 CHECK CIRCUIT 316 (Y/LB) FOR OPEN

1



Master Window/Door Lock Control Switch C501

2



GN0129-A

2

Measure the resistance between master window/door lock control switch C501-17, circuit 316 (Y/LB), and LR window regulator control switch C701-6, circuit 316 (Y/LB).

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [F5](#).

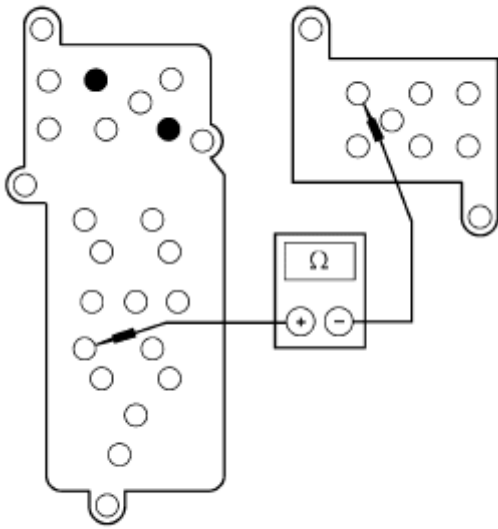
→ **No**
REPAIR circuit 316 (Y/LB). CLEAR the DTCs. TEST the system for normal operation.

F5 CHECK CIRCUIT 317 (GY/O) FOR OPEN

1

1

Measure the resistance between master window/door lock control switch C501-15, circuit 317 (GY/O), and LR window regulator control switch C702-1, circuit 317 (GY/O).



GN0130-A

- Is the resistance less than 5 ohms?

→ **Yes**

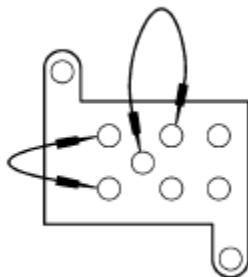
REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 317 (GY/O). CLEAR the DTCs. TEST the system for normal operation.

F6 CHECK THE LR WINDOW REGULATOR CONTROL SWITCH — DOWNWARD DIRECTION

1



GN0131-A

1

Connect a jumper wire between LR window regulator control switch C702-1, circuit 317 (GY/O), and C702-5, circuit 884 (Y/BK); and between LR window regulator control switch C702-2, circuit 885 (Y/LB), and C702-4, circuit 170 (R/LB).

2



- Does the window operate in the downward direction?

→ **Yes**

If the LR power window did not operate with the LR window regulator control switch, REPLACE the LR window regulator control switch; REFER to [Switch—Window Regulator Control, Rear Door](#). CLEAR the DTCs. TEST the system for normal operation.

If the LR power window did operate with the LR window regulator control switch but not with the master window/door lock control switch, REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

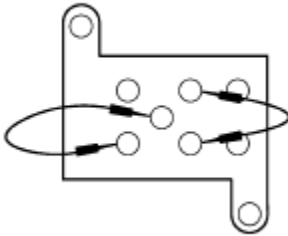
Remove the jumper wires; GO to [F7](#).

F7 CHECK THE LR WINDOW REGULATOR CONTROL SWITCH — UPWARD DIRECTION

1



2



GN0132-A

3



- 2 Connect a jumper wire between LR window regulator control switch C702-2, circuit 885 (Y/LB), and C702-6, circuit 316 (Y/LB); and between LR window regulator control switch C702-4, circuit 170 (R/LB), and C702-5, circuit 884 (Y/BK).

- Does the window operate in the upward direction?

→ **Yes**

If the LR power window did not operate with the LR window regulator control switch, REPLACE the LR window regulator control switch; REFER to [Switch—Window Regulator](#)

[Control, Rear Door](#). CLEAR the DTCs. TEST the system for normal operation.

If the LR power window did operate with the LR window regulator control switch but not with the master window/door lock control switch, REPLACE the master window/door lock window control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

Remove the jumper wires; GO to [F8](#).

F8 CHECK CIRCUIT 884 (Y/BK) FOR OPEN

1

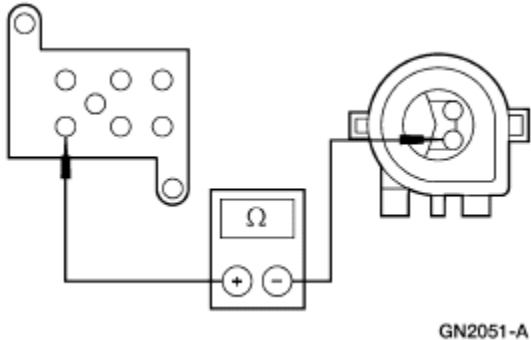


2



LR Power Window Motor C701

3



3

Measure the resistance between LR window regulator control switch C702-5, circuit 884 (Y/BK), and LR power window motor C701, circuit 884 (Y/BK).

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [F9](#).

→ **No**

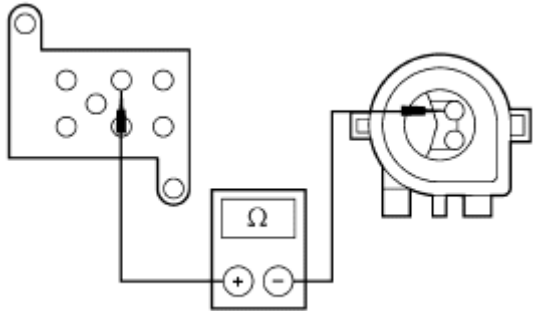
REPAIR circuit 884 (Y/BK). CLEAR the DTCs. TEST the system for normal operation.

F9 CHECK CIRCUIT 334 (Y/LB) FOR OPEN

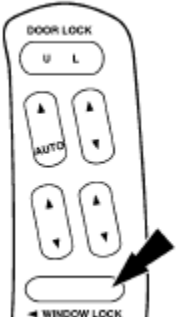
1

1

Measure the resistance between LR window regulator control switch C702-2, circuit 885 (Y/LB), and LR power window motor C701, circuit 885 (Y/LB).

 GN2052-A	• Is the resistance less than 5 ohms? → Yes REPLACE the LR power window motor; REFER to Motor and Window Regulator—Front Door. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 885 (Y/LB). CLEAR the DTCs. TEST the system for normal operation.

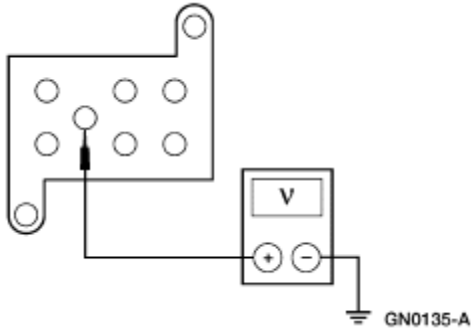
PINPOINT TEST G: SINGLE POWER WINDOW IS INOPERATIVE — RR POWER WINDOW

CONDITIONS	DETAILS/RESULTS/ACTIONS
G1 CHECK THE VOLTAGE TO THE RR WINDOW REGULATOR CONTROL SWITCH — CIRCUIT 170 (R/LB) 1  2  RR Window Regulator Control Switch C802 3  GN0120-A	3 Depress the right side of the window lock switch.

4



5



5

Measure the voltage between RR window regulator control switch C802-4, circuit 170 (R/LB), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [G2](#).

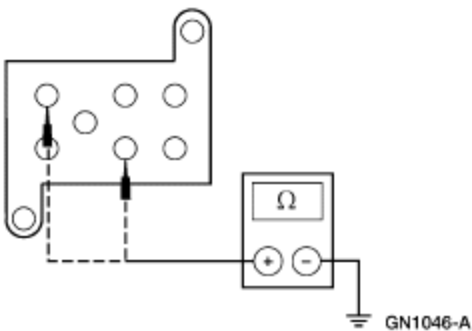
→ **No**
GO to [G3](#).

G2 CHECK THE GROUNDS TO THE RR WINDOW REGULATOR CONTROL SWITCH — CIRCUITS 319 (Y/BK) AND 320 (R/BK)

1



2



2

Measure the resistance between RR window regulator control switch C802-6, circuit 320 (R/BK), C802-1, circuit 319 (Y/BK), and ground.

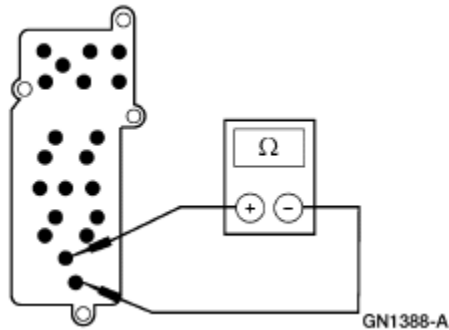
- Are the resistances less than 5 ohms?

→ **Yes**
GO to [G6](#).

→ **No**
GO to [G4](#).

G3 CHECK THE MASTER WINDOW/DOOR LOCK CONTROL SWITCH**1**

Master Window/Door Lock Control Switch C501

2**2**

Measure the resistance between master window/door lock control switch terminals 19 and 20.

- Is the resistance less than 5 ohms?

→ **Yes**

REPAIR circuit 170 (R/LB). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

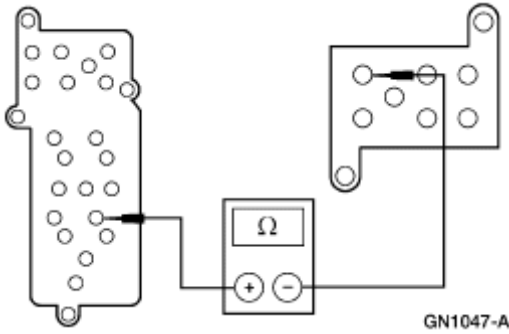
REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

G4 CHECK CIRCUIT 319 (Y/BK) FOR OPEN**1****2**

Master Window/Door Lock Control Switch C501

3**3**

Measure the resistance between master window/door lock control switch C501-16, circuit 319 (Y/BK), and RR window regulator control switch C802-1, circuit 319 (Y/BK).



- Is the resistance less than 5 ohms?

→ **Yes**

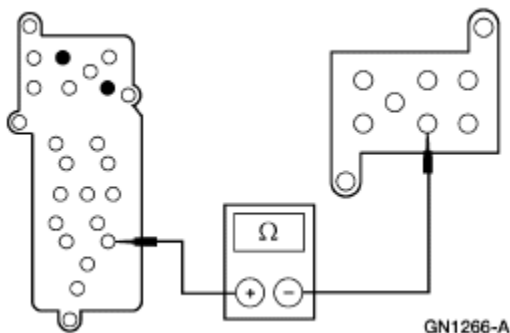
GO to [G5](#).

→ **No**

REPAIR circuit 319 (Y/BK). CLEAR the DTCs. TEST the system for normal operation.

G5 CHECK CIRCUIT 320 (R/BK) FOR OPEN

1



1

Measure the resistance between master window/door lock control switch C501-18, circuit 320 (R/BK), and RR window regulator control switch C802-6, circuit 320 (R/BK).

- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

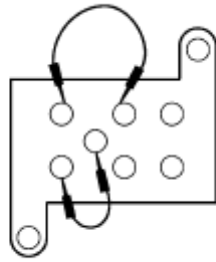
REPAIR circuit 320 (R/BK). CLEAR the DTCs. TEST the system for normal operation.

G6 CHECK THE RR WINDOW REGULATOR CONTROL SWITCH — DOWNWARD DIRECTION

1

1

Connect a jumper wire between RR window regulator control switch C802-1, circuit 319 (Y/BK), and C802-2, circuit 881 (BR); and between RR window regulator control switch C802-4, circuit 170 (R/LB), and C802-5, circuit 882 (BR/Y).



GN1048-A

2



- Does the window operate in the downward direction?

→ Yes

If the RR power window did not operate with the RR window regulator control switch, REPLACE the RR window regulator control switch; REFER to [Switch—Window Regulator Control, Rear Door](#). CLEAR the DTCs. TEST the system for normal operation.

If the RR power window did operate with the RR window regulator control switch but not with the master window/door lock control switch, REPLACE the master window/door lock control switch; REFER to [Switch—Window Regulator Control, Driver Door](#). CLEAR the DTCs. TEST the system for normal operation.

→ No

Remove the jumper wires; GO to [G7](#).

G7 CHECK THE RR WINDOW REGULATOR CONTROL SWITCH — UPWARD DIRECTION

1

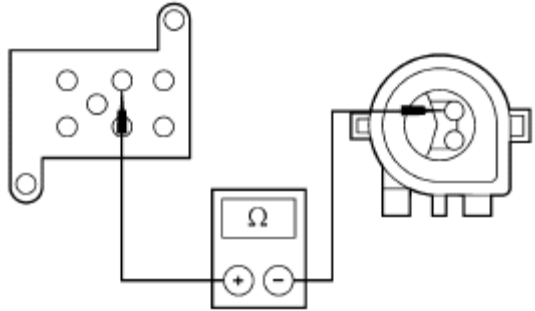
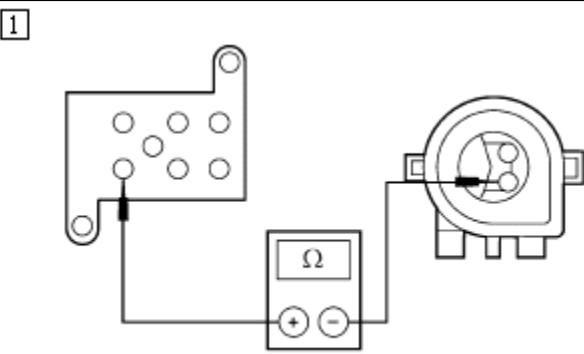


2

2

Connect a jumper wire between RR window regulator control switch C802-5, circuit 882 (BR/Y), and C802-6, circuit 320 (R/BK); and between RR window regulator control switch C802-2, circuit 881 (BR), and C802-4, circuit 170 (R/LB).

GN1376-A 3	• Does the window operate in the upward direction? → Yes If the RR power window did not operate with the RR window regulator control switch, REPLACE the RR window regulator control switch; REFER to Switch—Window Regulator Control, Rear Door. CLEAR the DTCs. TEST the system for normal operation. If the RR power window did operate with the RR window regulator control switch, but not with the master window/door lock control switch, REPLACE the master window/door lock control switch; REFER to Switch—Window Regulator Control, Driver Door. CLEAR the DTCs. TEST the system for normal operation. → No Remove the jumper wires; GO to G8.
G8 CHECK CIRCUIT 881 (BR) FOR OPEN	
1 2 RR Power Window Motor C801 3	3 Measure the resistance between RR window regulator control switch C802-2, circuit 881 (BR), and RR power window motor C801, circuit 881 (BR).

 GN2053-A	• Is the resistance less than 5 ohms? → Yes GO to G9. → No REPAIR circuit 881 (BR). CLEAR the DTCs. TEST the system for normal operation.
G9 CHECK CIRCUIT 882 (BR/Y) FOR OPEN	
1  GN2054-A	1 Measure the resistance between RR window regulator control switch C802-5, circuit 882 (BR/Y), and RR power window motor C801, circuit 882 (BR/Y). • Is the resistance less than 5 ohms? → Yes REPLACE the RR power window motor; REFER to Motor and Window Regulator—Front Door. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 882 (BR/Y). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST H: THE ONE TOUCH DOWN FEATURE IS INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
H1 CHECK THE IGNITION STATES — MONITOR THE GEM PID IGN_GEM	
1	



2



Scan Tool

3



3

Monitor the GEM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF, and ACC positions.

- Do the PID values agree with the ignition switch positions?

→ Yes

GO to [H2](#).

→ No

REFER to [Section 417-02](#).

H2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)

1



2



Clear Continuous DTCs

3



GEM On-Demand Self-Test

1

Retrieve and document continuous DTCs.

- Are any DTCs recorded?

→ Yes

If DTC B1398, GO to [H3](#).If DTC B1400, GO to [H3](#).

If DTC B1342, REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
GO to [H3](#).

H3 CHECK THE ONE TOUCH DOWN RELAY COIL CIRCUIT — MONITOR THE GEM PID D_PWRLY

1



2



3



2 Trigger the GEM active command ACCY RLY to ON.

3 Monitor the GEM PID D_PWRLY while triggering the active command ONE TOUCH ON and OFF.

- Does the GEM PID D_PWRLY agree with the command mode?

→ **Yes**
GO to [H9](#).

→ **No**
If the GEM PID D_PWRLY displays OFFO-G,
GO to [H4](#).

If the GEM PID D_PWRLY displays ON-B-, GO to [H7](#).

H4 CHECK THE ONE TOUCH DOWN RELAY

1



2



One Touch Down Relay

3 Check the one touch down relay; refer to Component Test.

- Is the one touch down relay OK?

→ **Yes**
GO to [H5](#).

→ **No**
REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.

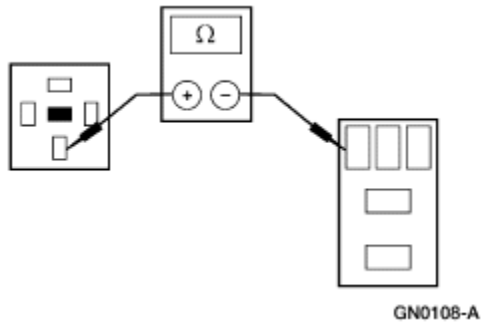
H5 CHECK CIRCUIT 400 (LB/BK) FOR OPEN

1



Accessory Delay Relay

2



2 Measure the resistance between one touch down relay connector pin 2, circuit 400 (LB/BK), and accessory delay relay connector pin 30, circuit 400 (LB/BK).

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [H6](#).

→ **No**
REPAIR circuit 400 (LB/BK). CLEAR the DTCs. TEST the system for normal operation.

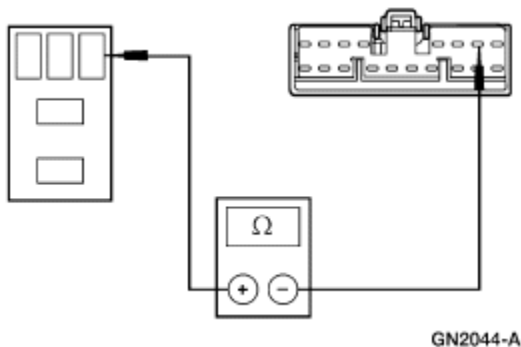
H6 CHECK CIRCUIT 1007 (Y/R) FOR OPEN

1



GEM C283

2



2 Measure the resistance between one touch down relay connector pin 1, circuit 1007 (Y/R), and GEM C283-7, circuit 1007 (Y/R).

- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 1007 (Y/R). CLEAR the DTCs. TEST the system for normal operation.

H7 CHECK THE ONE TOUCH DOWN RELAY

1



2



One Touch Down Relay

3 Check the one touch down relay; refer to Component Test.

- Is the one touch down relay OK?

→ **Yes**

GO to [H8](#).

→ **No**

REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.

H8 CHECK CIRCUIT 1007 (Y/R) FOR SHORT TO POWER

1



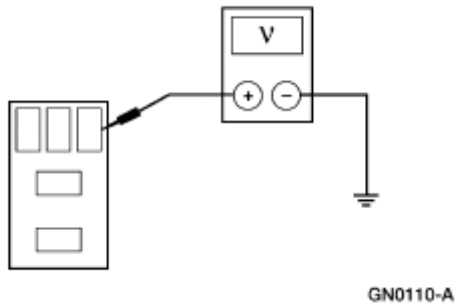
GEM C283

2



3

3 Measure the voltage between one touch down relay connector pin 1, circuit 1007 (Y/R), and ground.



- Is any voltage indicated?

→ **Yes**
REPAIR circuit 1007 (Y/R). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

H9 CHECK THE ONE TOUCH DOWN RELAY

1



2



One Touch Down Relay

3 Check the one touch down relay; refer to Component Test.

- Is the one touch down relay OK?

→ **Yes**
GO to [H10](#).

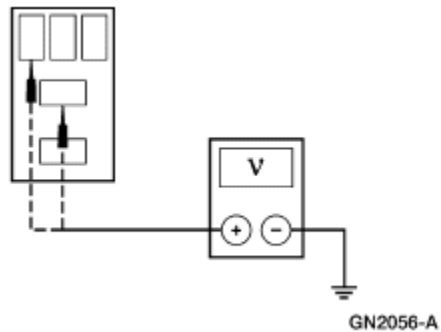
→ **No**
REPLACE the one touch down relay. CLEAR the DTCs. TEST the system for normal operation.

H10 CHECK THE VOLTAGE TO THE SWITCH SIDE OF THE ONE TOUCH DOWN RELAY — CIRCUIT 400 (LB/BK)

1



2



2

Measure the voltage between one touch down relay connector pin 5, connector pin 2, circuit 400 (LB/BK), and ground.

- Are the voltages greater than 10 volts?

→ Yes

GO to [H11](#).

→ No

REPAIR circuit 400 (LB/BK). CLEAR the DTCs. TEST the system for normal operation.

H11 CHECK CIRCUIT 995 (GY) FOR OPEN

1

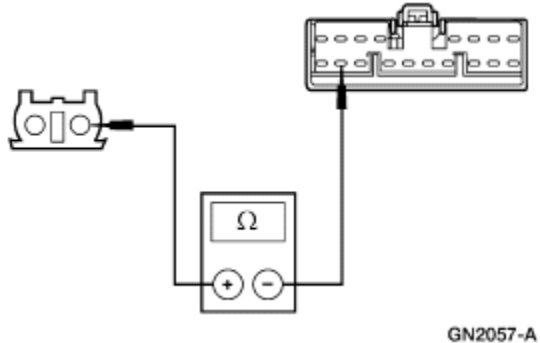


2



GEM C283

3

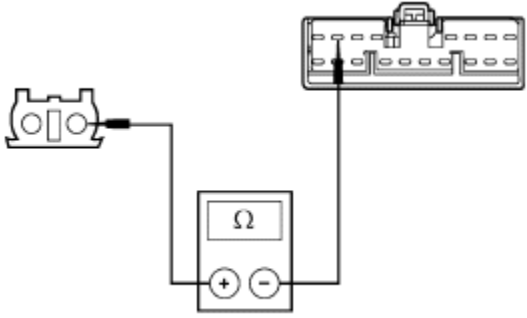


3

Measure the resistance between GEM C283-10, circuit 995 (GY), and driver power window motor C504, circuit 903 (R).

- Is the resistance less than 5 ohms?

→ Yes

	GO to H12 . → No REPAIR circuit 995 (GY). CLEAR the DTCs. TEST the system for normal operation.
H12 CHECK CIRCUIT 996 (O/W) FOR OPEN	
1  GN2058-A	1 Measure the resistance between GEM C283-2, circuit 996 (O/W), and driver power window motor C504, circuit 903 (R). • Is the resistance less than 5 ohms? → Yes REPLACE the GEM: REFER to Section 419-10 . CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 996 (O/W). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST J: THE BACK WINDOW DEFROSTER WILL NOT DEFROST

CONDITIONS	DETAILS/RESULTS/ACTIONS
J1 CHECK THE IGNITION STATES — MONITOR THE GEM PID IGN_GEM	
1  2  Scan Tool 3 	3 Monitor the GEM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF, and ACC positions.



CNTRL ON and OFF.

- Does the GEM PID RDEFRLY value agree with the command mode?

→ **Yes**
GO to [J10](#).

→ **No**
If the GEM PID RDEFRLY displays OFFO-G,
GO to [J4](#).

If the GEM PID RDEFRLY displays ON-B-, GO to [J8](#).

J4 CHECK THE VOLTAGE TO THE REAR WINDOW DEFROST RELAY COIL — CIRCUIT 298 (P/O)

1



2

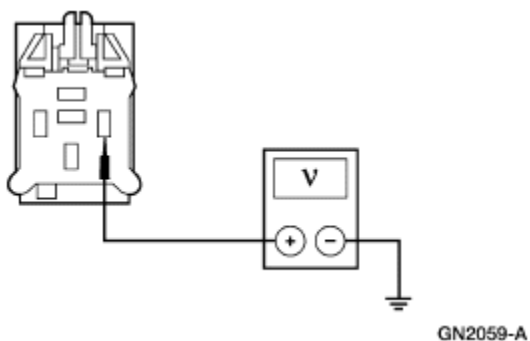


3



Rear Window Defrost Relay C273

4



- 4 Measure the voltage between rear window defrost relay C273-86, circuit 298 (P/O), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [J5](#).

→ **No**
CHECK fuse 26 (10A). If the fuse is OK, REPAIR circuit 298 (P/O). CLEAR the DTCs. TEST the system for normal operation.

If the fuse is not OK, REPLACE the fuse. TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.

J5 CHECK THE REAR WINDOW DEFROST RELAY

1



2 Check the rear window defrost relay; refer to Component Test.

- Is the rear window defrost relay OK?

→ **Yes**
GO to [J6](#).

→ **No**
REPLACE the rear window defrost relay. CLEAR the DTCs. TEST the system for normal operation.

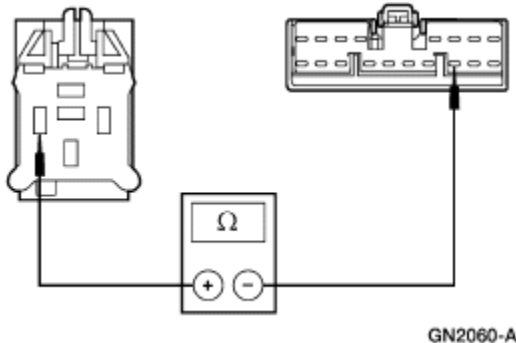
J6 CHECK CIRCUIT 1009 (O/Y) FOR OPEN

1



GEM C283

2



2 Measure the resistance between rear window defrost relay C273-86, circuit 1009 (O/Y), and GEM C283-16, circuit 1009 (O/Y).

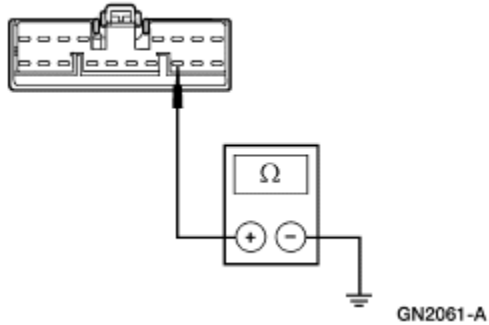
- Is the resistance less than 5 ohms?

→ **Yes**
GO to [J7](#).

→ **No**
REPAIR circuit 1009 (O/Y). CLEAR the DTCs.
TEST the system for normal operation.

J7 CHECK CIRCUIT 1009 (O/Y) FOR SHORT TO GROUND

1



1 Measure the resistance between GEM C283-16, circuit 1009 (O/Y), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 1009 (O/Y). CLEAR the DTCs.
TEST the system for normal operation.

J8 CHECK THE REAR WINDOW DEFROST RELAY

1



2



Rear Window Defrost Relay C273

3 Check the rear window defrost relay; refer to Component Test.

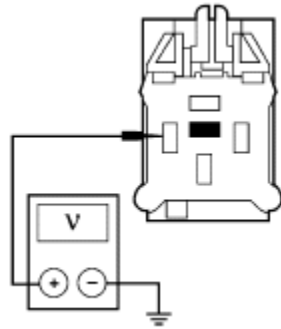
- Is the rear window defrost relay OK?

→ **Yes**
GO to [J9](#).

→ **No**
REPLACE the rear window defrost relay.
CLEAR the DTCs. TEST the system for normal operation.

J9 CHECK CIRCUIT 1009 (O/Y) FOR SHORT TO POWER**1**

GEM C283

2**3**

GN1392-A

3

Measure the voltage between rear window defrost relay C273-85, circuit 1009 (O/Y), and ground.

- **Is any voltage indicated?**

→ **Yes**

REPAIR circuit 1009 (O/Y). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

J10 CHECK THE VOLTAGE TO THE REAR WINDOW DEFROST RELAY SWITCHING CIRCUIT**1**

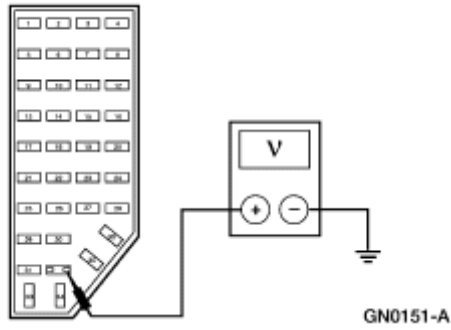
Fuse 32 (7.5A)

2**3****2**

Trigger the GEM active command RLY CNTRL to ON.

3

Measure the voltage between fuse 32 (7.5A), pin 2, circuit 186 (BR/LB), and ground.



- Is the voltage greater than 10 volts?

→ **Yes**
RECONNECT fuse 32 (7.5A). GO to [J13](#).

→ **No**
GO to [J11](#).

J11 CHECK THE VOLTAGE TO THE REAR WINDOW DEFROST RELAY SWITCH — CIRCUIT 185 (BK)

1

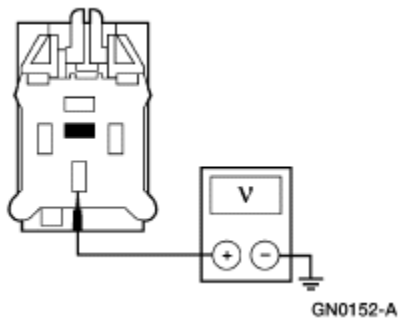


2



Rear Window Defrost Relay C273

3



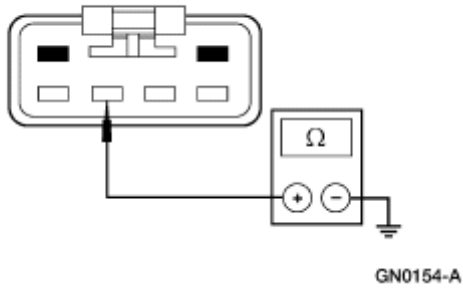
- 3** Measure the voltage between rear window defrost relay C273-30, circuit 185 (BK), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [J12](#).

→ **No**
CHECK fuse 14 (30A). If the fuse is not OK, REPLACE the fuse. TEST the system for

	normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary. If the fuse is OK, REPAIR circuit 185 (BK). CLEAR the DTCs. TEST the system for normal operation.
J12 CHECK THE REAR WINDOW DEFROST RELAY	
	1 Check the rear window defrost relay; refer to Component Test. • Is the rear window defrost relay OK? → Yes REPAIR circuit 186 (BR/LB). CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the rear window defrost relay. CLEAR the DTCs. TEST the system for normal operation.
J13 CHECK THE HEATED BACKLITE SWITCH INPUT — MONITOR THE GEM PID RDEF_SW	
1 	1 Monitor the GEM PID RDEF_SW while pressing the heated backlite switch ON and OFF. • Does the GEM PID RDEF_SW agree with the switch position? → Yes GO to J17. → No GO to J14.
J14 CHECK THE GROUND TO THE HEATED BACKLITE SWITCH — CIRCUIT 57 (BK)	
1  2  Heated Backlite Switch C248 3	3 Measure the resistance between heated backlite switch C248-4, circuit 57 (BK), and ground.



- Is the resistance less than 5 ohms?

→ **Yes**
GO to [J15](#).

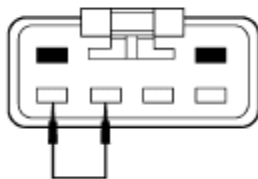
→ **No**
REPAIR circuit 57 (BK). CLEAR the DTCs. TEST the system for normal operation.

J15 CHECK THE HEATED BACKLITE SWITCH — MONITOR THE GEM PID RDEF_SW

1



2



GN0155-A

3



1 Monitor the GEM PID RDEF_SW.

2 Connect a jumper wire between heated backlite switch C248-3, circuit 1010 (DB/O), and C248-4, circuit 57 (BK).

- Does the GEM PID RDEF_SW indicate ON?

→ **Yes**
REPLACE the heated backlite switch. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [J16](#).**J16 CHECK CIRCUIT 1010 (DB/O) FOR OPEN**

1

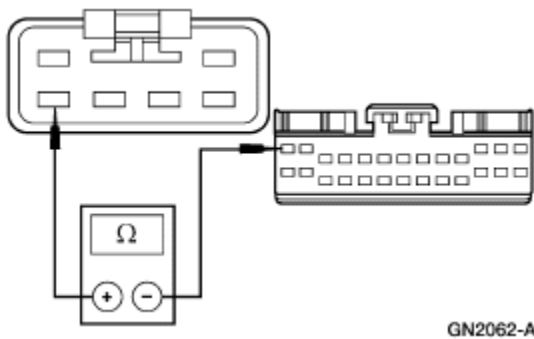


2



GEM C280

3



3

Measure the resistance between heated backlite switch C248-3, circuit 1010 (DB/O), and GEM C280-1, circuit 1010 (DB/O).

- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 1010 (DB/O). CLEAR the DTCs. TEST the system for normal operation.

J17 CHECK THE VOLTAGE TO THE REAR WINDOW DEFROST GRID — CIRCUIT 186 (BR/LB)/185 (BK)

1

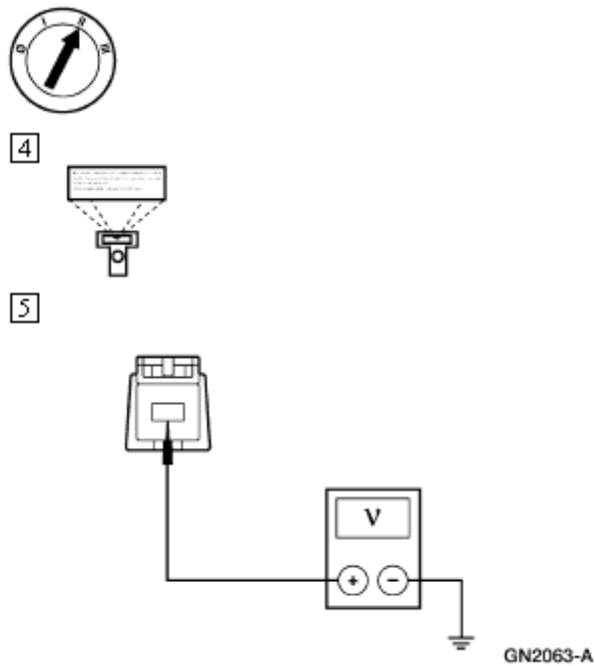


2



Rear Window Defrost Grid C420

3



4 Trigger the GEM active command RLY CNTRL to ON.

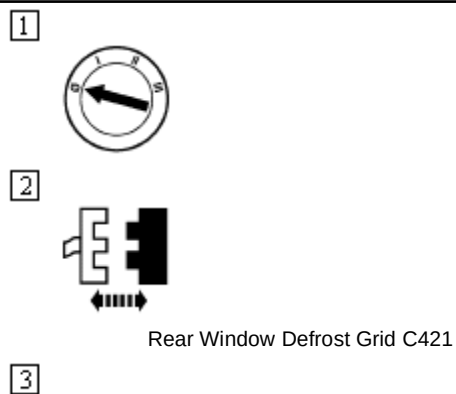
5 Measure the voltage between rear window defrost grid C420, circuit 185 (BK), and ground.

• Is the voltage greater than 10 volts?

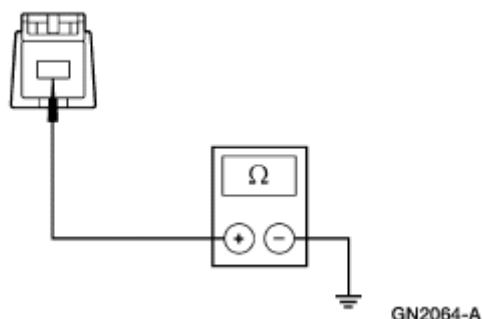
→ **Yes**
GO to [J18](#).

→ **No**
REPAIR circuit 186 (BR/LB)/185 (BK). CLEAR the DTCs. TEST the system for normal operation.

J18 CHECK THE GROUND TO THE REAR WINDOW DEFROST GRID — CIRCUIT 57 (BK)



3 Measure the resistance between rear window defrost grid C421, circuit 57 (BK), and ground.



- Is the resistance less than 5 ohms?

→ **Yes**

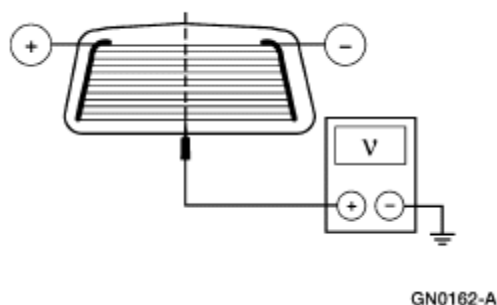
REPAIR or REPLACE the rear window defrost grid. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 57 (BK). CLEAR the DTCs. TEST the system for normal operation.

J19 CHECK THE REAR WINDOW DEFROST GRID

2



1 Press the rear defrost control switch to the ON position.

2 **NOTE:** The standard grid voltage is 6 to 7 volts. A high voltage indicates an open toward the ground side and a low voltage indicates an open toward the power supply side.

Measure the voltage between the center of each grid, and ground.

- Is the voltage greater than 7 volts or less than 6 volts?

→ **Yes**

REPAIR the rear window defrost grid between the center and ground side. TEST the system for normal operation.

→ **No**

REPAIR the rear window defrost grid between the center and power supply side. TEST the system for normal operation.

J20 CHECK FUSE JUNCTION PANEL FUSE 32 (7.5A)

1



2



Fuse 32 (7.5A)

- Is the fuse OK?

→ **Yes**

RECONNECT fuse junction panel fuse 32 (7.5A); GO to [J21](#).

→ **No**

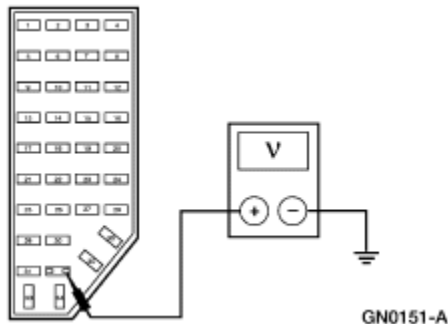
REPLACE fuse junction panel fuse 32 (7.5A). TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground; REPAIR as necessary.

J21 CHECK THE VOLTAGE TO FUSE 32 (7.5A) — CIRCUIT 186 (BR/LB)

1



3



2 Press the rear defrost control switch to the ON position.

3 Measure the voltage between fuse junction panel fuse 32 (7.5A) pin 2, circuit 186 (BR/LB), and ground.

- Is the voltage greater than 10 volts?

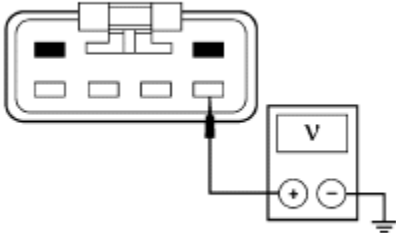
→ **Yes**

GO to [J22](#).

→ **No**

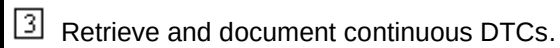
REPAIR circuit 186 (BR/LB). CLEAR the DTCs. TEST the system for normal operation.

J22 CHECK THE VOLTAGE TO THE HEATED BACKLIGHT INDICATOR — CIRCUIT 59 (DG/P)

1  2  Rear Window Defrost Grid C420 3  4  GN0153-A	4 Measure the voltage between heated backlite switch C248-6, circuit 59 (DG/P), and ground. Is the voltage greater than 10 volts? → Yes REPLACE the heated backlite switch. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 59 (DG/P). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST K: THE BACK WINDOW DEFROSTER WILL NOT SHUT OFF AUTOMATICALLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
K1 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs) 1  2	



- Yes

If DTC B1347, GO to [K2](#).

→ **No**

K2 CHECK THE REAR WINDOW DEFROST RELAY

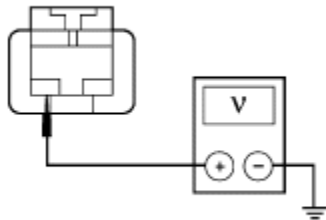


→ **Yes**GO to [K3](#).→ **No**

REPLACE the rear window defrost relay.
CLEAR the DTCs. TEST the system for normal operation.

K3 CHECK CIRCUIT 186 (BR/LB)/185 (BK) FOR SHORT TO POWER**1****2**

Rear Window Defrost Grid C420

3**4**

GN1404-A

1

Fuse junction panel fuse 32 (7.5A).

4

Measure the voltage between rear window defrost grid C420, circuit 185 (BK), and ground.

- **Is any voltage indicated?**

→ **Yes**

REPAIR circuit 186 (BR/LB)/185 (BK). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

RECONNECT the rear window defrost relay;
GO to [K4](#).

K4 CHECK THE OPERATION OF THE HEATED BACKLITE SWITCH — MONITOR THE GEM PID RDEF_SW**1****1**

Monitor the GEM PID RDEF_SW while pressing the heated backlite switch ON and OFF.



- Does the GEM PID RDEF_SW indicate ON continuously?

→ **Yes**
GO to [K6](#).

→ **No**
GO to [K5](#).

K5 CHECK CIRCUIT 1009 (O/Y) FOR SHORT TO GROUND

1



2



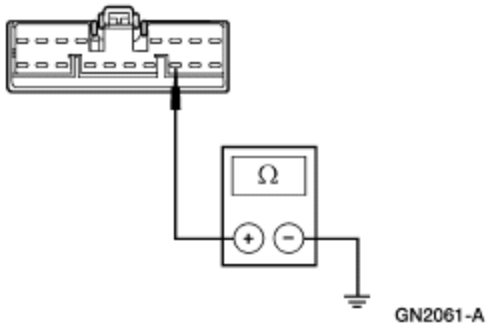
Rear Window Defrost Relay C273

3



GEM C283

4



- 4 Measure the resistance between GEM C283-16, circuit 1009 (O/Y), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 1009 (O/Y). CLEAR the DTCs.
TEST the system for normal operation.

K6 CHECK THE HEATED BACKLITE SWITCH — MONITOR THE GEM PID RDEF_SW

1



2



Heated Backlite Switch C248

3



4



4 Monitor the GEM PID RDEF_SW.

- Does the GEM PID RDEF_SW indicate ON continuously?

→ **Yes**
GO to [K7](#).

→ **No**
REPLACE the heated backlite switch. CLEAR the DTCs. TEST the system for normal operation.

K7 CHECK CIRCUIT 1010 (DB/O) FOR SHORT TO GROUND

1



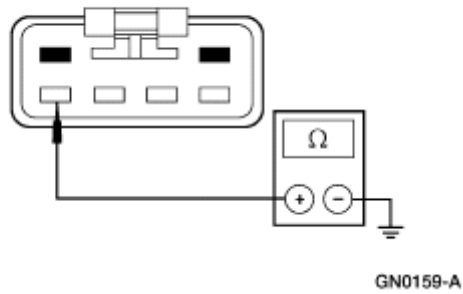
2



GEM C280

3

3 Measure the resistance between rear defrost control switch C248-3, circuit 1010 (DB/O), and ground.



- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 1010 (DB/O). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST L: NO COMMUNICATION WITH THE MODULE — GENERIC ELECTRONIC MODULE

CONDITIONS	DETAILS/RESULTS/ACTIONS
L1 CHECK POWER DISTRIBUTION BOX MAXI-FUSE 1 (50A)	
1 Maxi-Fuse 1 (50A)	• Is the fuse OK? → Yes GO to L2. → No REPLACE the fuse. CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK circuit 1052 (T/BK) for a short to ground. REPAIR as necessary.
L2 CHECK FUSE JUNCTION PANEL FUSE 25 (7.5A)	
1	

Fuse 25 (7.5A)

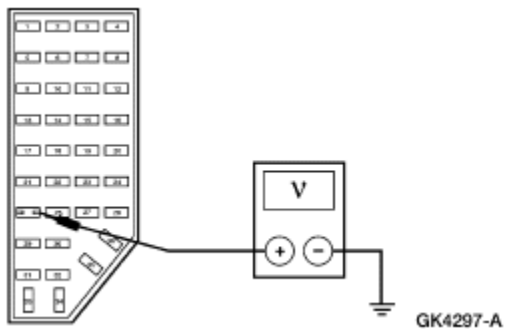
- Is the fuse OK?

→ **Yes**
GO to [L3](#).

→ **No**
REPLACE the fuse. CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK circuit 1001 (W/Y) for a short to ground. REPAIR as necessary.

L3 CHECK CIRCUIT 1052 (T/BK) FOR VOLTAGE

1



1 Measure the voltage between fuse junction panel fuse 25 (7.5A) pin 2, circuit 1052 (T/BK), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [L4](#).

→ **No**
REPAIR circuit 1052 (T/BK). CLEAR the DTCs. TEST the system for normal operation.

L4 CHECK THE VOLTAGE TO THE GEM — CIRCUIT 1001 (W/Y)

1



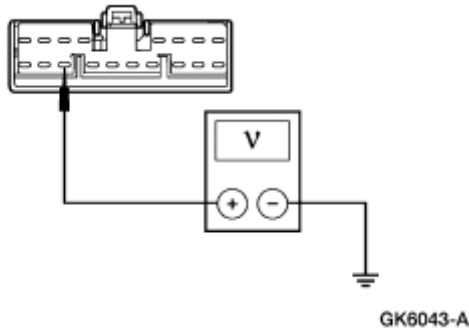
2



GEM C283

3

3 Measure the voltage between GEM C283-11, circuit 1001 (W/Y), and ground.



- Is the voltage greater than 10 volts?

→ **Yes**
GO to [L5](#).

→ **No**
REPAIR circuit 1001 (W/Y). CLEAR the DTCs.
TEST the system for normal operation.

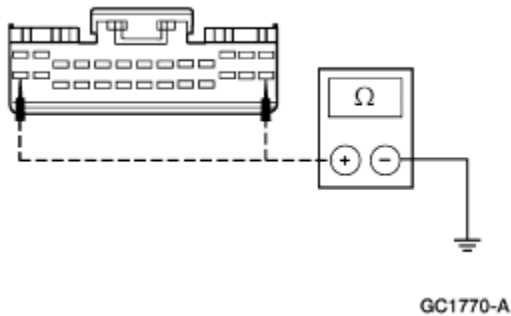
L5 CHECK CIRCUIT 570 (BK/W) FOR OPEN

1



GEM C280

2



- 2 Measure the resistance between GEM C280-14, circuit 570 (BK/W), and ground; and between GEM C280-26, circuit 570 (BK/W), and ground.

- Are the resistances less than 5 ohms?

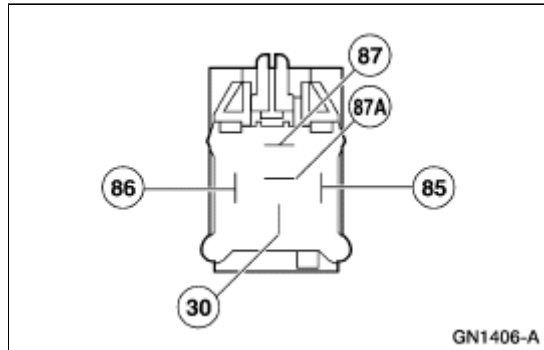
→ **Yes**
REFER to [Section 418-00](#).

→ **No**
REPAIR circuit 570 (BK/W). CLEAR the DTCs.
TEST the system for normal operation.

Component Tests

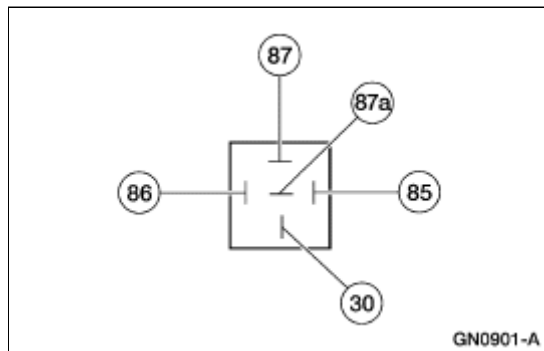
Relay — Heated Back Window

Use 73III Automotive Meter to check for the continuity between terminal 85 and all other terminals. If resistance is 5 ohms or less between terminal 2 and any other terminal, replace the relay. If resistance is greater than 5 ohms, continue with the test. Use two jumper wires to connect relay terminals 86 and 30 directly to the positive battery terminal. Use 73III Automotive Meter set in the volts position to check for voltage at terminal 87A. If battery voltage is not indicated, replace the relay. If battery voltage is indicated, connect a third jumper wire to terminal 85, and ground the jumper wire to a known good ground. Check for voltage at terminal 87. If battery voltage is not indicated, replace the relay.



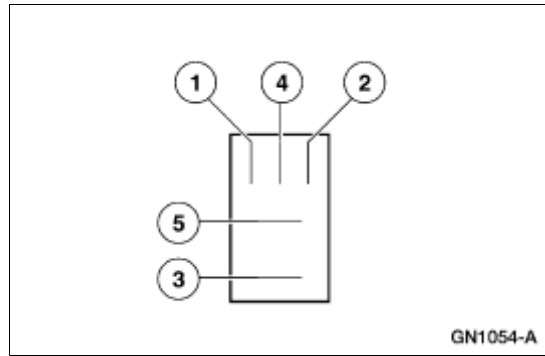
Relay — Mini ISO

Use 73III Automotive Meter to check for the continuity between terminal 85 and all other terminals. If resistance is 5 ohms or less between terminal 85 and any other terminal, replace the relay. If resistance is greater than 5 ohms, continue with the test. Use two jumper wires to connect relay terminals 86 and 30 directly to the positive battery terminal. Use 73III Automotive Meter set in the volts position to check for voltage at terminal 87A. If battery voltage is not indicated, replace the relay. If battery voltage is indicated, connect a third jumper wire to terminal 85 and ground the jumper wire to a known good ground. Check for voltage at terminal 87. If battery voltage is not indicated, replace the relay.



Relay — Micro ISO

Use 73III Automotive Meter to check for the continuity between terminal 2 and all other terminals. If resistance is 5 ohms or less between terminal 2 and any other terminal, replace the relay. If resistance is greater than 5 ohms, continue with the test. Use two jumper wires to connect relay terminals 1 and 3 directly to the positive battery terminal. Use 73III Automotive Meter set in the volts position to check for voltage at terminal 4. If battery voltage is not indicated, replace the relay. If battery voltage is indicated, connect a third jumper wire to terminal 2 and ground the jumper wire to a known good ground. Check for voltage at terminal 5. If battery voltage is not indicated, replace the relay.



SECTION 501-11: Glass, Frames and Mechanisms
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop Manual

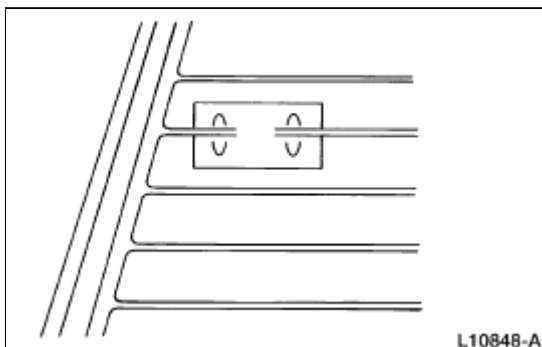
Heated Window Grid Wire Repair

Special Tool(s)

 ST1171-A	Heat Gun 107-R0300 or equivalent

NOTE: Any breaks longer than 25 mm (1 inch) in one grid cannot be repaired. The back window glass must be replaced. Breaks equal to or shorter than 25 mm (1 inch) the heated back window grid wire can be successfully repaired by using the following procedure.

1. Obtain the following repair kit:
 - Repair Kit Order Number 50-25-0584-0029.
2. The vehicle should be allowed to reach 16°C (60°F) or above.
3. Clean the repair area with denatured alcohol.
4. Place the grid line mask over the break aligning the cut-out slots on either side of the repair area.



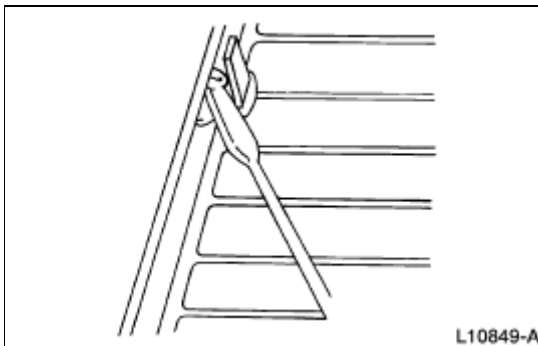
5. Apply the epoxy to the repair area.
6. Remove the mask without disturbing the epoxy.
7. Use the special tool to heat the repair area for 1 to 2 minutes at a distance of about 25-50 mm (1-2 inches). This procedure should heat the repair area to approximately 149° C (300° F).
8. The heated back window may be energized immediately after the repair. Optimum hardness and adhesion will occur after 24 hours. Do not disturb the repair area until that time.

SECTION 501-11: Glass, Frames and Mechanisms
GENERAL PROCEDURES

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Lead Terminal Repair

1. Obtain the following repair kit:
 - Repair Kit Order Number 50-25-0584-0029.
2. The vehicle should be allowed to reach 16°C (60°F) or above.
3. Clean the area with denatured alcohol.
4. Apply the epoxy to the repair area.
5. Hold the terminal in place on the bus bar with an appropriate tool.



6. Apply epoxy to the repair area.
-

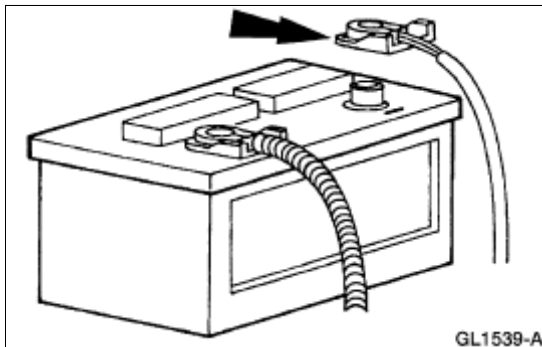
SECTION 501-11: Glass, Frames and Mechanisms
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

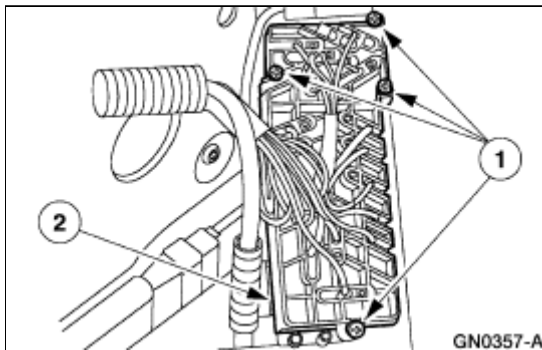
Switch —Window Regulator Control, Driver Door

Removal

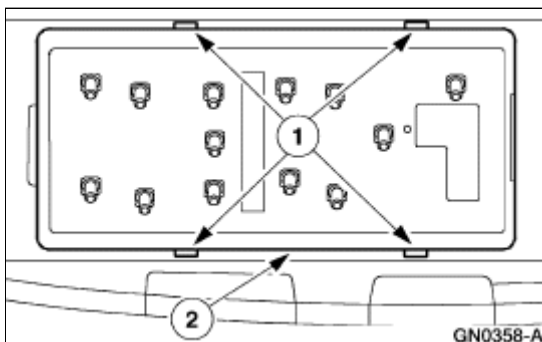
1. Disconnect the battery ground cable (14301).



2. Remove the front door trim panel; refer to [Section 501-05](#).
3. Remove the window regulator switch plate harness assembly.
 1. Remove the screws.
 2. Remove the harness assembly.



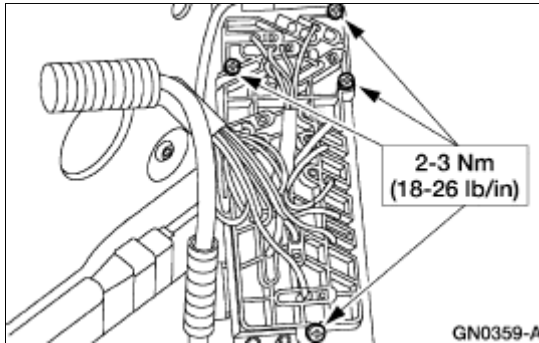
4. Remove the window regulator control switch (14529).
 1. Pry the release tabs.
 2. Remove the window regulator control switch.



Installation

1. **NOTE:** When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

To install, reverse the removal procedure.



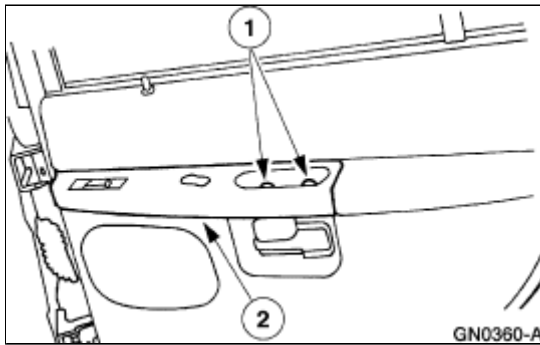
SECTION 501-11: Glass, Frames and Mechanisms
REMOVAL AND INSTALLATION

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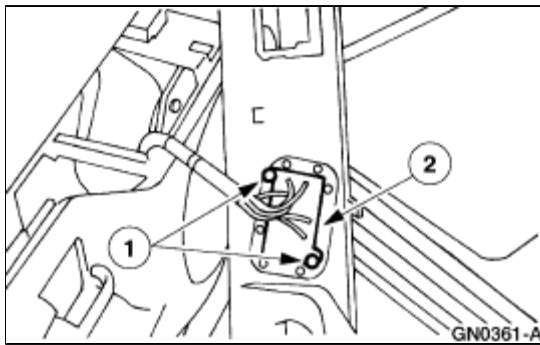
Switch —Window Regulator Control, Rear Door

Removal

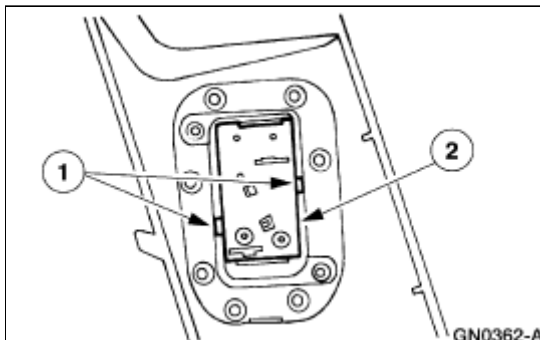
1. Remove the rear window regulator switch plate.
 1. Remove the screws.
 2. Remove the rear window regulator switch plate.



2. Remove the window regulator switch plate harness assembly.
 1. Remove the screws.
 2. Remove the harness assembly.



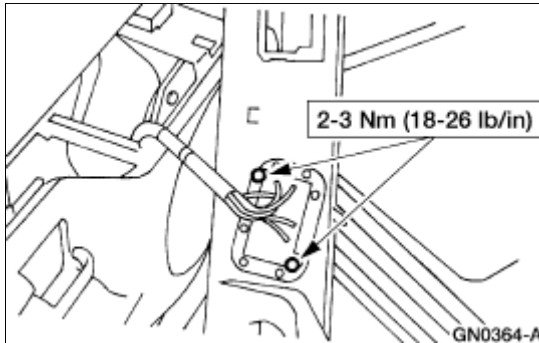
3. Remove the window regulator control switch (14529).
 1. Pry the release tabs.
 2. Remove the window regulator control switch.



Installation

1. **NOTE:** When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

To install, reverse the removal procedure.



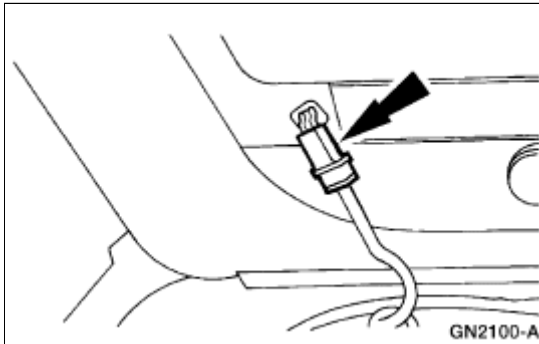
SECTION 501-11: Glass, Frames and Mechanisms
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2000 Explorer/Mountaineer Workshop Manual

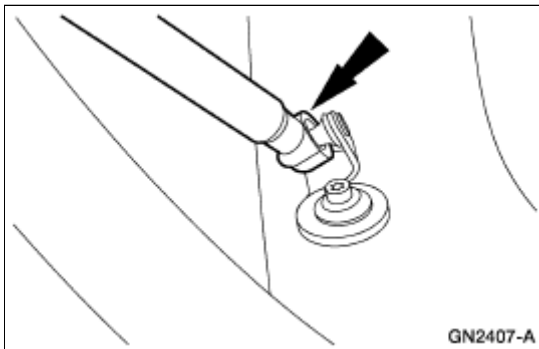
Window Glass —Liftgate

Removal

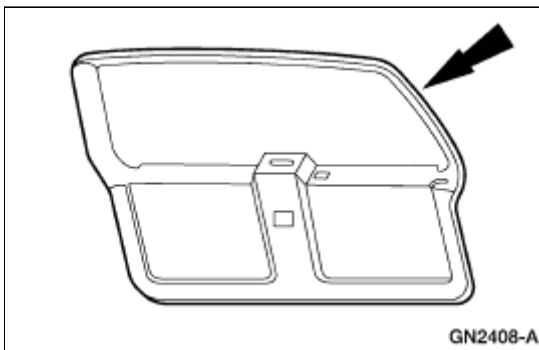
1. Open the liftgate glass.
2. Disconnect the two rear window defogger electrical connectors (one on each side).



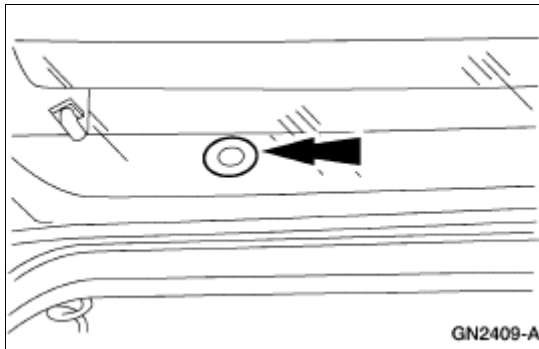
3. Disconnect the two liftgate cylinders (one on each side).



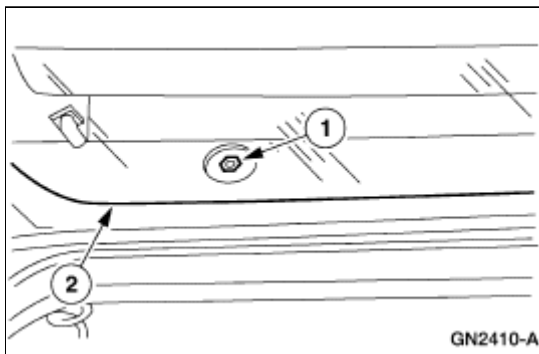
4. Release the upper liftgate trim panel clips to gain access to liftgate window glass access plugs.



5. Remove the liftgate glass hinge access plugs.

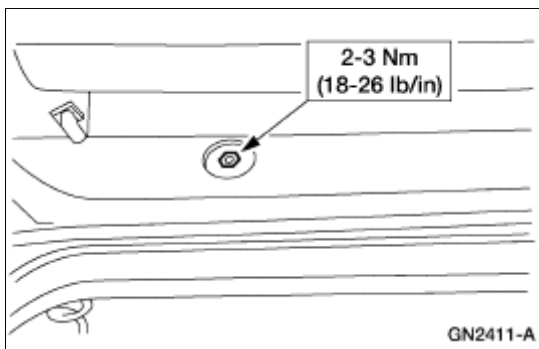


6. Remove the liftgate window glass.
 1. Remove the two liftgate window glass to window hinge nuts.
 2. Remove the liftgate window glass.



Installation

1. To install, reverse the removal procedure.

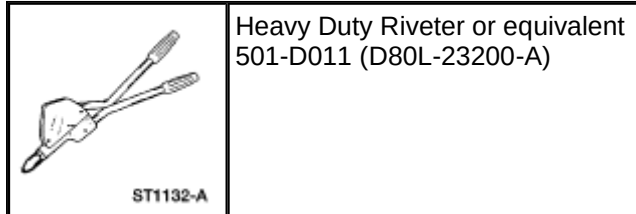


SECTION 501-11: Glass, Frames and Mechanisms
REMOVAL AND INSTALLATION

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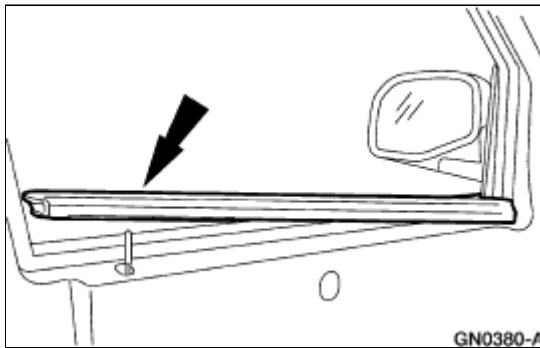
Window Glass —Front Door

Special Tool(s)



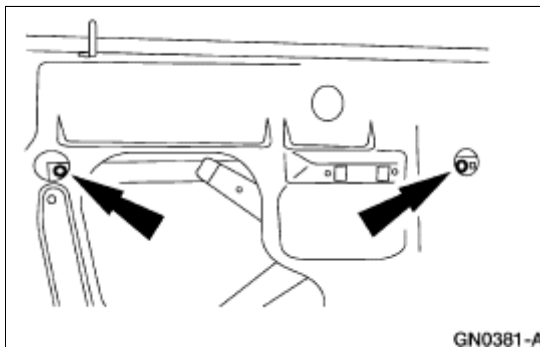
Removal

1. Remove the front door trim panel; refer to [Section 501-05](#).
2. Remove the inside glass weatherstrip.



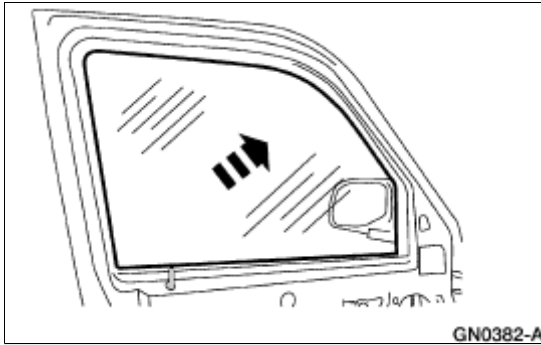
3. **NOTE:** Lower the window glass to access the two rivets.

Drill out the window regulator arm to window glass rivets.



4. **NOTE:** Slide the glass through the outboard side of the front door (20124) .

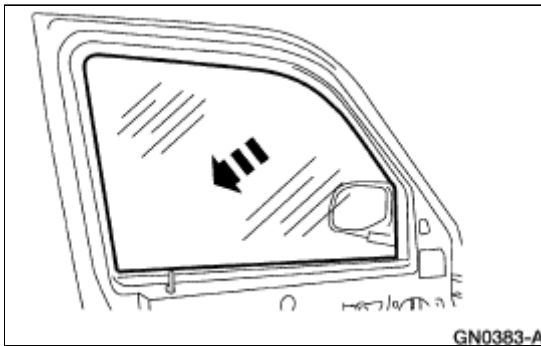
Remove the front door window glass (21410).



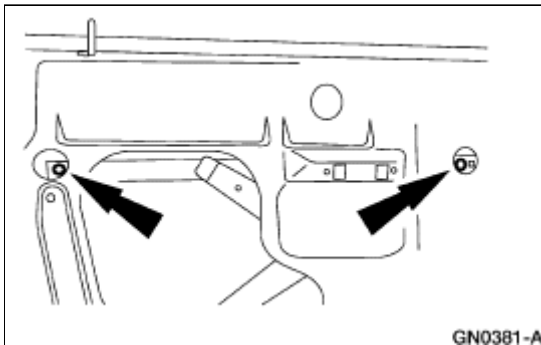
Installation

1. **NOTE:** Slide the glass through the outboard side of the front door .

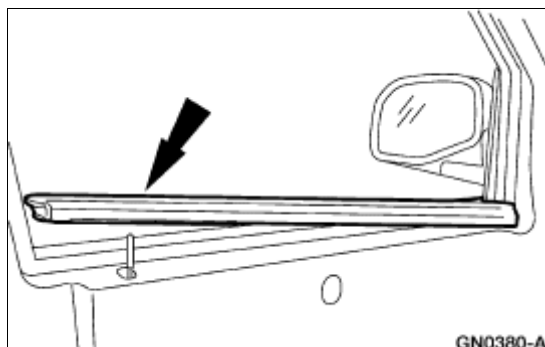
Position the front door window glass.



2. Use Heavy Duty Riveter to install the window regulator arm to window glass rivets.



3. Install the inside glass weatherstrip.



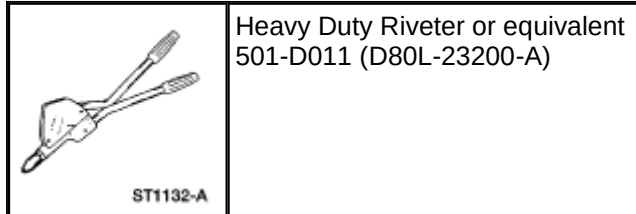
4. Install the front door trim panel; refer to [Section 501-05](#).
-

SECTION 501-11: Glass, Frames and Mechanisms
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

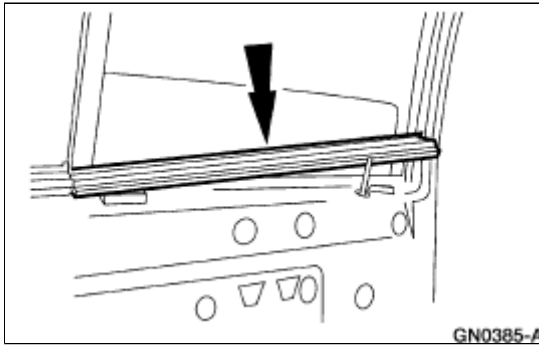
Window Glass —Rear Door

Special Tool(s)

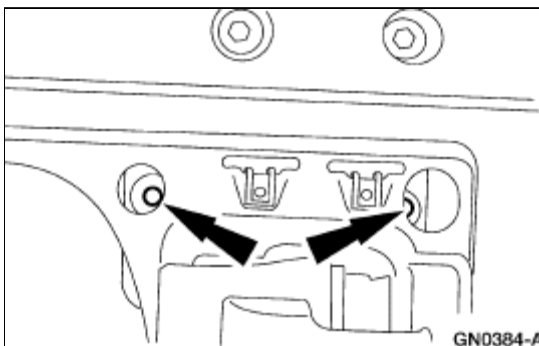


Removal

1. Remove the rear door trim panel; refer to [Section 501-05](#).
2. Remove the inside glass weatherstrip.

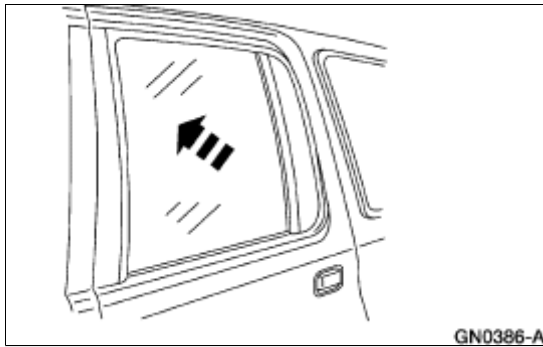


3. Drill out the window regulator arm to window glass rivets.



4. **NOTE:** Slide the glass through the outboard side of the rear door (24630) .

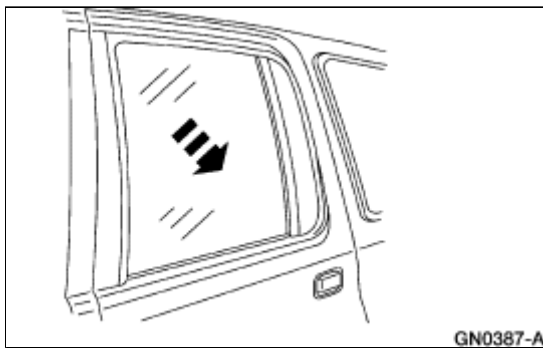
Remove the rear door window glass (25712).



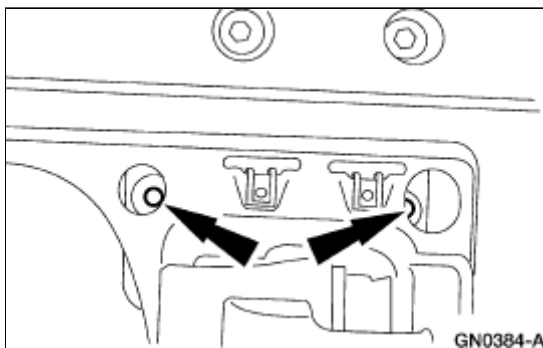
Installation

1. **NOTE:** Slide the glass through the outboard side of the rear door .

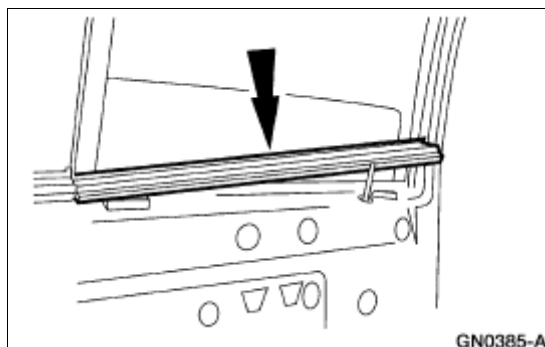
Position the rear door window glass.



2. Use Heavy Duty Riveter to install the window regulator arm to window glass rivets.



3. Install the inside glass weatherstrip.



4. Install the rear door trim panel; refer to [Section 501-05](#).
-

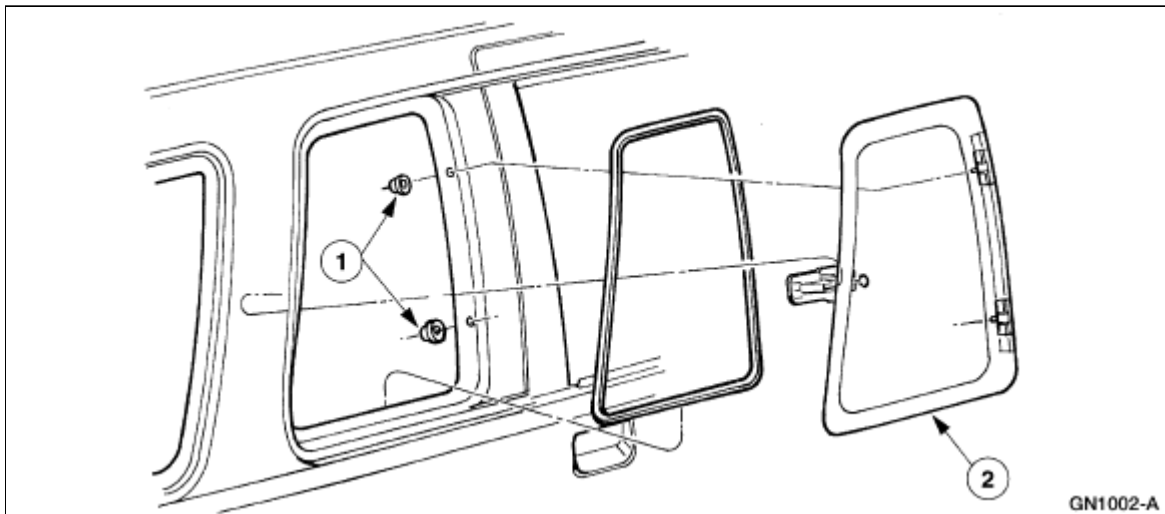
SECTION 501-11: Glass, Frames and Mechanisms
REMOVAL AND INSTALLATION

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Window Glass —Movable Quarter

Removal

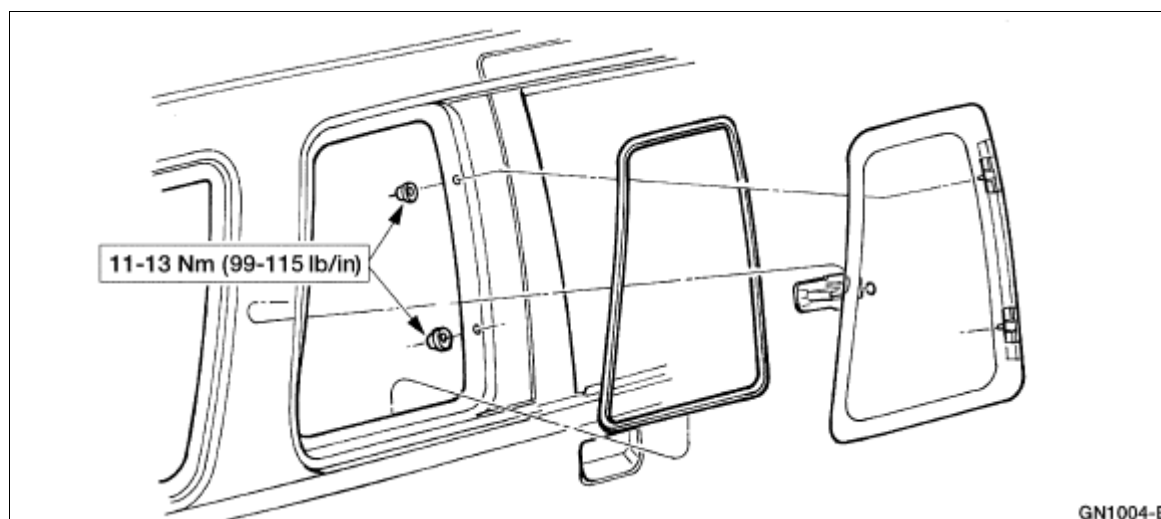
1. Remove the quarter trim panel; refer to [Section 501-05](#).
2. Remove the quarter window glass.
 1. Remove the nuts.
 2. Remove the quarter window glass.



Installation

1. **NOTE:** If the seal requires adjustment, disconnect the quarter trim panel. Rotate the quarter window latch clockwise to increase seal pressure or counterclockwise to reduce seal pressure. Reconnect the quarter window latch.

To install, reverse the removal procedure.



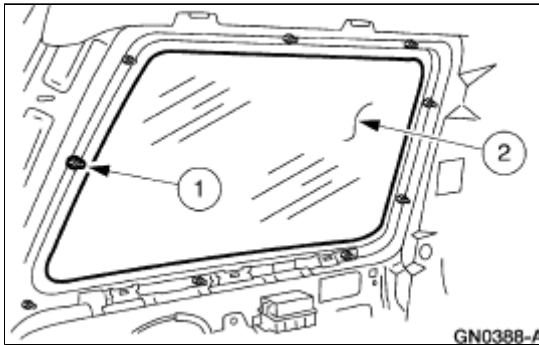
SECTION 501-11: Glass, Frames and Mechanisms
REMOVAL AND INSTALLATION

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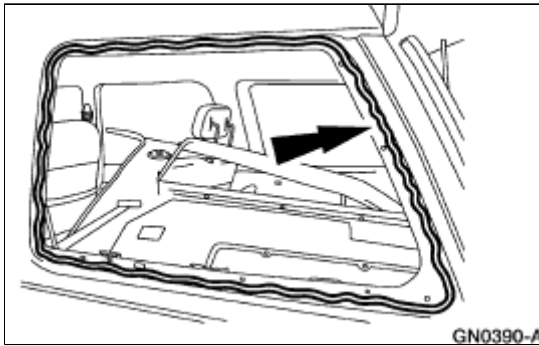
Window Glass —Quarter

Removal

1. Remove the quarter trim panel (31012) ; refer to [Section 501-05](#) .
2. Remove the rear quarter window glass.
 1. Remove the ten nuts.
 2. Carefully push the rear quarter window glass outward to release the butyl seal.



3. Remove the excess foam butyl from the window opening.



Installation

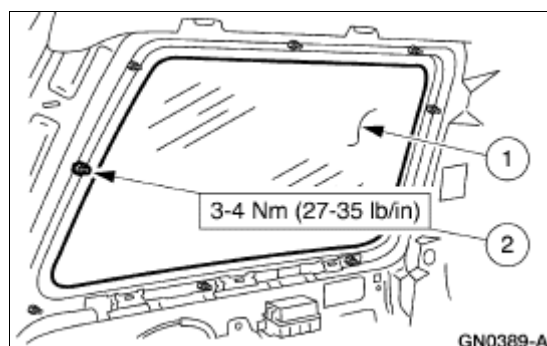
1. **NOTE:** When applying foam butyl, leave a slight overlap at the bottom to allow for drainage.

Apply 6 mm (0.23 in) foam butyl or equivalent meeting Ford specification WSB-M2G234-C to the rear quarter window glass frame.

- Start at the bottom middle and work around the frame.

2. Install the rear quarter window glass.
 1. Position the rear quarter window glass.
 2. **NOTE:** Loosely install the ten nuts before tightening.

Tighten the ten nuts to specification.



3. Install the quarter trim panel ; refer to [Section 501-05](#) .
-

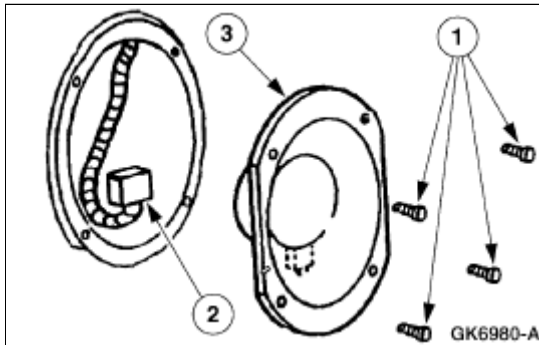
SECTION 501-11: Glass, Frames and Mechanisms
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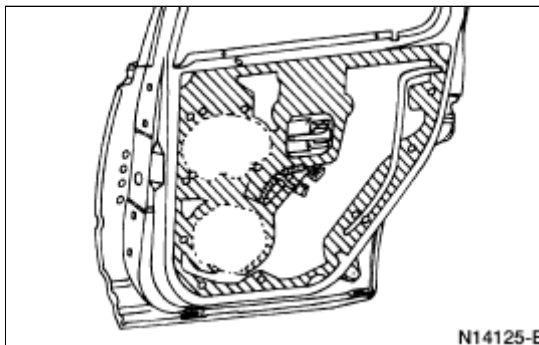
Motor —Rear Door

Removal

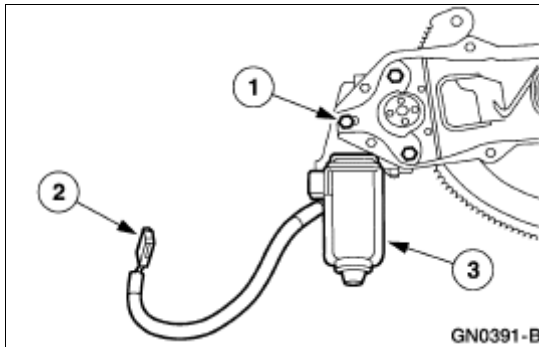
1. Raise and support the rear door window glass to the full up position.
2. Disconnect the battery ground cable.
3. Remove the rear door trim panel. For additional information, refer to [Section 501-05](#).
4. Remove the speaker.
 1. Remove the screws.
 2. Disconnect the electrical connector.
 3. Remove the speaker.



5. Remove the watershield.



6. Remove the power window motor.
 1. Remove the bolts.
 2. Disconnect the electrical connector.
 3. Remove the power window motor.

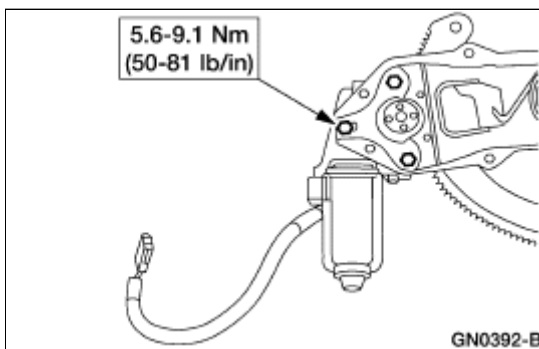


Installation

1. **NOTE:** When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 miles) or more to relearn the strategy.

To install, reverse the removal procedure.

- Cycle the door glass to ensure engagement of the drive mechanism.

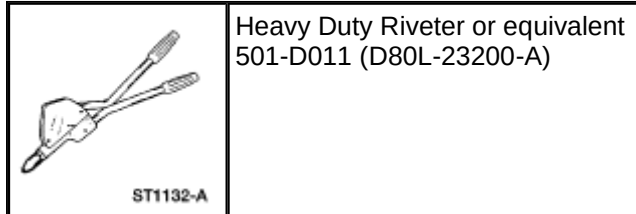


SECTION 501-11: Glass, Frames and Mechanisms
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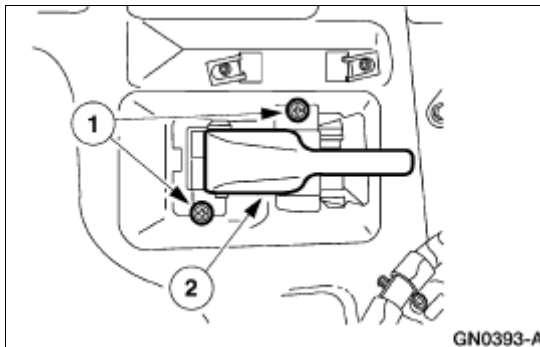
Motor and Window Regulator —Front Door

Special Tool(s)

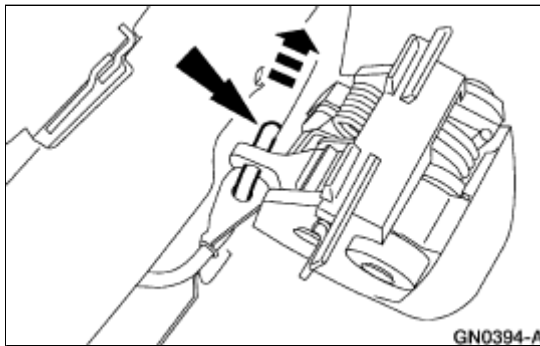


Removal

1. Remove the front door trim panel. For additional information, refer to [Section 501-05](#).
2. Disconnect the inside front door handle from the front door (20124).
 1. Remove the screws.
 2. Disconnect the inside front door handle.



3. Disconnect the rod from the inside front door handle.

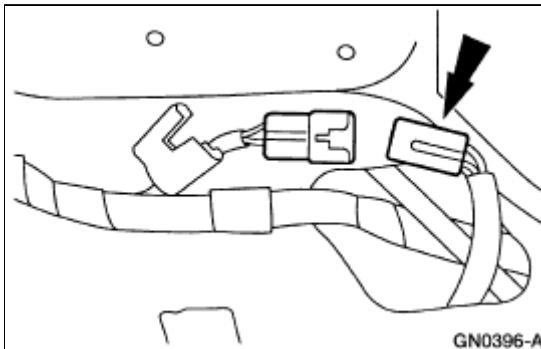


4. Remove the water shield.
5. Position the front door window glass to access the track rivets through the door openings.

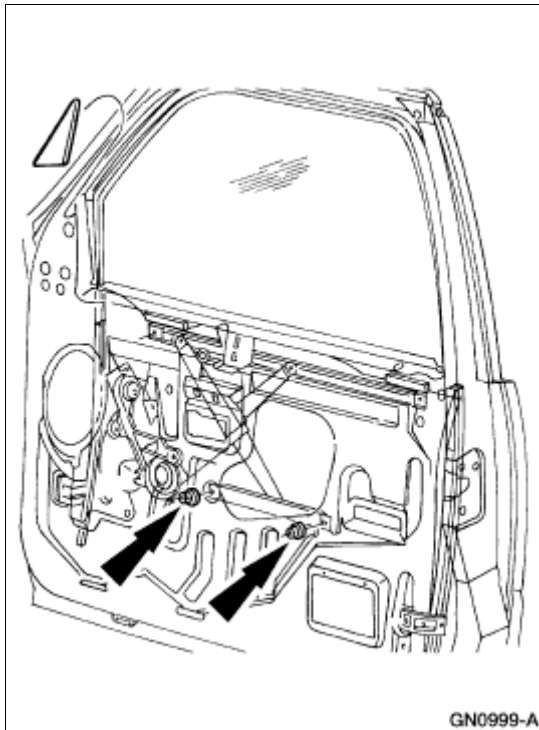
6. Support the front door window glass.



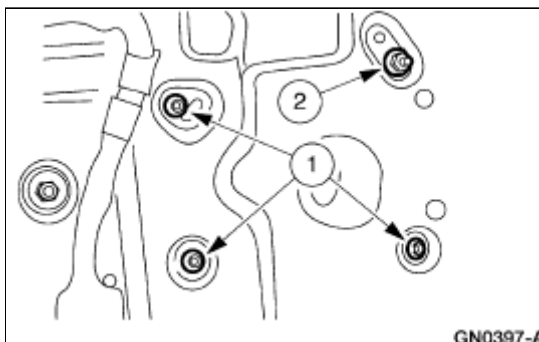
7. Disconnect the battery ground cable (14301).
8. Remove the regulator to window rivets.
9. If equipped, disconnect the power window motor electrical connector.



10. If equipped, remove the equalizer bracket to front door inner panel nuts.



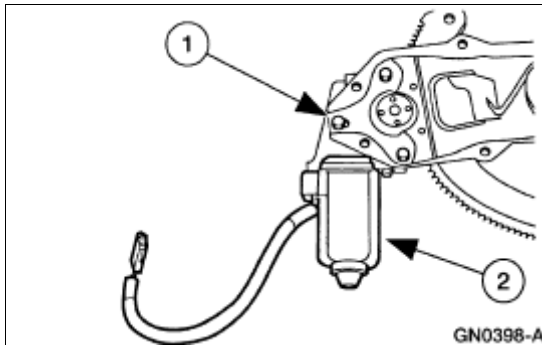
11. Remove the window regulator/motor assembly.
 1. Drill out the rivets.
 2. Remove the nut.



12.  **WARNING:** Prior to power window removal, make sure the regulator arms are in a fixed position to prevent counterbalance spring unwind. failure to place the regulator arms in a fixed position can cause the spring to suddenly release resulting in personal injury.

If equipped, remove the power window motor.

1. Remove the bolts.
2. Remove the power window motor.

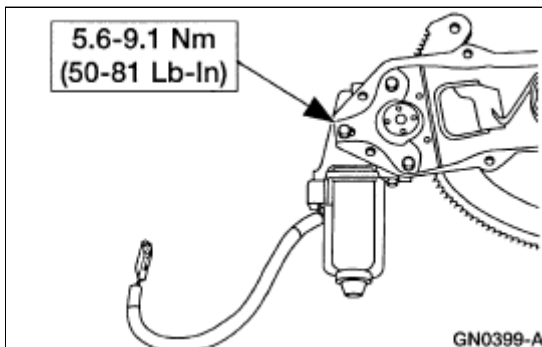


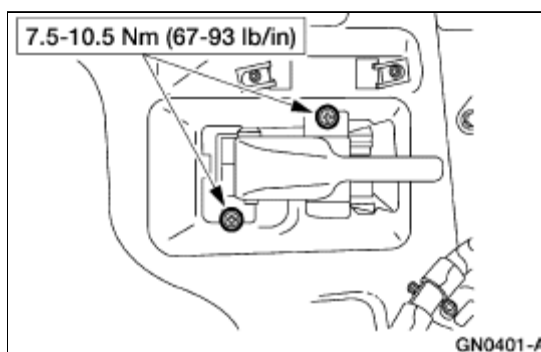
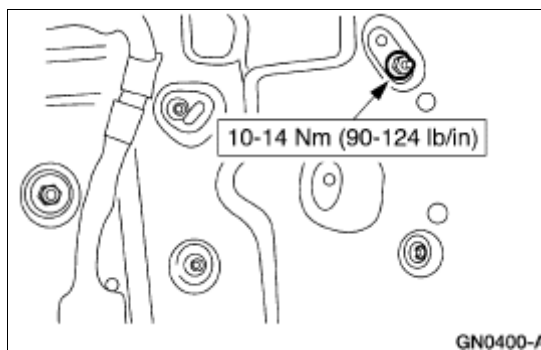
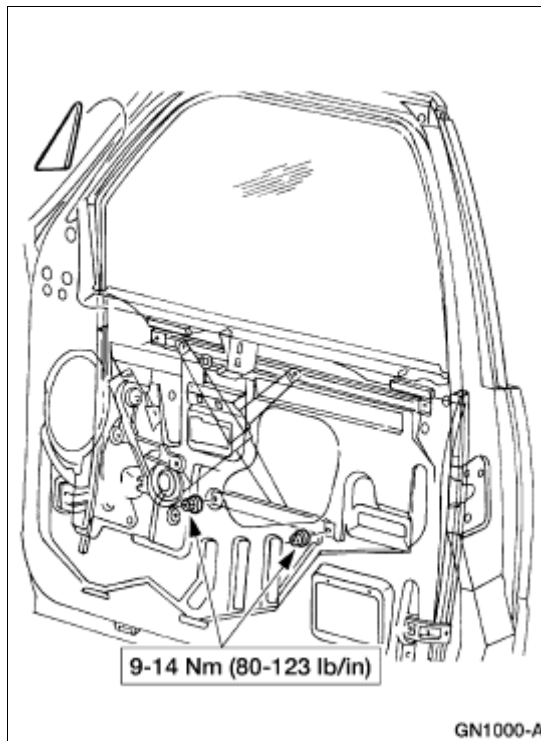
Installation

1. **NOTE:** When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

To install, reverse the removal procedure.

- Use Heavy Duty Riveter to install the new rivets.
- Cycle the door glass to ensure engagement of the drive mechanism.





SECTION 501-11: Glass, Frames and Mechanisms
REMOVAL AND INSTALLATION

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Windshield Glass

Special Tool(s)

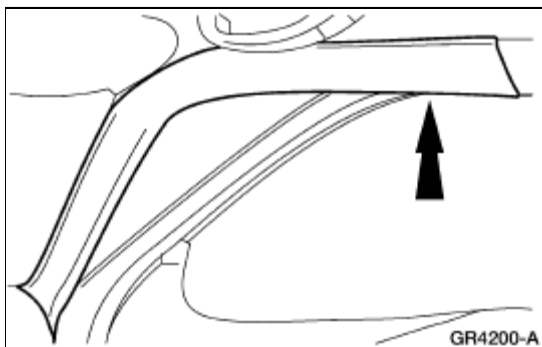
 ST1320-A	Interior Auto Glass Cut-Out Knife Kit 164-R2450 or equivalent
 ST1109-A	Pneumatic Knife with Offset Blade 107-R1511 or equivalent
 ST2085-A	The Pumper 164-R2459 or equivalent

Removal



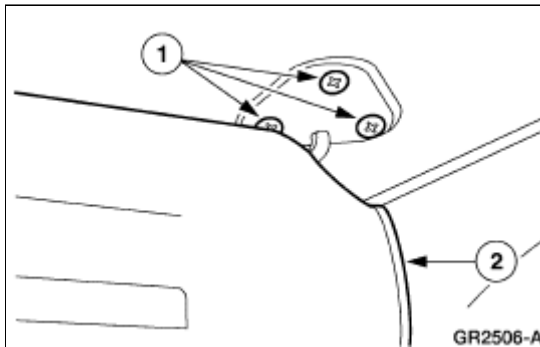
WARNING: To prevent glass splinters from entering the eyes or cutting hands, wear safety glasses and heavy gloves when cutting the glass from the vehicle.

1. Remove the windshield side garnish moldings.

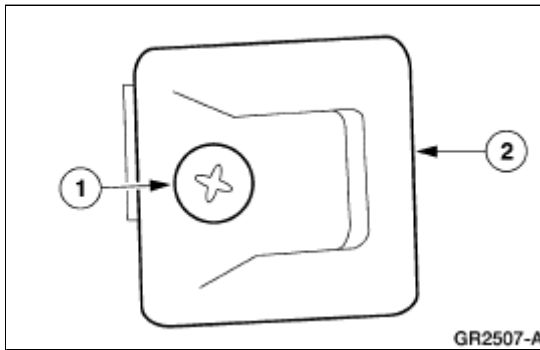


2. Remove the interior rear view mirror. For additional information, refer to [Section 501-09](#).
3. If equipped, remove the overhead console.
4. Remove the sun visors.

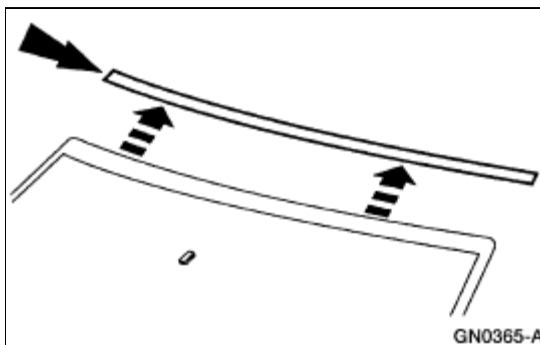
1. Remove the sun visor screws.
2. Remove the sun visors.
 - If equipped, disconnect the electrical connector.



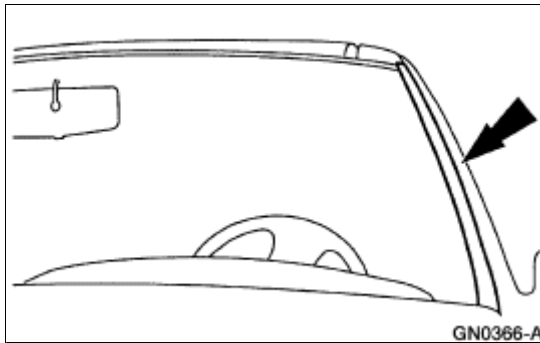
5. Remove the sun visor clips.
 1. Remove the sun visor clip screws.
 2. Remove the sun visor clips.



6. Lower the front portion of the headliner.
7. Remove the cowl grille. For additional information, refer to [Section 501-02](#).
8. Remove the upper windshield weatherstrip.

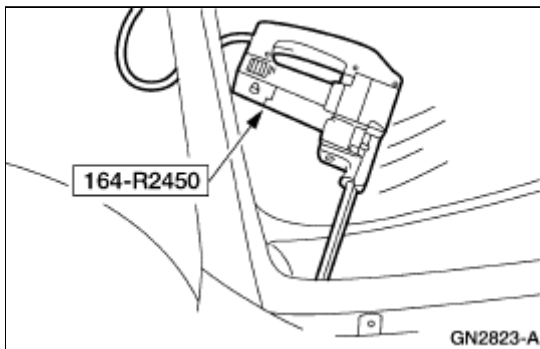


9. Remove the LH and RH windshield mouldings.

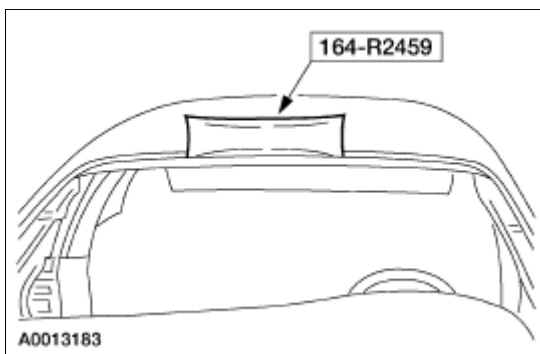


10. Using a soft brush or vacuum, remove any dirt or foreign material from the pinch weld.
11. **NOTE:** Lubricate the urethane sealant with water to aid the special tool when cutting.

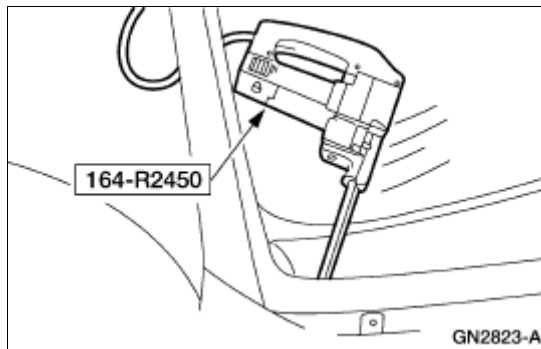
Using the special tool, cut the urethane sealant from the windshield glass starting at the top center and work toward the bottom corners.



12. Using the special tool, distance the windshield from the body.



13. Using the special tool, cut the remaining urethane sealant and remove the windshield glass.



14. Using a soft brush or vacuum, remove any foreign material or dirt from the pinch weld.

Installation

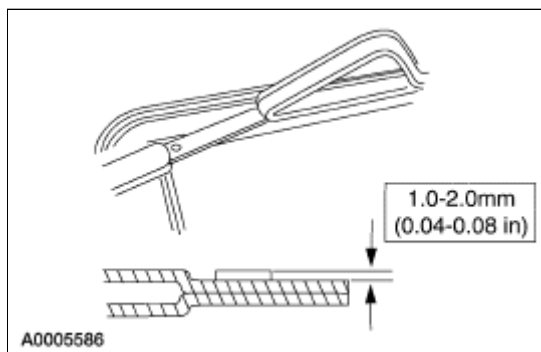
CAUTION: After installing the urethane installed glass, the vehicle should not be driven until the urethane has cured. The curing times at temperatures above 13°C (55°F) and relative humidity above 50% is 12-24 hours (decreasing at higher temperatures and lower humidities). Inadequate curing of the urethane may adversely affect the strength of the urethane bond.

1. Dry fit the windshield. Make alignment marks with tape or non-staining grease pencil.

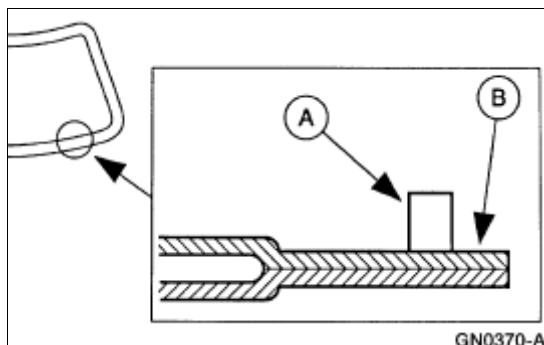
2. **CAUTION:** Do not scratch the pinch weld area.

Trim the remaining urethane sealant on the pinch weld to within the specification.

- The existing urethane sealant surface should be smooth and free of cuts and contamination.



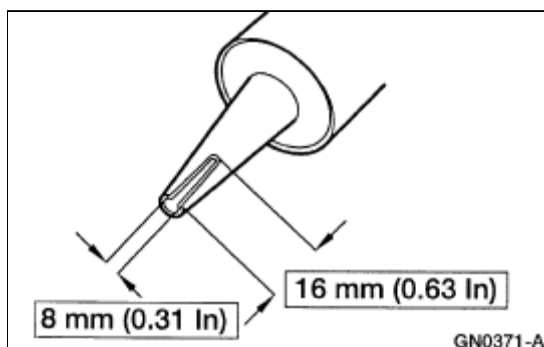
3. Use a wool applicator to apply Urethane Metal Primer Essex U-413 meeting Ford specification WSB-M2G234-C to any exposed metal on the pinch weld. Allow six to ten minutes to dry.
4. Apply (A) Foam Butyl meeting Ford specification WSB-M2G234-C to the (B) pinch weld.



5. If reinstalling original windshield, remove the excess urethane sealant from the windshield glass.
6. Clean the inside of the glass surface with an alcohol-free cleaner making sure the ceramic coated area is clean .
7. **NOTE:** Wipe off the Glass Prep immediately after each application because it flash dries.

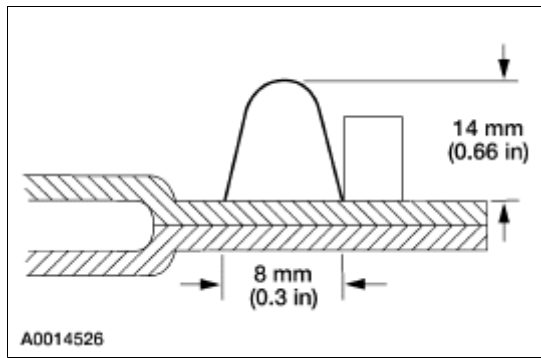
Apply Urethane Glass Prep Essex U-401 meeting Ford specification WSB-M2G314-B twice around the glass surface to be urethaned.

8. Apply Glass Primer Essex U-402 meeting Ford specification WSB-M5B280-C to the same area that was prepped in the pervious step. Allow five minutes to dry.
9. Cut the urethane applicator tip to specification.

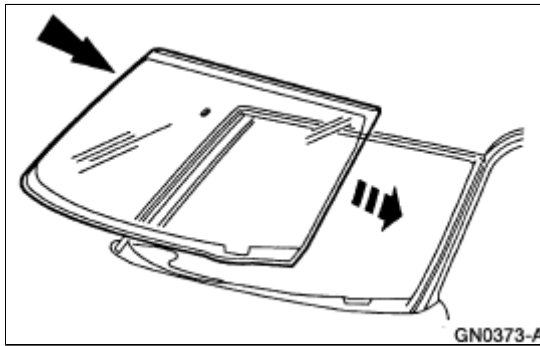


10.  **CAUTION:** If the vehicle is to be driven within 24 hours of urethane application, urethane sealant Essex U-216 must be used due to its one hour cure time.

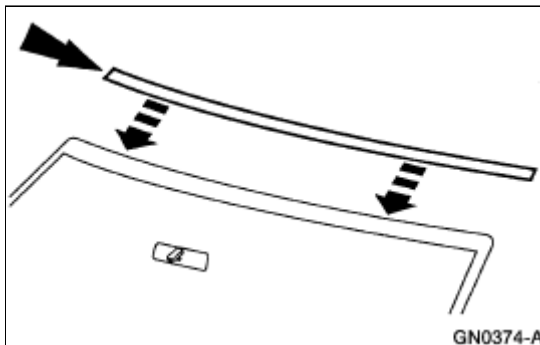
Apply a bead of urethane sealant Essex 400-HV or Essex U-216, which meets Ford specification WSB-M2G316-B to the pinch weld just outside the foam dam.



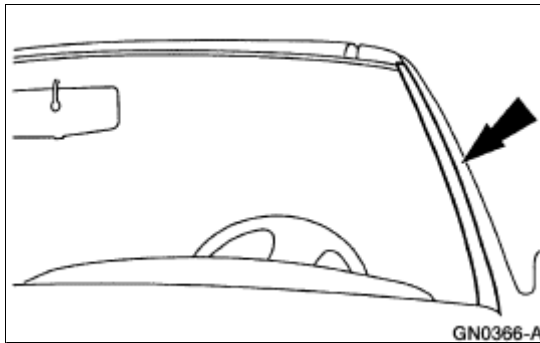
11. Install the windshield glass aligning it to the marks previously made.



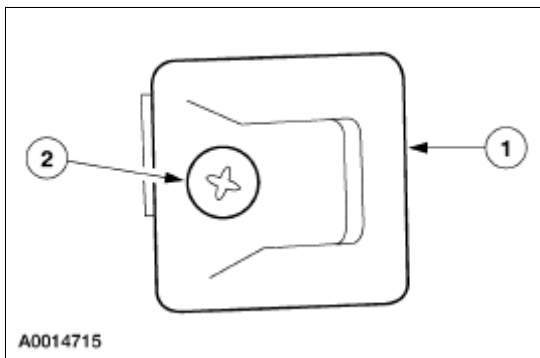
12. After the windshield glass is set, check for water leaks and add urethane sealant where needed.
13. Install the upper windshield weatherstrip.



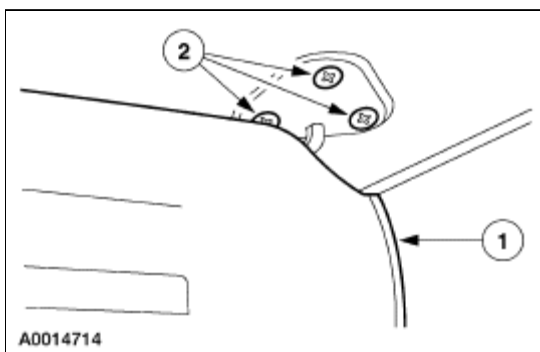
14. If necessary, remove excess urethane from the outside surface of the windshield glass.
15. Install the LH and RH windshield mouldings.



16. Install the cowl grille. For additional information, refer to [Section 501-02](#).
17. If equipped, install the overhead console.
18. Install the sun visor clips.
 1. Install the sun visor clips.
 2. Install the screws.



19. Install the sun visors.
 1. Install the sun visors.
 - If equipped, connect the electrical connector.
 3. Install the screws.



20. Install the front portion of the headliner.
21. Install the interior rear view mirror. For additional information, refer to [Section 501-09](#).
22. Install the windshield side garnish mouldings.



SECTION 501-12: Instrument Panel and Console
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

Torque Specifications

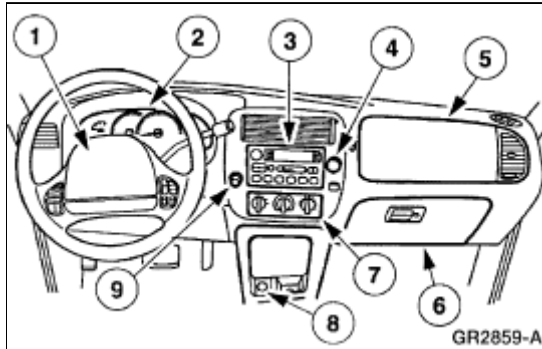
Description	Nm	lb-ft	lb-in
Battery Cable Clamp Bolts	7-10	—	62-89
Instrument Panel Cowl Side Bolts	25.5-34.5	19-25	—
Bulkhead Wiring Harness Connector Bolts	4.0-5.5	—	36-49
Upper Series Floor Console Bolts	9	—	80
Upper Series Floor Console Electrical Connector Bolt	4.0-5.5	—	36-49
Upper Series Front Floor Console Bolts	3.4-4.6	—	30-41
Base Series Floor Console Front Screws	3-4	—	26-35
Base Series Floor Console Rear Screw	2-3	—	18-26
Instrument Panel Cowl Side Bolts	25.5-34.5	19-25	—
Ground Wire Screws	2-3	—	18-26
Instrument Panel Cowl Top Bolts (Inner)	2-3	—	18-26
Instrument Panel Cowl Top Bolts (Outer)	25.5-34.5	19-25	—
Instrument Panel to Body Harness Bolt	4.0-5.5	—	36-49
Instrument Panel Brace Bolt	7.2-10.8	—	64-96

SECTION 501-12: Instrument Panel and Console
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Instrument Panel

Instrument Panel Components



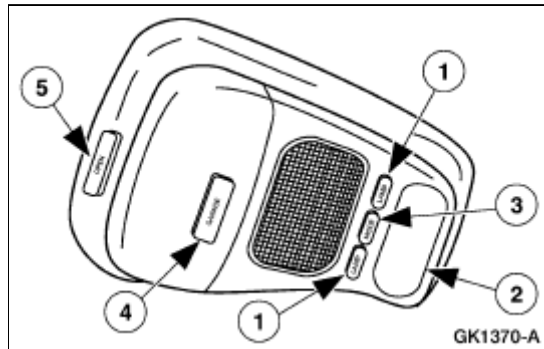
Item	Part Number	Description
1	043B13	Driver Side Air Bag Module
2	10849	Instrument Cluster
3	18806	Radio Chassis
4	—	Rear Windshield Wiper/Washer Switch
5	044A74	Passenger Side Air Bag Module
6	06024	Glove Compartment Door
7	—	Climate Control Head
8	—	Power Point
9	15052	Cigar Lighter Knob and Element

SECTION 501-12: Instrument Panel and Console
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Console —Overhead

Overhead Console



Item	Part Number	Description
1	—	Map Lamp Switch
2	—	Compass/Thermometer Display
3	—	Mode Switch
4	—	Garage Door Remote Button
5	—	Garage Door Remote Holder Release Button

SECTION 501-12: Instrument Panel and Console
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

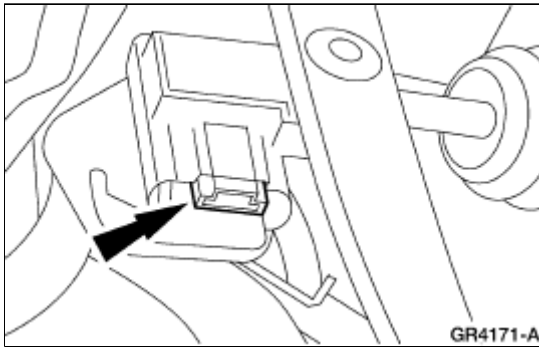
Instrument Panel

Removal

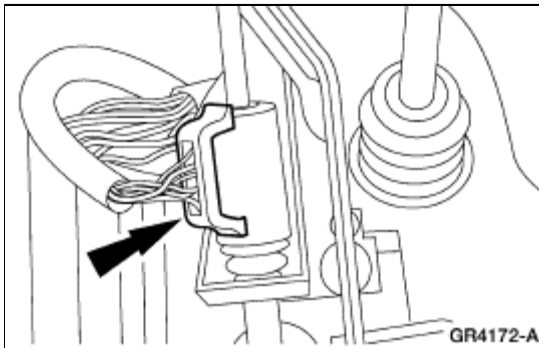


CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result.

1. Remove the steering column; refer to [Section 211-04](#).
2. Disconnect the brake pedal position (BPP) switch electrical connector.



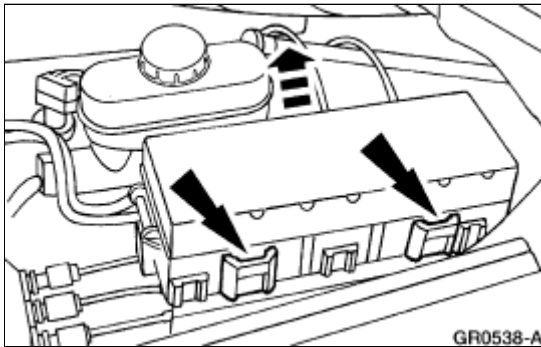
3. If equipped, disconnect the clutch pedal position (CPP) switch electrical connector.



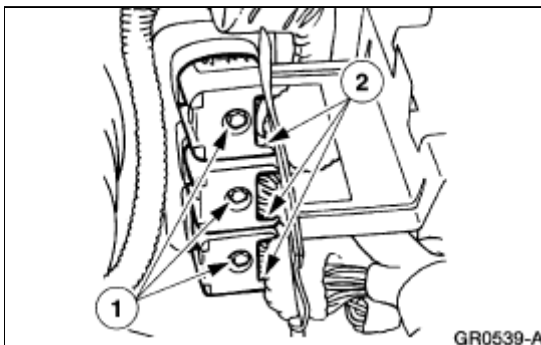
4. Remove the LH and RH cowl side trim panels. For additional information, refer to [Section 501-05](#).
5. Disconnect the electrical connectors and the ground wires on the RH cowl panel.



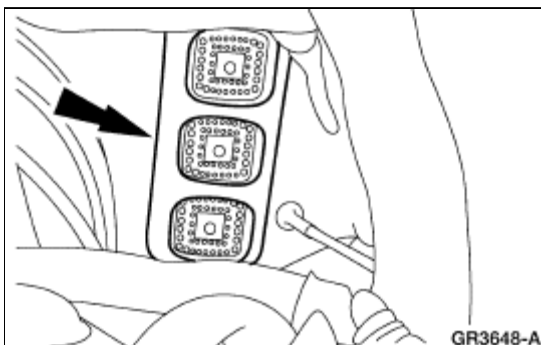
6. Disconnect the power distribution box from the bracket and position aside.



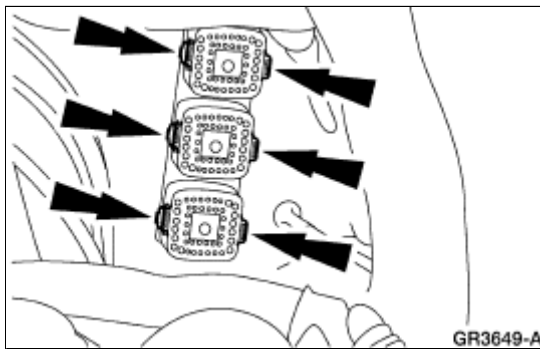
7. Disconnect the bulkhead wiring harness connectors from inside the engine compartment.
 1. Loosen the bolts.
 2. Disconnect the electrical connectors.



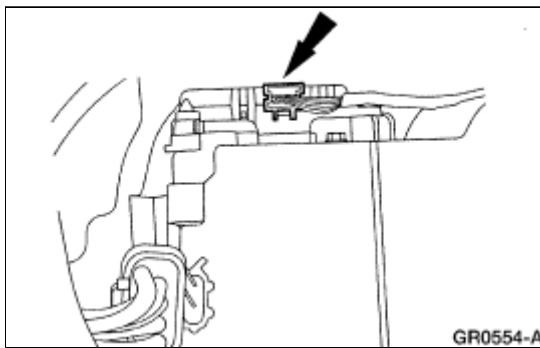
8. Remove the bulkhead connector insulator.



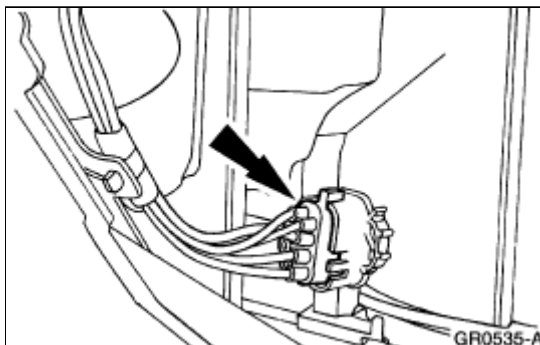
9. Unclip the bulkhead electrical connectors from the dash panel.



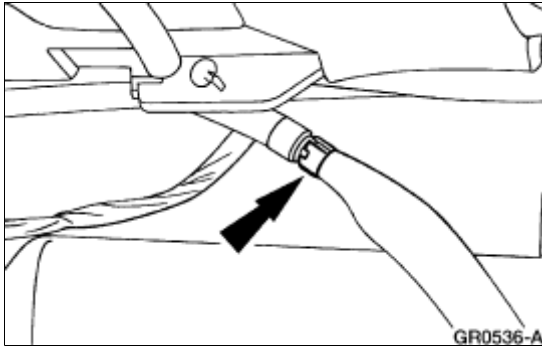
10. Remove the passenger side air bag module (044A74) ; refer to [Section 501-20B](#).
11. Disconnect the blend door actuator electrical connector.



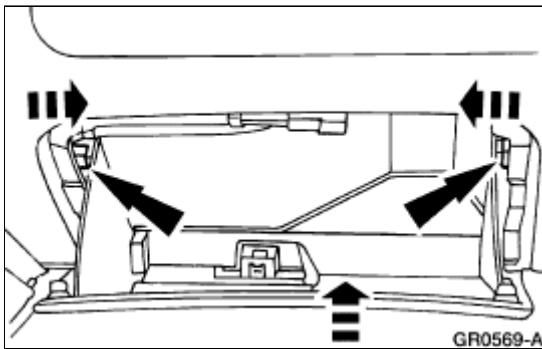
12. Disconnect the climate control vacuum harness connector.



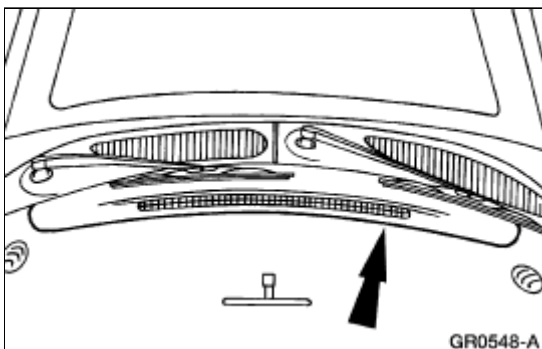
13. Disconnect the radio antenna cable in-line connector.



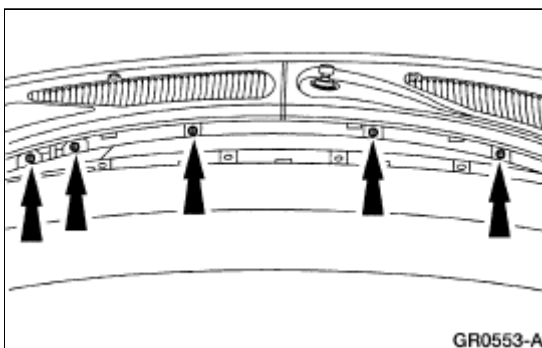
14. Raise the glove compartment.
- Press the glove compartment release tabs inward while raising the glove compartment.



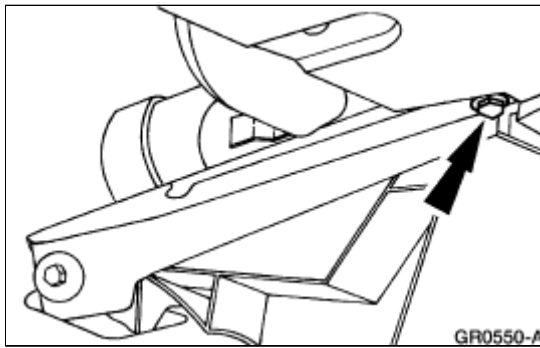
15. Remove the instrument panel defroster opening grille.



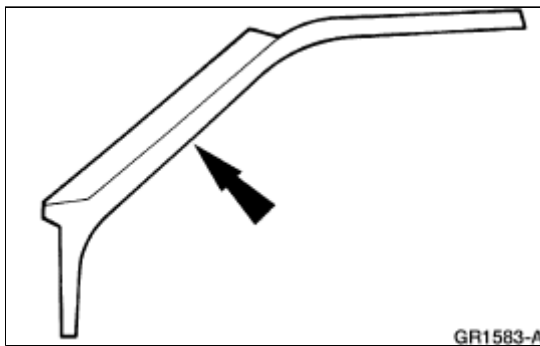
16. Remove the instrument panel cowl top bolts.



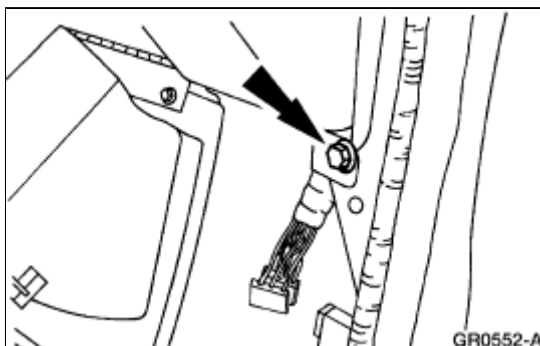
17. If equipped, remove the upper series floor console; refer to [Console—Floor, Upper Series](#).
18. Remove the instrument panel brace bolt from under the steering column opening.



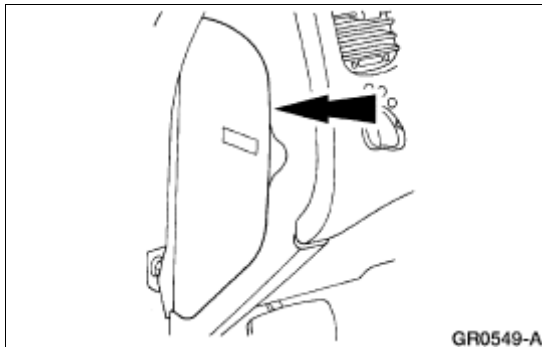
19. Remove the windshield side garnish mouldings.



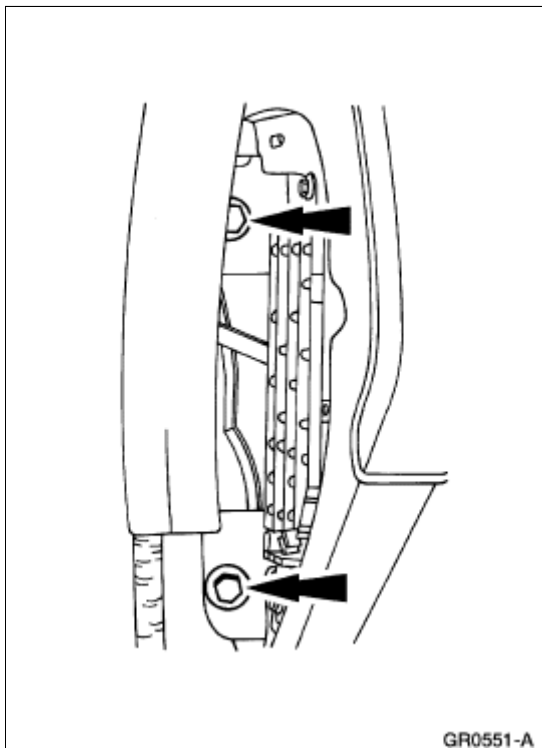
20. Remove the RH instrument panel cowl side bolt.



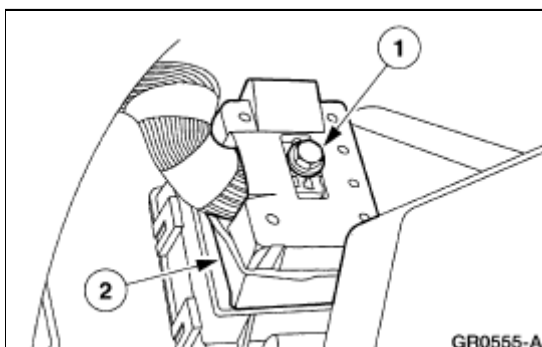
21. Remove the instrument panel fuse panel door.



22. Remove the LH instrument panel cowl side bolts.



23. Position the instrument panel away from the dash panel.
24. Disconnect the instrument panel to body harness.
1. Loosen the bolt.
 2. Disconnect the harness.



25. **NOTE:** Two technicians are required to carry out this step.

Remove the instrument panel.

- If necessary, transfer components to the new instrument panel.

Installation

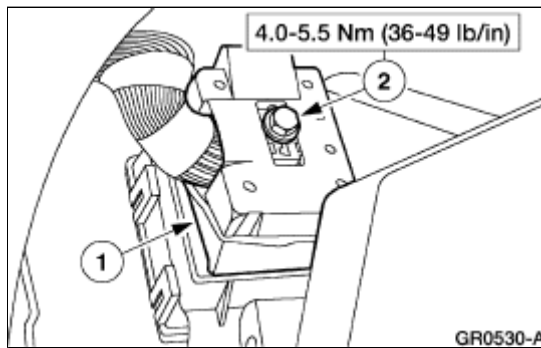


CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result.

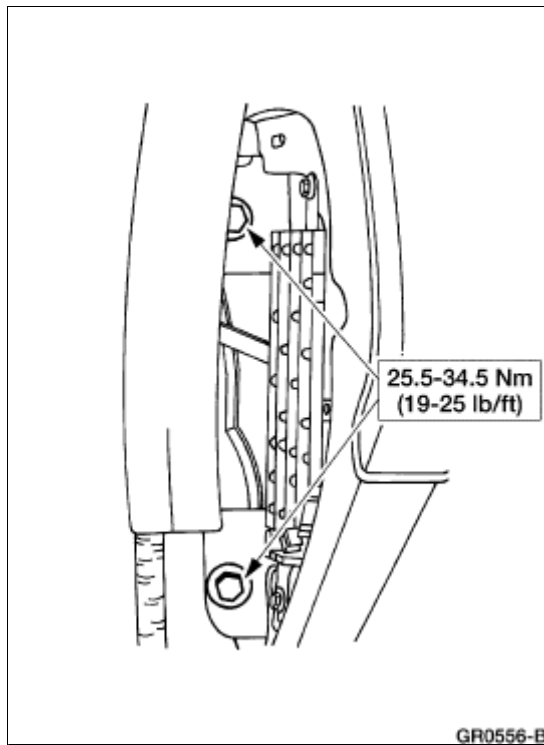
1. **NOTE:** Two technicians are required to carry out this step.

Position the instrument panel.

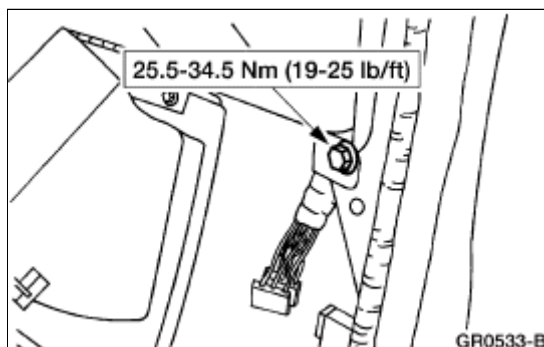
2. Connect the instrument panel to body harness.
1. Connect the harness.
 2. Tighten the bolt.



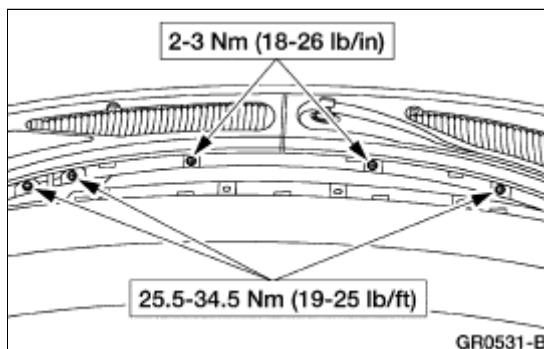
3. Align and install the instrument panel.
4. Install the LH instrument panel cowl side bolts.



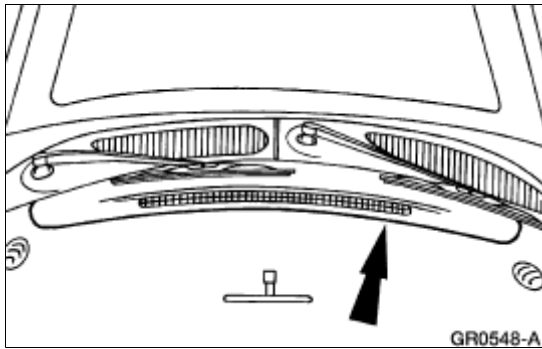
5. Install the RH instrument panel cowl side bolt.



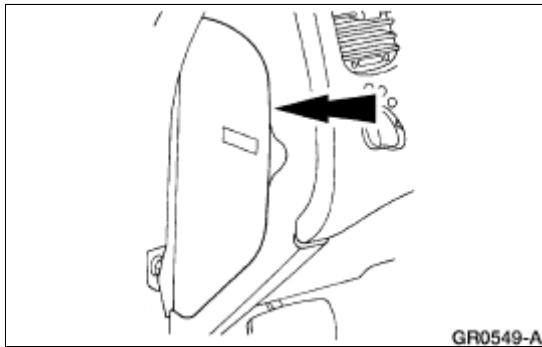
6. Install the instrument panel cowl top bolts.



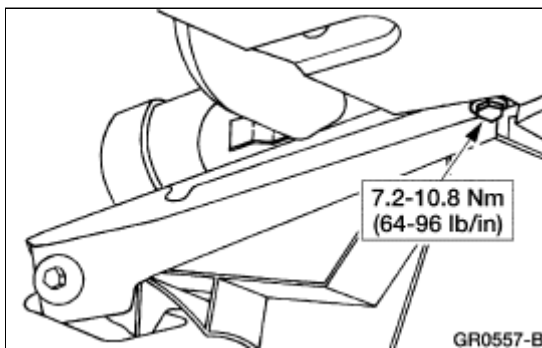
7. Install the instrument panel defroster opening grille.



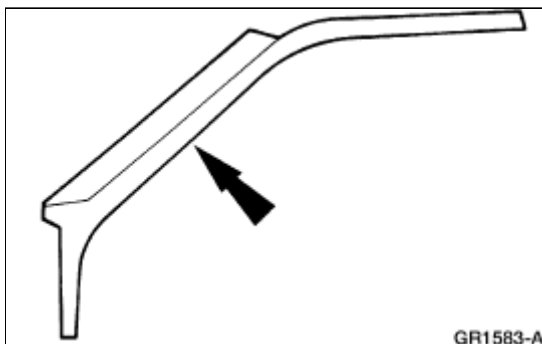
8. Install the instrument panel fuse panel door.



9. Install the instrument panel brace bolt from under the steering column opening.

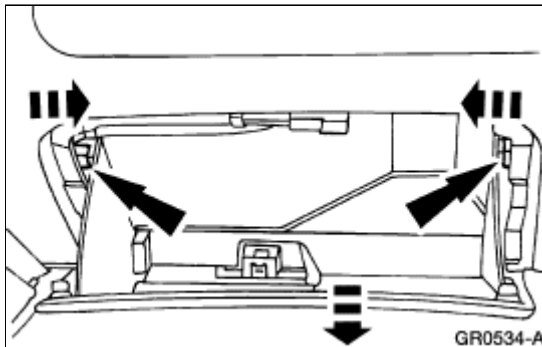


10. If equipped, install the floor console; refer to [Console—Floor, Upper Series](#).
11. Install the windshield side garnish mouldings.

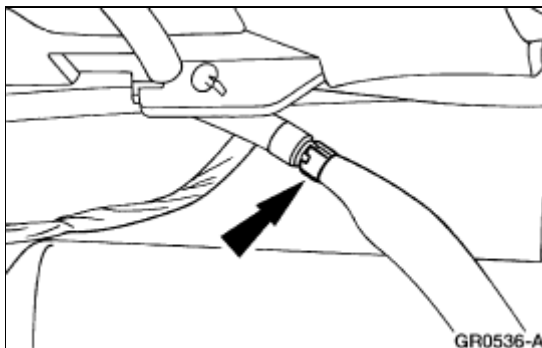


12. Lower the glove compartment.

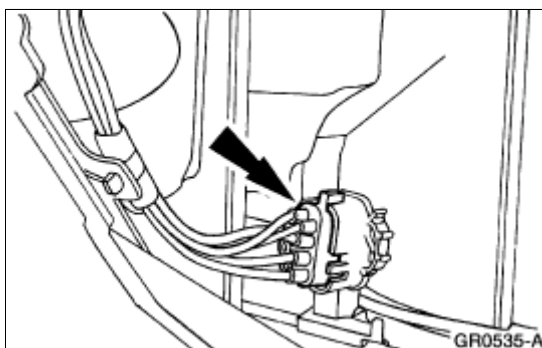
- Press the glove compartment release tabs inward while pulling downward on the glove compartment.



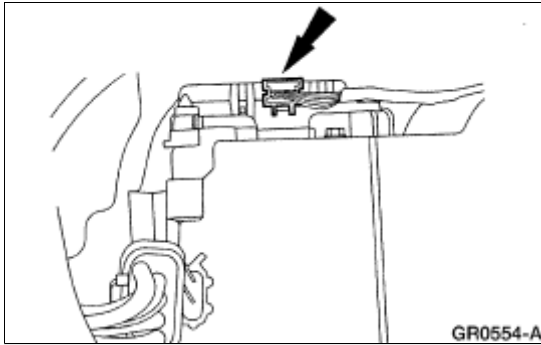
13. Connect the radio antenna cable in-line connector.



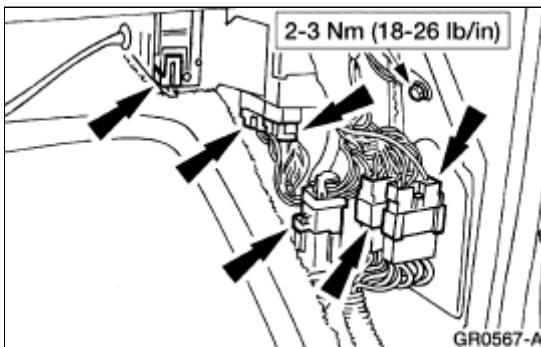
14. Connect the climate control vacuum harness connector.



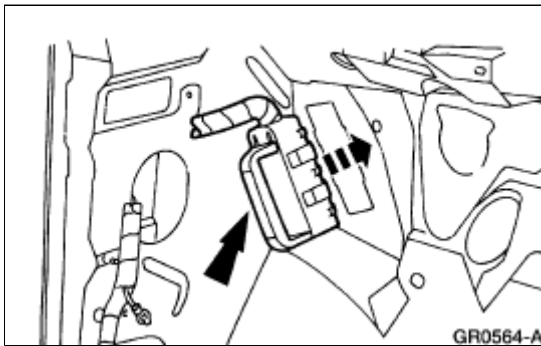
15. Connect the blend door actuator electrical connector.



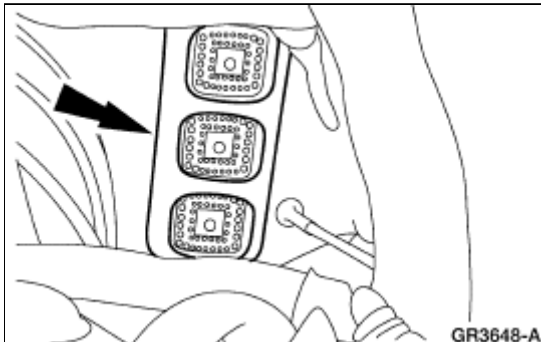
16. Install the passenger side air bag module ; refer to [Section 501-20B](#) .
17. Connect the electrical connectors and the ground wires on the RH cowl panel.



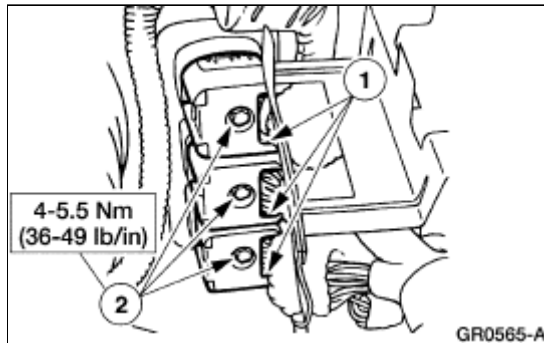
18. Position the bulkhead electrical connector handle.



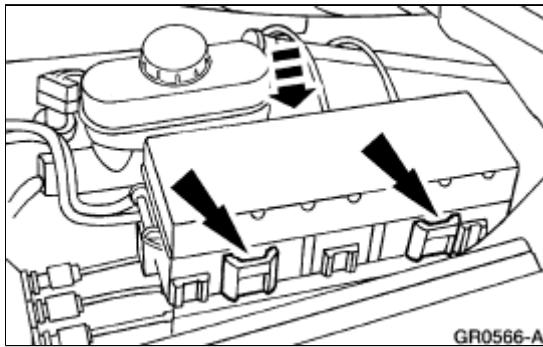
19. Install the bulkhead connector insulator.



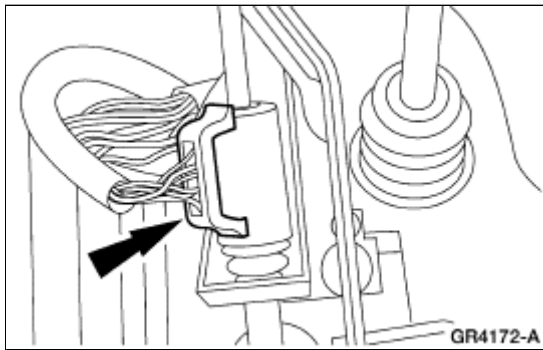
20. Install the bulkhead wiring harness connectors.
 1. Connect the electrical connectors.
 2. Tighten the bolts.



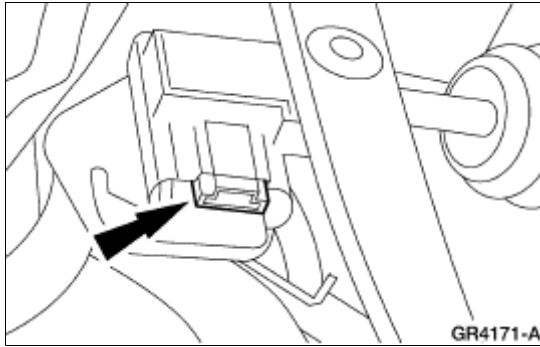
21. Install the power distribution box onto the power distribution box bracket.



22. Install the LH and RH cowl side trim panels. For additional information, refer to [Section 501-05](#).
23. If equipped, connect the CPP switch electrical connector.



24. Connect the BPP switch electrical connector.



25. Install the steering column; refer to [Section 211-04](#).
-

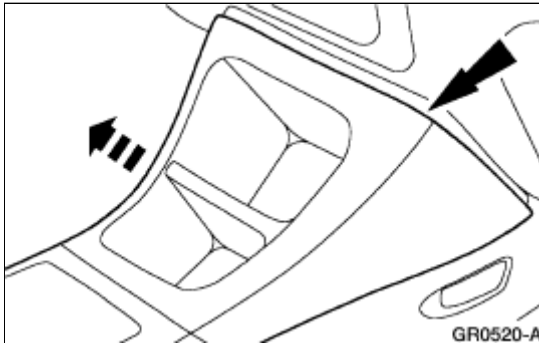
SECTION 501-12: Instrument Panel and Console
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

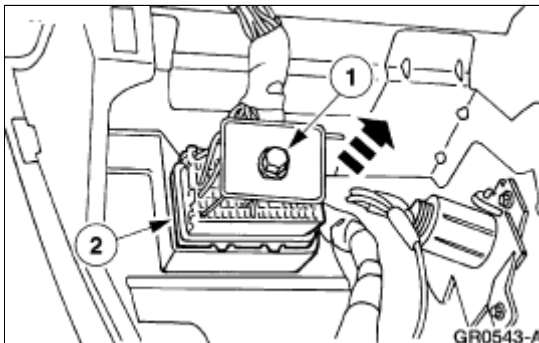
Console —Floor, Upper Series

Removal

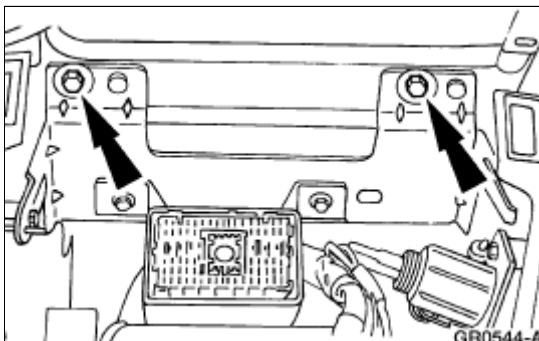
1. Disconnect the battery ground cable.
2. Remove the front floor console tray.
 - If equipped with message center, disconnect the three connectors.



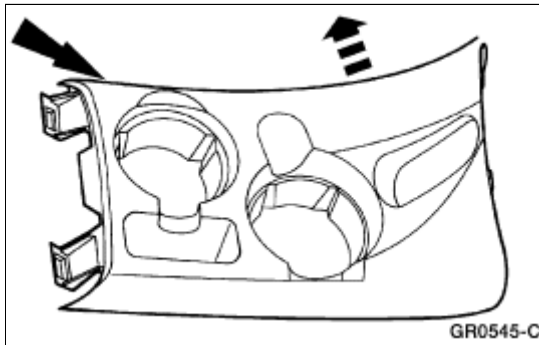
3. Disconnect the floor console electrical connector.
 1. Remove the bolt.
 2. Disconnect the electrical connector.



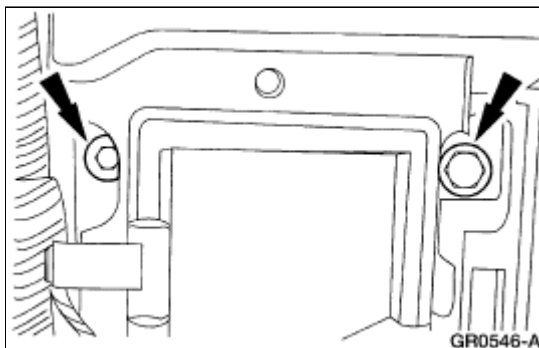
4. Remove the front floor console bolts.



5. Remove the center cupholder panel.

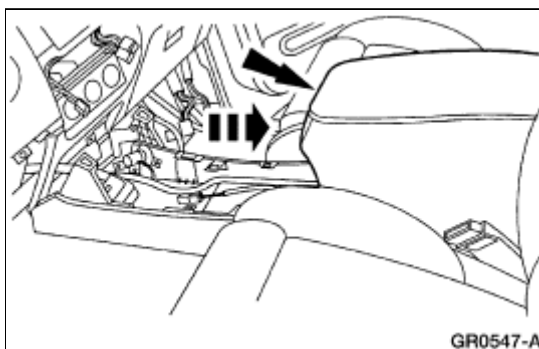


6. Remove the center floor console bolts.



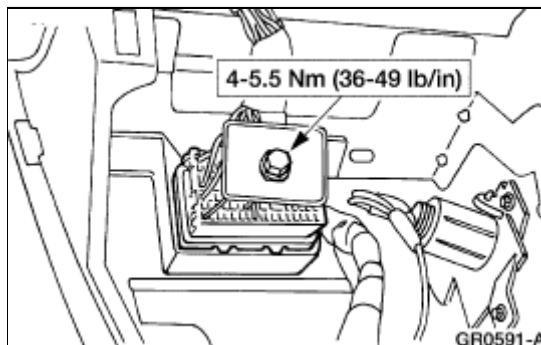
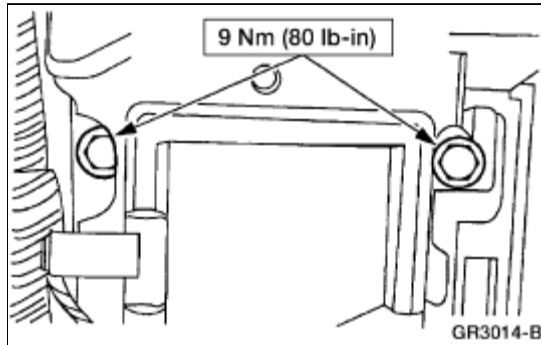
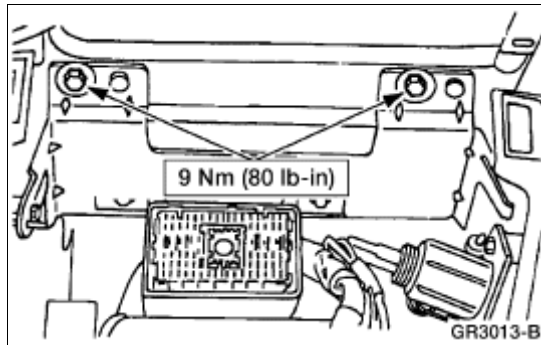
7. **NOTE:** The console must be moved rearward to disengage the rear mounting bracket.

Remove the floor console.



Installation

1. To install, reverse the removal procedure.



SECTION 501-12: Instrument Panel and Console
REMOVAL AND INSTALLATION

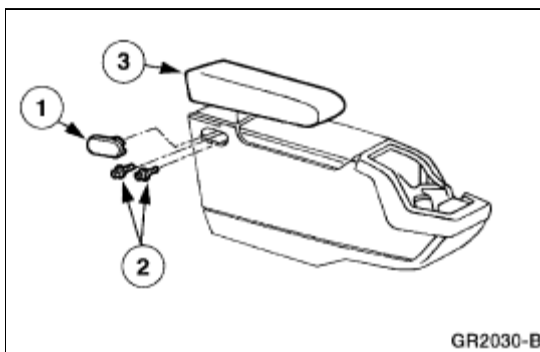
2000 Explorer/Mountaineer Workshop Manual

Console —Floor, Base Series Explorer

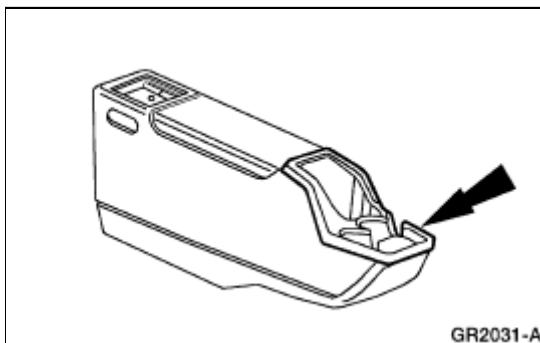
Removal

NOTE: The base floor console is shown; floor console with removable storage bin is similar.

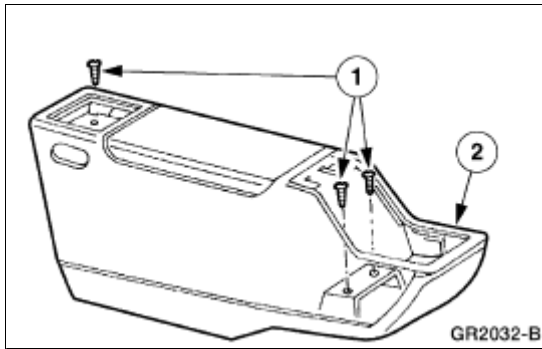
1. Remove the front seat center armrest.
 1. Remove the two covers.
 2. Remove the four bolts.
 3. Remove the armrest.



2. Remove the utility tray beverage holder.

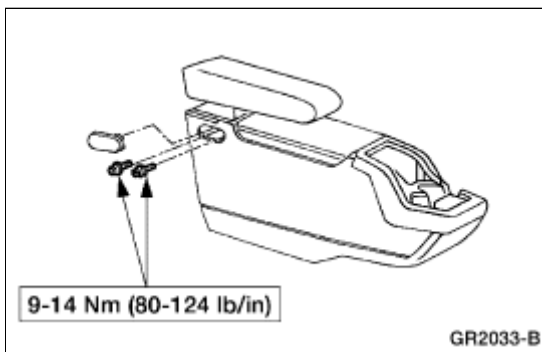
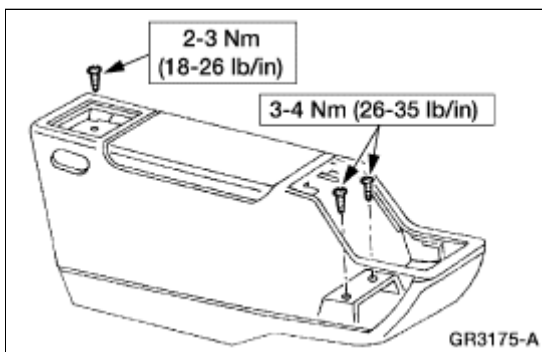


3. Remove the floor console.
 1. Remove the screws.
 2. Remove the floor console.



Installation

1. To install, reverse the removal procedure.



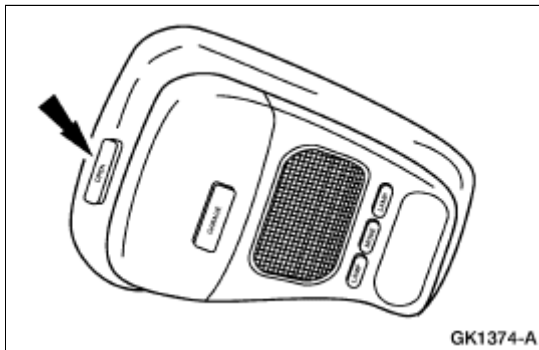
SECTION 501-12: Instrument Panel and Console
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

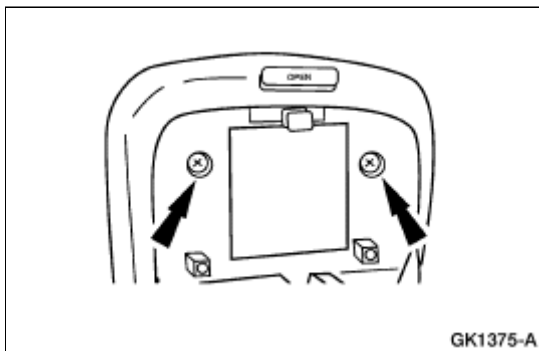
Console —Overhead

Removal

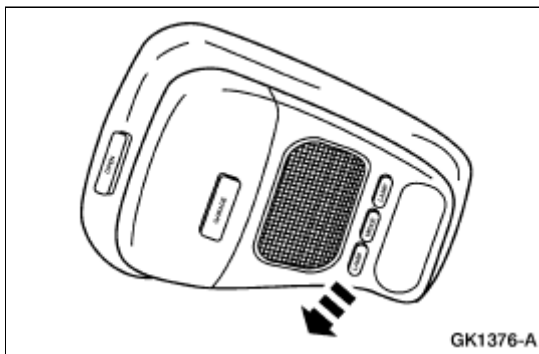
1. Disconnect the battery ground cable.
2. If equipped, open the garage door remote cover.



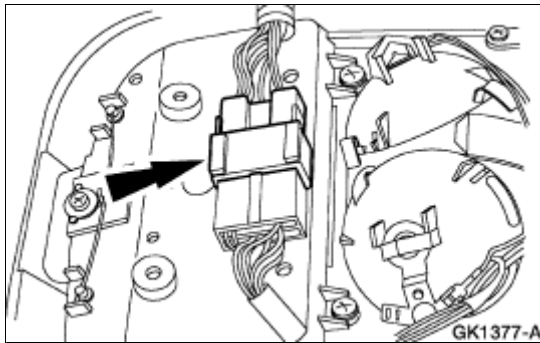
3. If equipped, remove the screws.



4. Remove the overhead console.



5. Disconnect the two electrical connectors (three connectors on moonroof equipped vehicles).



Installation

1. To install, reverse the removal procedure.
-

SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
SPECIFICATIONS

General Specifications

Item	Specification
Liftgate glass flushness mm (in)	-1.50 (-.06)

Lock Repair/Replacement Specifications

Part Number	Lock Repair Package Name
F85Z-11582-AA	Ignition Cylinder Lock Kit
F87Z-7821990-BA	Door Lock Kit
F87Z-7843432-CA	Liftgate Lock Kit

Torque Specifications

Description	Nm	lb-ft	lb-in
Battery ground cable	7-10	—	62-89
Door latch screws	4-8	—	36-70
Hood auxiliary catch hook bolts	11-13	—	91-123
Hood assist spring bolt	24-31	18-23	—
Hood latch bolts	10.5-13.5	8-9	—
Hood latch control handle screws	2-4	—	16-41
Inside door handle screws	7.5-10.5	—	67-93
License plate lamp shield screws	3	—	27
Liftgate latch bolt	9-14	7-10	—
Liftgate latch remote control	11-13	—	91-123
Liftgate lock actuator nuts	11-13	—	91-123
Liftgate lock cylinder nuts	6-7	—	54-62
Liftgate window latch nuts	12	9	—
Radiator grille sight shield bolts	6-8	—	54-70
Door latch striker	40	30	—

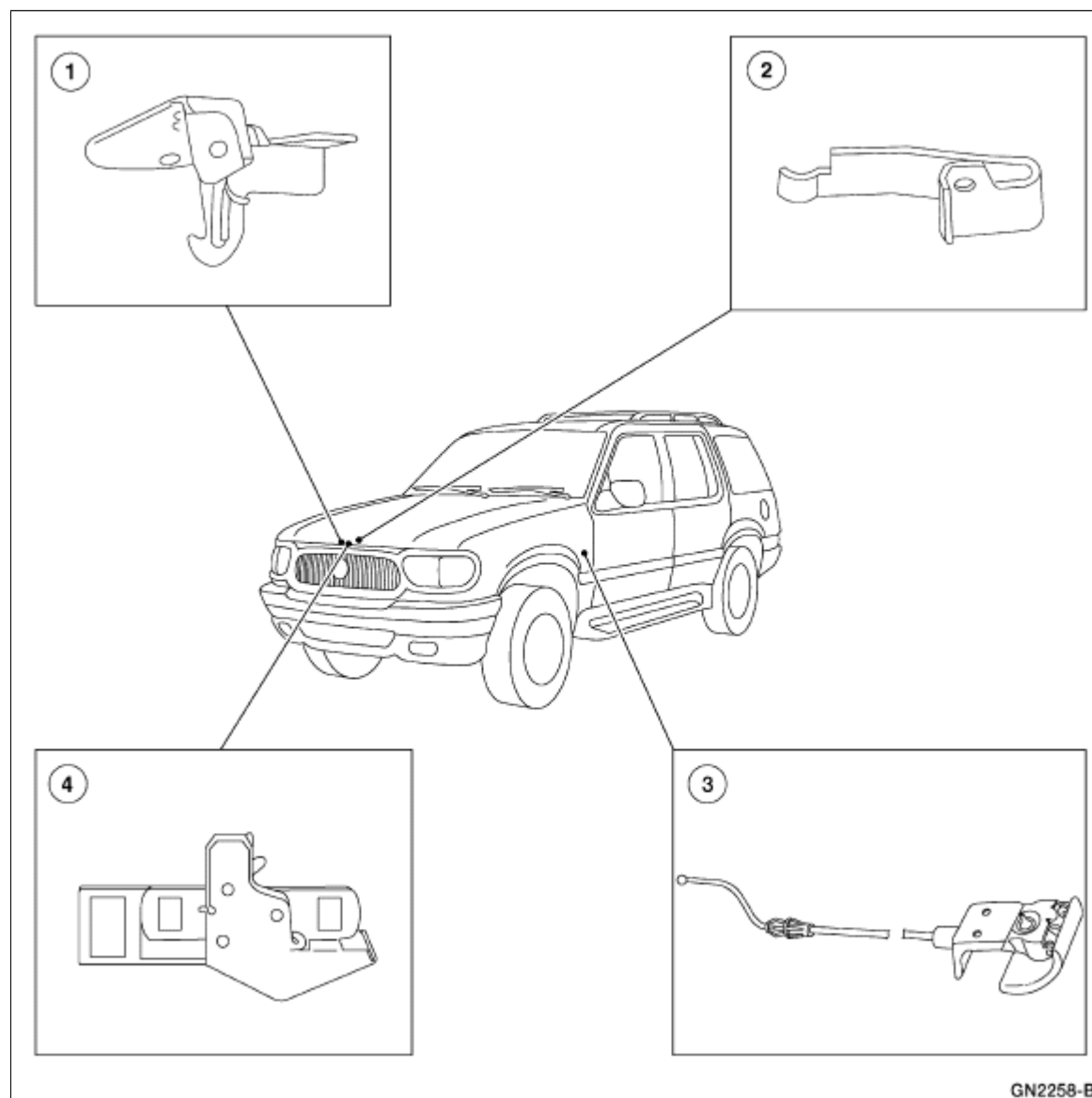
SECTION 501-14A: Handles, Locks, Latches and Mechanisms
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Handles, Locks, Latches and Mechanisms

Hood

Hood Latch Components

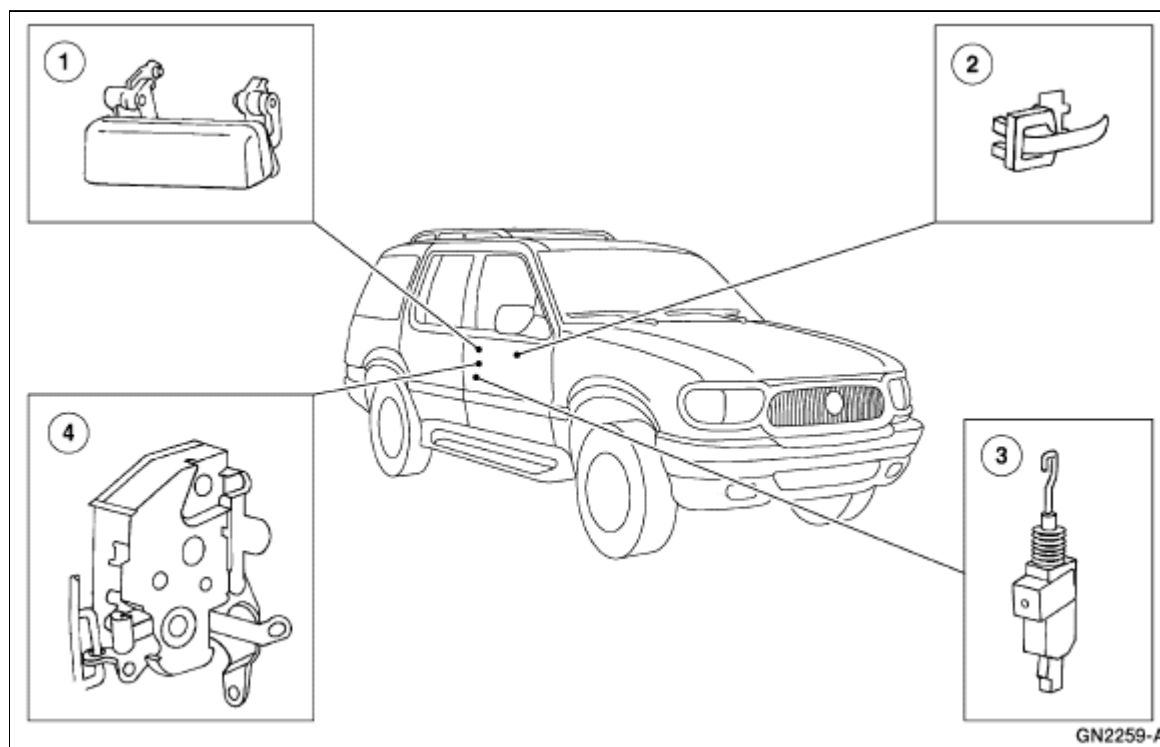


Item	Part Number	Description
1	16892	Hood auxiliary catch hook
2	16C644	Hood assist spring
3	—	Hood latch control handle and Cable

4	16700	Hood latch

Door

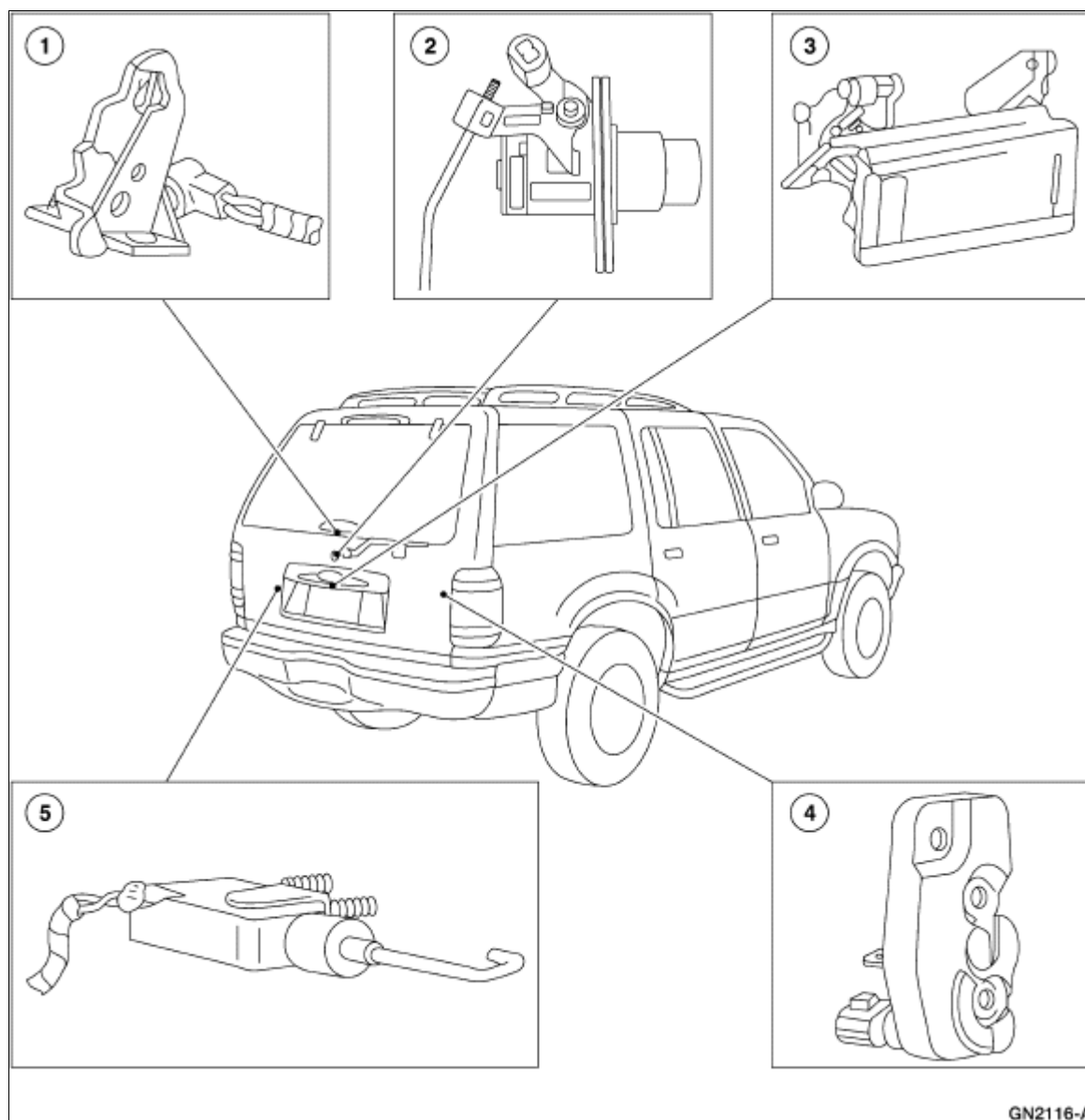
Door Latch Components



Item	Part Number	Description
1	22404	Door handle
2	—	Inside door handle
3	218A42	Power door lock Actuator
4	21812	Front door latch

Liftgate

Liftgate Latch Components



Item	Part Number	Description
1	—	Liftgate glass latch
2	—	Lock cylinder
3	—	Liftgate handle
4	—	Liftgate latch
5	—	Liftgate lock actuator

SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
DIAGNOSIS AND TESTING

Locks, Latches and Mechanisms

Refer to Wiring Diagrams Cell [110](#), Power Door Locks for schematic and connector information.

Special Tool(s)

 ST1137-A	73 Digital Multimeter or equivalent 105-R0051

Inspection and Verification

1. Verify the customer concern by operating the handles, locks, latches and mechanisms.
2. **NOTE:** Be sure the battery (10655) is fully charged. Refer to [Section 414-00](#). Before starting electrical diagnosis, check for mechanical binds by manually operating the door lock. Then operate the lock system several times from each switch, while observing the operation of all door locks.

Visually inspect for obvious signs of mechanical and electrical damage using the following chart.

Visual Inspection Chart

Mechanical	Electrical
• Binding latches • Door lock cylinder • Misaligned door • Lock actuator	• Fuse • Relays • Switch • Wiring harness • Loose or corroded connections

3. If the concern is not visually evident, determine the symptom and proceed to Symptom Chart.

Symptom Chart

Symptom Chart

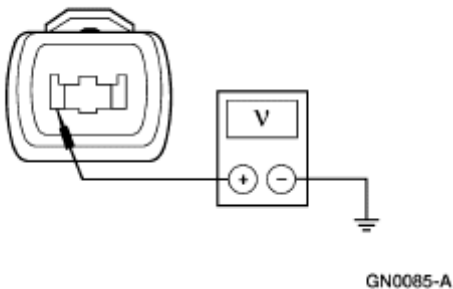
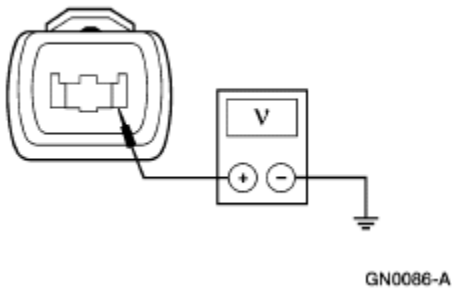
Condition	Possible Sources	Action
• The door lock is inoperative	• Circuitry. • Power door lock actuator (218A42).	• GO to Pinpoint Test A.
• The door locks are inoperative	• Fuse. • Circuitry. • Door lock switch.	• GO to Pinpoint Test B.

	• All lock and unlock relay(s).	
• All the locks operate from one switch only	• Circuitry. • Door lock switch.	• GO to Pinpoint Test C.
• The door locks are inoperative — door locks operate one way only	• Circuitry. • Door lock switch. • All lock or unlock relay(s).	• GO to Pinpoint Test D.
• The door locks only operate with the engine running	• Battery discharged.	• CHECK the battery voltage; REFER to Section 414-00.

Pinpoint Tests

PINPOINT TEST A: THE DOOR LOCK IS INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
A1 CHECK THE OPERATION OF THE SUSPECT DOOR LOCK	
	1 Check for binding or stuck conditions by manually operating the inoperative door lock. • Is the lock stuck or binding? → Yes REPAIR or REPLACE the binding components. TEST the system for normal operation. → No GO to A2.
A2 CHECK THE POWER DOOR LOCK ACTUATOR FOR LOCK OPERATION — CIRCUIT 117 (PK/BK)	
1  Inoperative Power Door Lock Actuator 2	2 Measure the voltage at the inoperative power door lock actuator connector Pin 1, Circuit 117 (PK/BK), and ground while operating the door lock switch to the LOCK position.

 GN0085-A	• Is the voltage greater than 10 volts? → Yes GO to A3. → No REPAIR Circuit 117 (PK/BK). TEST the system for normal operation.
A3 CHECK THE POWER DOOR LOCK ACTUATOR FOR UNLOCK OPERATION — CIRCUIT 118 (PK/O)/163 (R/O)	
1  GN0086-A	1 Measure the voltage at the inoperative power door lock actuator connector Pin 2, Circuit 118 (PK/O) or 163 R/O, and ground while operating the door lock switch to the UNLOCK position. • Is the voltage greater than 10 volts? → Yes INSTALL a new power door lock actuator. TEST the system for normal operation. → No REPAIR Circuit 118 (PK/O) and/or 163 (R/O). TEST the system for normal operation.

PINPOINT TEST B: ALL THE DOOR LOCKS ARE INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
B1 CHECK FUSE JUNCTION PANEL FUSE 18 (25A)	
1	



2



Fuse 18 (25A)

- Is the fuse OK?

→ **Yes**
GO to [B2](#).

→ **No**
INSTALL a new fuse. TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.

B2 CHECK RELAY CONNECTORS

- 1 Check the all lock and unlock relays for damaged terminals and/or wiring.

- Are all of the terminals and wiring OK?

→ **Yes**
GO to [B3](#).

→ **No**
REPAIR the damaged connector. TEST the system for normal operation.

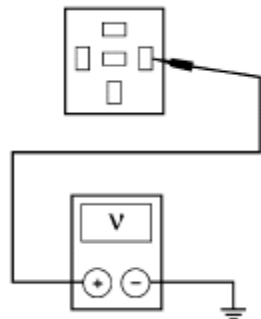
B3 CHECK THE VOLTAGE TO THE UNLOCK RELAY — CIRCUIT 171 (BK/W)

1



All Unlock Relay

2



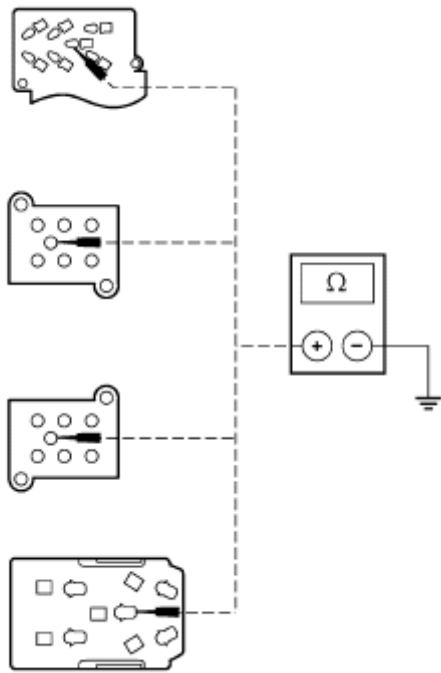
GN1481-A

- 2 Measure the voltage between all unlock relay connector Pin 86, Circuit 171 (BK/W), and ground.

	• Is the voltage greater than 10 volts? → Yes REPAIR Circuit 57 (BK). TEST the system for normal operation. → No REPAIR Circuit 171 (BK/W). TEST the system for normal operation.

PINPOINT TEST C: ALL THE LOCKS OPERATE FROM ONE SWITCH ONLY

CONDITIONS	DETAILS/RESULTS/ACTIONS										
C1 CHECK THE INOPERATIVE DOOR LOCK SWITCH											
1  2  Inoperative Door Lock Switch	3 Check the inoperative door lock switch. Refer to Wiring Diagrams, Cell 149, Component Testing.. • Is the switch OK? → Yes GO to C2. → No INSTALL a new door lock switch. TEST the system for normal operation.										
C2 CHECK THE GROUND TO THE INOPERATIVE DOOR LOCK SWITCH — CIRCUIT 57 (BK)											
1	1 Measure the resistance between the inoperative door lock switch Circuit 57 (BK), and ground; refer to the following chart: <table border="1"> <thead> <tr> <th>Switch</th><th>Connector/Pin</th></tr> </thead> <tbody> <tr> <td>Liftgate</td><td>C404-3</td></tr> <tr> <td>Passenger</td><td>C614-4</td></tr> <tr> <td>Driver (2 door)</td><td>C514-4</td></tr> <tr> <td>Driver (4 door)</td><td>C501-4</td></tr> </tbody> </table>	Switch	Connector/Pin	Liftgate	C404-3	Passenger	C614-4	Driver (2 door)	C514-4	Driver (4 door)	C501-4
Switch	Connector/Pin										
Liftgate	C404-3										
Passenger	C614-4										
Driver (2 door)	C514-4										
Driver (4 door)	C501-4										



GN2154-A

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [C3](#).

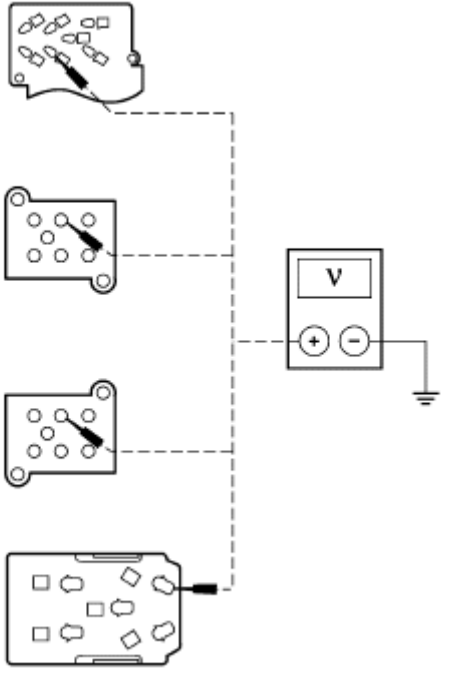
→ **No**
REPAIR Circuit 57 (BK). TEST the system for normal operation.

C3 CHECK THE VOLTAGE TO THE INOPERATIVE SWITCH — CIRCUIT 119 (PK/Y)

1

1 Measure the voltage between the inoperative door lock switch Circuit 119 (PK/Y), and ground; refer to the following chart:

Switch	Connector/Pin
Liftgate	C404-2
Passenger	C614-2
Driver (2 door)	C514-2
Driver (4 door)	C501-6



GN2155-A

- Is the voltage greater than 10 volts?

→ **Yes**
REPAIR Circuit 120 (PK/LG). TEST the system for normal operation.

→ **No**
REPAIR Circuit 119 (PK/Y). TEST the system for normal operation.

PINPOINT TEST D: THE DOOR LOCKS ARE INOPERATIVE — DOOR LOCKS OPERATE ONE WAY ONLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
D1 CHECK LOCK OPERATION	
	1 Actuate the door lock switch to the LOCK position. • Do the doors lock? → Yes GO to D2. → No GO to D6.
D2 CHECK THE VOLTAGE TO THE ALL UNLOCK RELAY — CIRCUIT 171 (BK/W)	

1

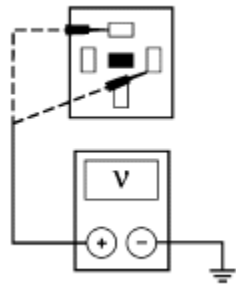


2



All Unlock Relay

3



GN2508-A

3

Measure the voltage between all unlock relay connector Pin 86, Circuit 171 (BK/W), and ground; and between all unlock relay connector Pin 87, Circuit 171 (BK/W), and ground.

- Is the voltage greater than 10 volts?

→ Yes

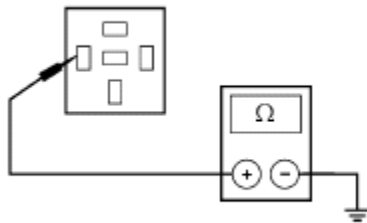
GO to [D3](#).

→ No

REPAIR Circuit 171 (BK/W). TEST the system for normal operation.

D3 CHECK ALL UNLOCK RELAY CONTROL GROUND — CIRCUIT 120 (PK/LG)

1



GN1480-A

1

Measure the resistance between the all unlock relay connector Pin 85, Circuit 120 (PK/LG), and ground while pressing the UNLOCK button on a power door lock switch.

- Is the resistance less than 5 ohms?

→ Yes

GO to [D4](#).

→ No

REPAIR Circuit 120 (PK/LG). TEST the system

for normal operation.

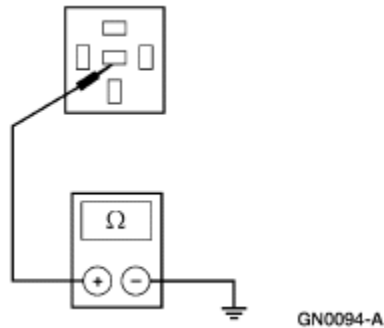
D4 CHECK ALL UNLOCK RELAY GROUND CIRCUIT FROM THE ALL LOCK RELAY — CIRCUIT 57 (BK)

1



All Lock Relay

2



2

Measure the resistance between all lock relay connector Pin 87A, Circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [D5](#).

→ **No**

REPAIR Circuit 57 (BK). TEST the system for normal operation.

D5 CHECK THE ALL UNLOCK RELAY

1

Check the all unlock relay. Refer to Wiring Diagrams, Cell 149 Component Testing.

- Is the all unlock relay OK?

→ **Yes**

INSTALL a new all lock relay. TEST the system for normal operation.

→ **No**

INSTALL a new all unlock relay. TEST the system for normal operation.

D6 CHECK THE VOLTAGE TO THE ALL LOCK RELAY — CIRCUIT 171 (BK/W)

1

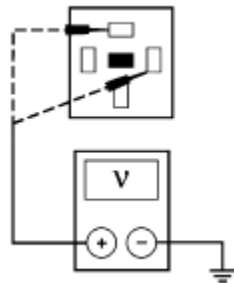


2



All Lock Relay

3



GN2508-A

3

Measure the voltage between all lock relay connector Pins 86 and 87, Circuit 171 (BK/W), and ground.

- Are the voltages greater than 10 volts?

→ Yes

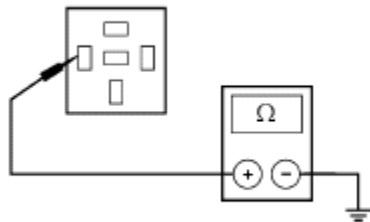
GO to [D7](#).

→ No

REPAIR Circuit 171 (BK/W). TEST the system for normal operation.

D7 CHECK ALL LOCK RELAY CONTROL GROUND — CIRCUIT 119 (PK/Y)

1



GN1480-A

1

Measure the resistance between all lock relay connector Pin 85, Circuit 119 (PK/Y), and ground while pressing the LOCK button on a power door lock switch.

- Is the resistance less than 5 ohms?

→ Yes

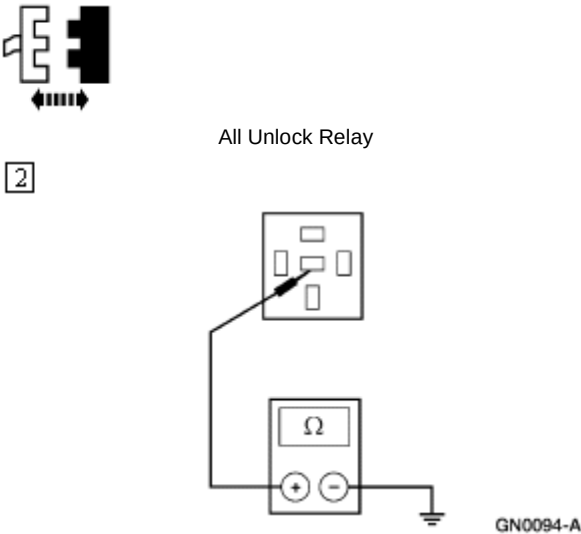
GO to [D8](#).

→ No

REPAIR circuit 119 (PK/Y). TEST the system for normal operation.

D8 CHECK ALL LOCK RELAY GROUND CIRCUIT FROM THE ALL UNLOCK RELAY — CIRCUIT 57 (BK)

1

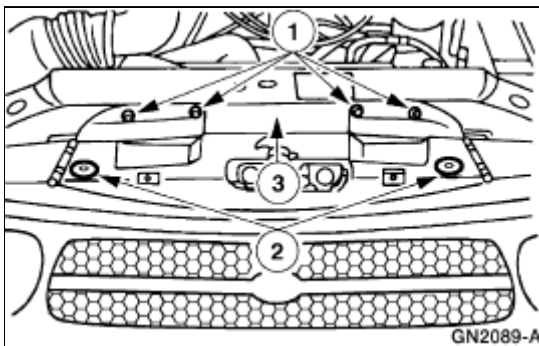
 All Unlock Relay 2 GN0094-A	2 Measure the resistance between all unlock relay connector Pin 87A, Circuit 57 (BK), and ground. • Is the resistance less the 5 ohms? → Yes GO to D9. → No REPAIR Circuit 57 (BK). TEST the system for normal operation.
D9 CHECK THE ALL LOCK RELAY	
	1 Check the all lock relay. Refer to Wiring Diagrams, Cell 149, Component Testing. • Is the all lock relay OK? → Yes INSTALL a new all unlock relay. TEST the system for normal operation. → No INSTALL a new all lock relay. TEST the system for normal operation.

SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Latch —Hood

Removal

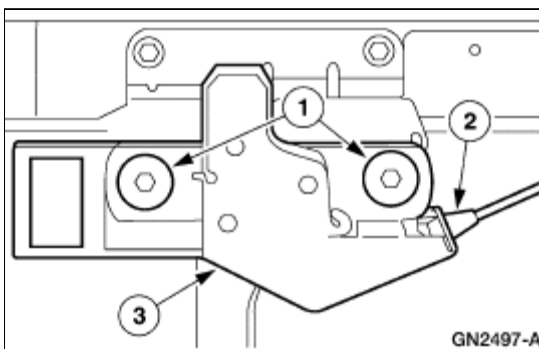
1. Raise and support the hood (16612).
2. Remove the radiator grille sight shield (8C031).
 1. Remove the bolts.
 2. Remove the rivets.
 3. Remove the radiator grille sight shield.



3. **NOTE:** Mark the hood latch position prior to removal of the bolts.

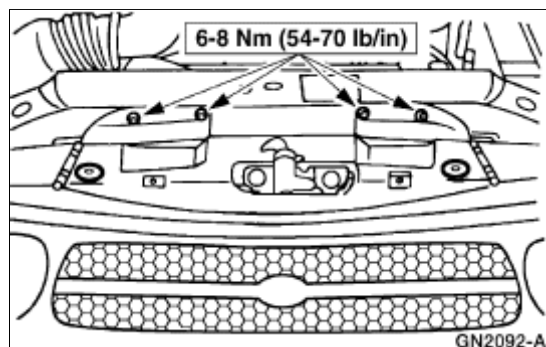
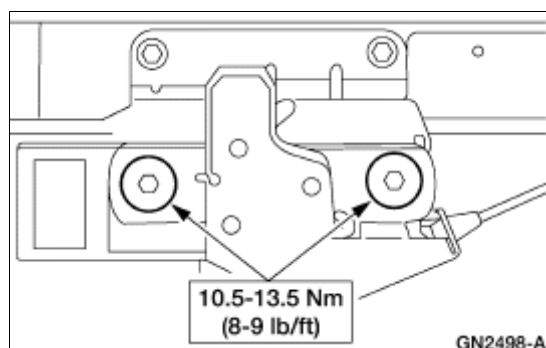
Remove the hood latch (16700)

1. Remove the bolts.
2. Disconnect the hood latch cable from the hood latch.
3. Remove the hood latch.



Installation

1. To install, reverse the removal procedure.
 - Adjust the hood latch; refer to [Latch—Hood, Adjustment](#).

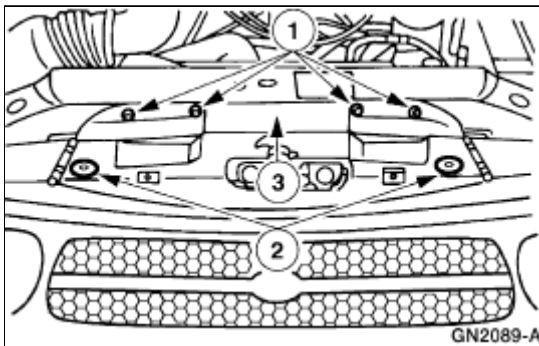


SECTION 501-14A: Handles, Locks, Latches and Mechanisms
REMOVAL AND INSTALLATION

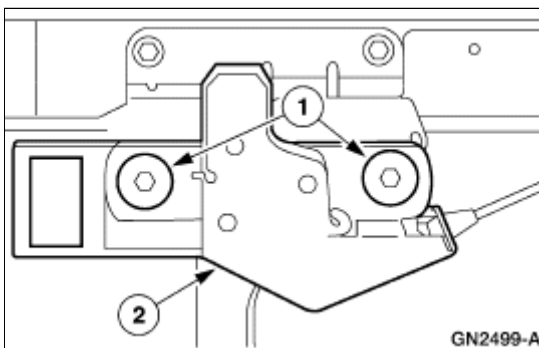
2000 Explorer/Mountaineer Workshop Manual

Latch —Hood, Adjustment

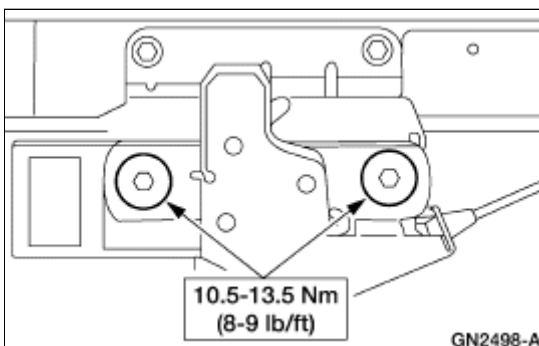
1. Verify the hood alignment.
2. Remove the radiator grille sight shield (8C031).
 1. Remove the bolts.
 2. Remove the rivets.
 3. Remove the radiator grille sight shield.



3. Align the hood latch.
 1. Loosen the hood latch bolts enough to allow for movement of the hood latch.
 2. Align the hood latch with the hood latch striker.



4. Tighten the hood latch bolts.

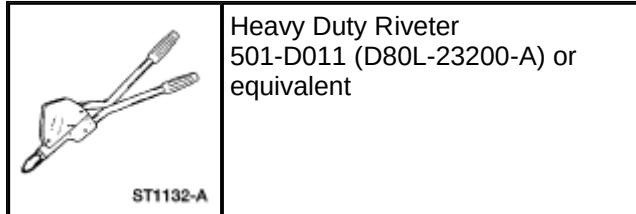


5. Verify the hood latch striker is fully engaging the hood latch.
 - Repeat the procedure as necessary.
-

SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Latch —Door

Special Tool(s)

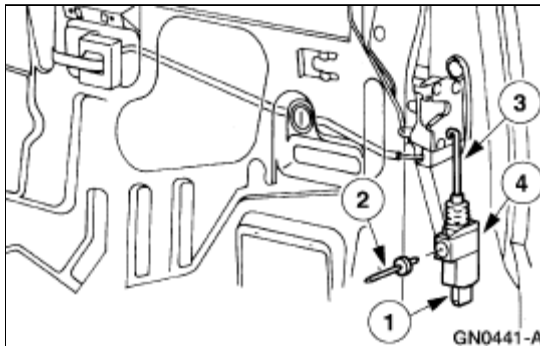


Removal and Installation

NOTE: Front door shown, rear door similar.

Front door

1. Remove the door lock cylinder; refer to [Lock Cylinder—Door](#).
2. If equipped, remove the power door lock actuator.
 1. Disconnect the electrical connector.
 2. Drill out the rivet.
 3. Disconnect the actuator rod.
 4. Remove the actuator.

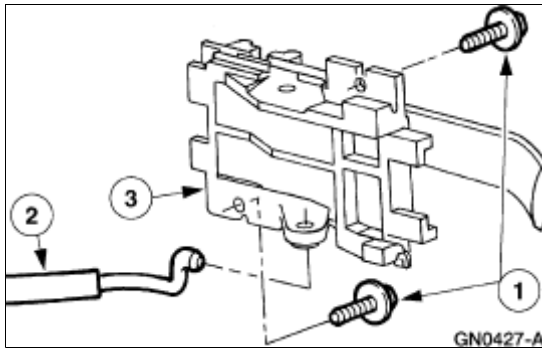


Rear door

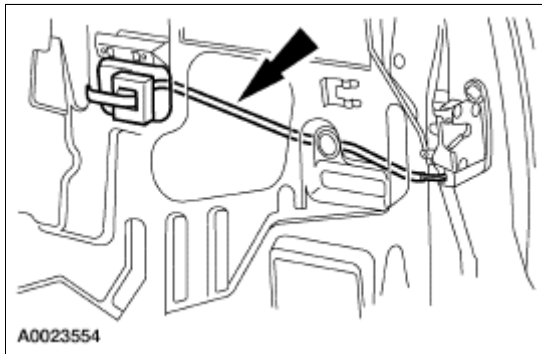
3. If equipped, remove the power door lock actuator. For additional information, refer to [Actuator—Door, Rear](#) in this section.

All doors

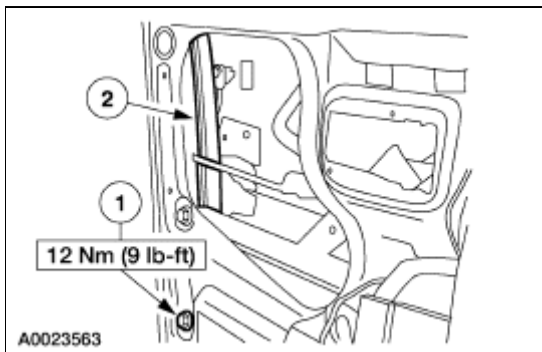
4. Remove the door latch remote control.
 1. Remove the screws.
 2. Disconnect the door latch remote control link from the door latch remote control.
 3. Remove the door latch remote control.



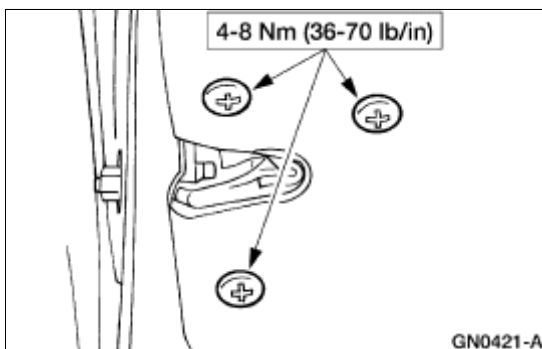
5. Disconnect the door latch actuating rod from the door latch.



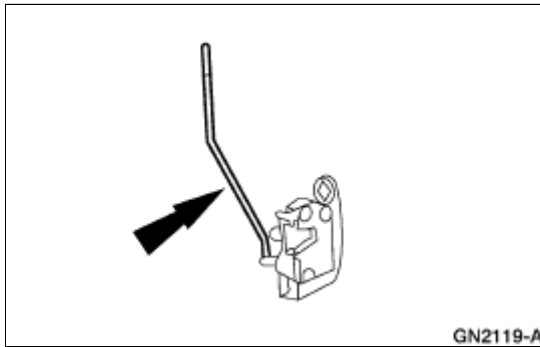
6. Remove the rear glass run channel.
1. Remove the bolt.
 2. Remove the rear glass run channel.



7. Remove the screws and the door latch.



8. Disconnect the door latch push button rod from the door latch.



9. **NOTE:** Connect the remote control rod, door latch push button rod and lock cylinder rod to the front door latch (21812) before installing the new latch.

NOTE: When the battery is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 16 km (10 mi) or more to relearn the strategy.

To install, reverse the removal procedure.

- Use the special tool to install the new rivet.

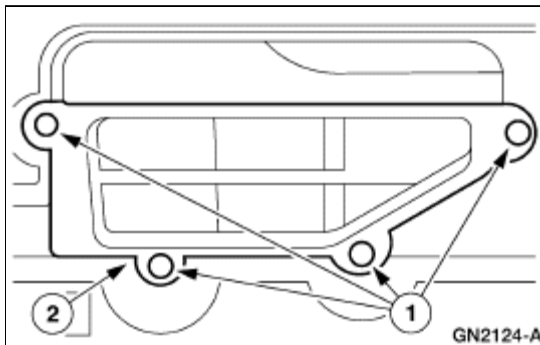


SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

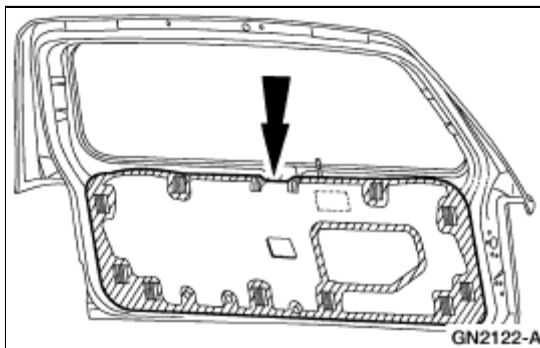
Latch —Liftgate Window

Removal

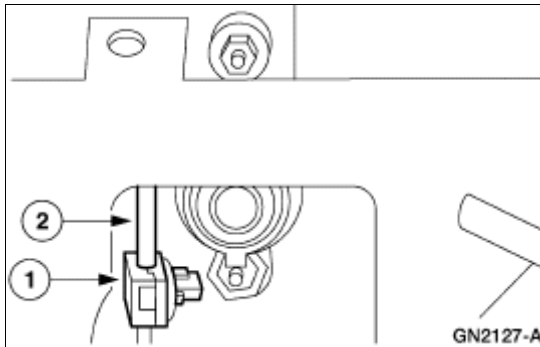
1. Open the liftgate window glass.
2. Remove the liftgate trim panel. For additional information, refer to [Section 501-05](#).
3. Remove the vent panel.
 1. Remove the pin-type retainers.
 2. Remove the vent panel.



4. Remove the liftgate watershield.

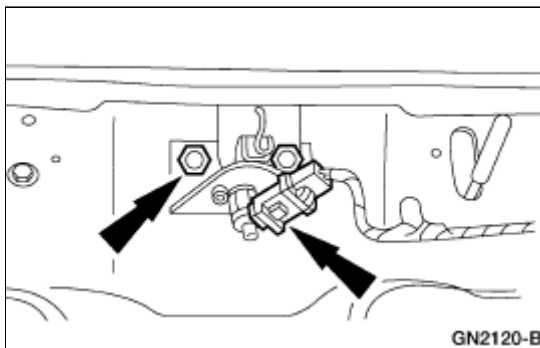


5. Disconnect the liftgate window latch actuating rod.
 1. Open the clip.
 2. Disconnect the liftgate window latch actuating rod.

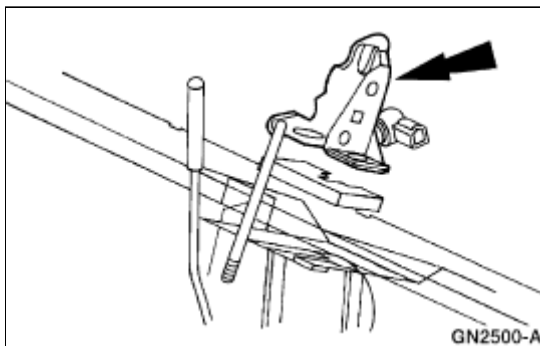


6. **NOTE:** Mark the position of the liftgate window latch prior to removing the nuts.

Disconnect the electrical connector and remove the nuts.



7. Remove the liftgate window latch.

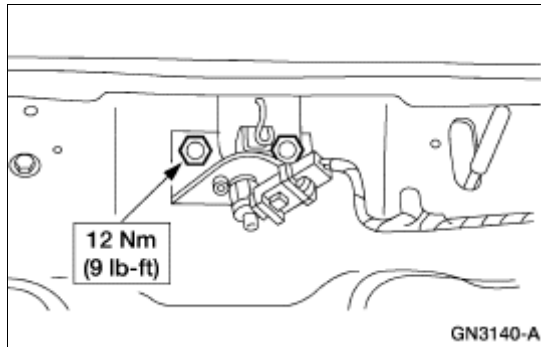


Installation

1. **NOTE:** Manually close the liftgate window latch to set the latch control rod length.

To install, reverse the removal procedure.

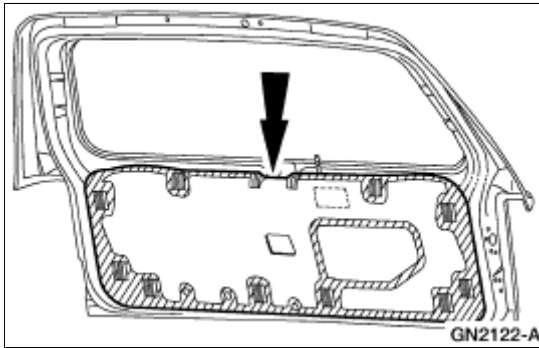
- Before installing the liftgate trim panel, adjust the liftgate window latch; refer to [Latch—Liftgate Window, Adjustment](#).



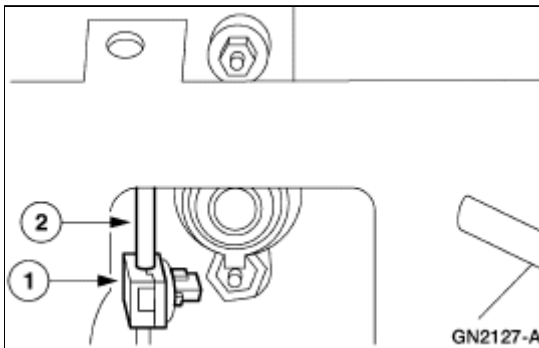
SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Latch —Liftgate Window, Adjustment

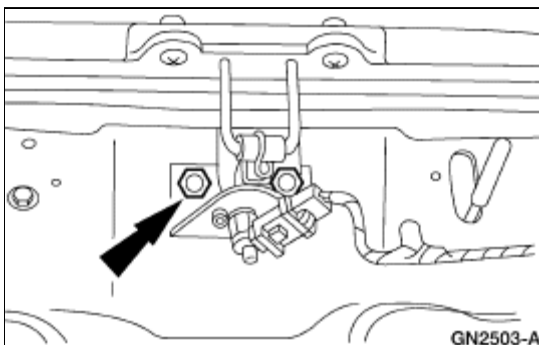
1. Remove the liftgate trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the liftgate watershield.



3. Close the liftgate window glass.
4. Disconnect the liftgate window latch actuating rod.
 1. Open the clip.
 2. Disconnect the liftgate window latch actuating rod.

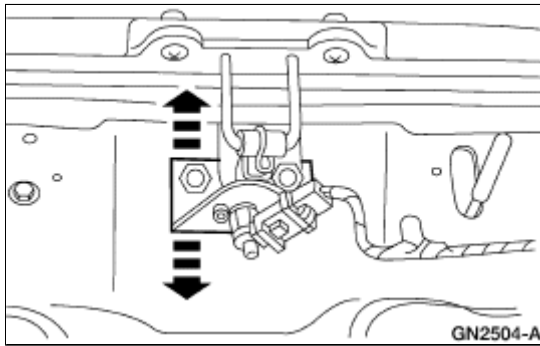


5. Loosen the liftgate window latch nuts.

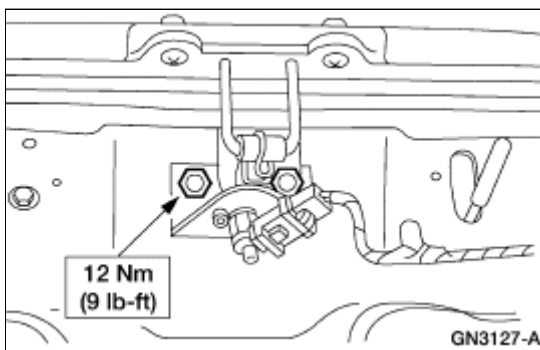


6. Adjust the liftgate window latch.

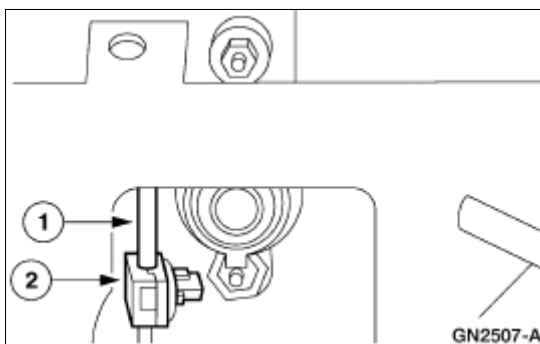
- Set the liftgate window glass flushness to 1.5mm (0.06 in) under flush.



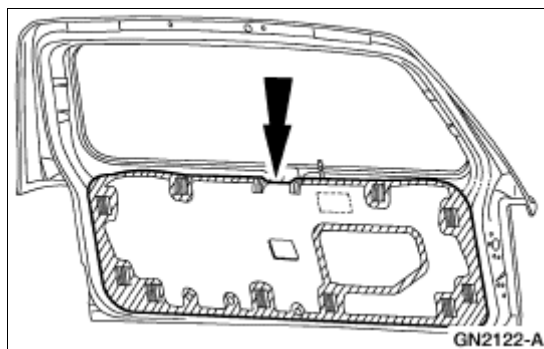
7. Tighten the liftgate window latch nuts.



8. Connect the liftgate window latch activating rod.
 1. Connect the liftgate window latch actuating rod.
 2. Lock the clip.



9. Verify the liftgate window glass flushness.
10. Install the liftgate watershield.



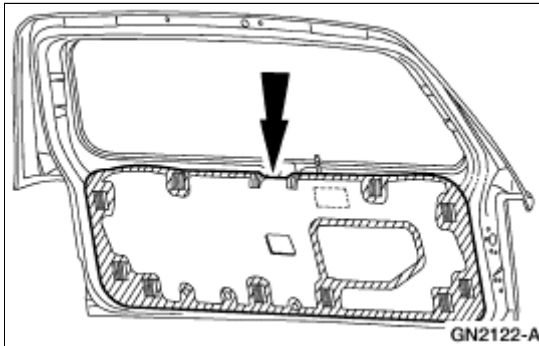
11. Install the liftgate trim panel. For additional information, refer to [Section 501-05](#).
-

SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

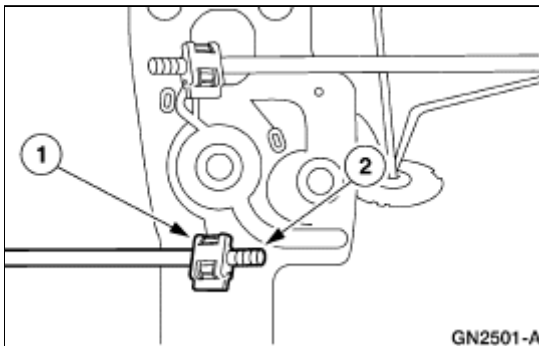
Latch —Liftgate

Removal

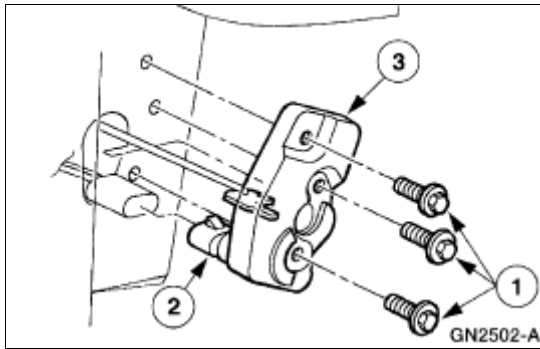
1. Remove the liftgate trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the liftgate watershield.



3. Disconnect the liftgate latch release rod from the liftgate latch remote control.
 1. Open the clip.
 2. Disconnect the liftgate latch release rod.



4. Remove the liftgate latch.
 1. Remove the bolts.
 2. Disconnect the electrical connector.
 3. Remove the liftgate latch and the liftgate release rod.



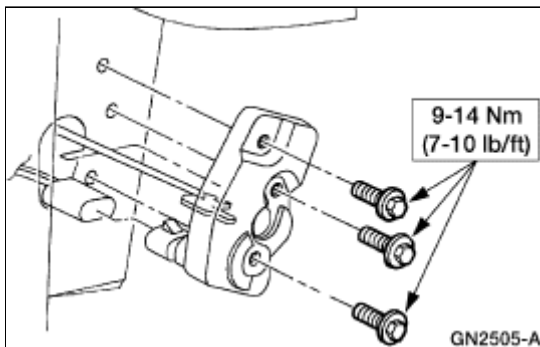
Installation

1. **NOTE:** If replacement of the liftgate latch release rods necessary, be sure to match the color coded rods for proper installation.

NOTE: Make sure the liftgate latch release rod is not preloading the latch. It should be clipped in a relaxed state with no slack.

NOTE: Position the liftgate latch release rod by pushing outboard to remove the slack.

To install, reverse the removal procedure.



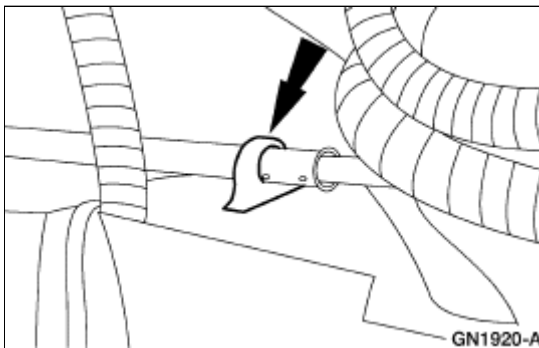
SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Handle —Hood Latch Release

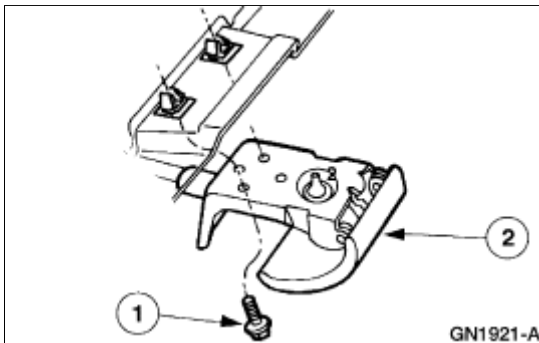
Removal

NOTE: The hood latch control handle and cable are replaced as an assembly.

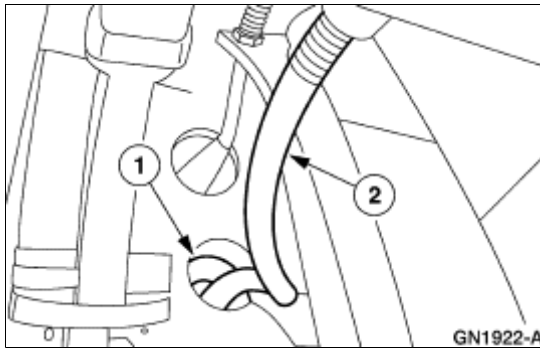
1. Remove the hood latch. For additional information, refer to [Latch—Hood](#).
2. Unclip the hood latch control handle and cable retainer from the inner fender splash shield.



3. Position the hood latch control handle and cable aside.
 1. Remove the two screws.
 2. Position the hood latch control handle and cable aside.

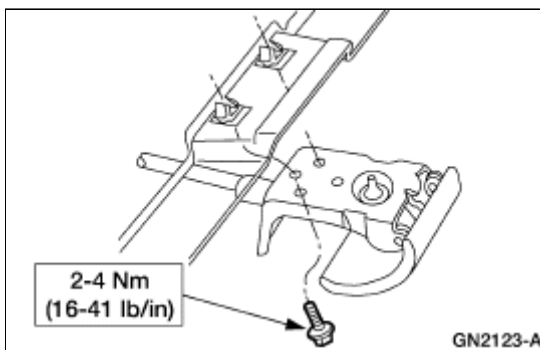


4. Remove the hood latch control handle and cable.
 1. Remove the hood latch control and cable grommet from the dash panel.
 2. Remove the hood latch control handle and cable.



Installation

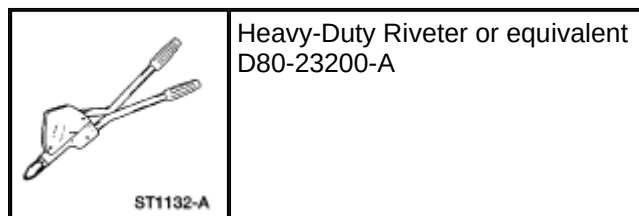
1. To install, reverse the removal procedure.



SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Handle —Door, Outside

Special Tool(s)



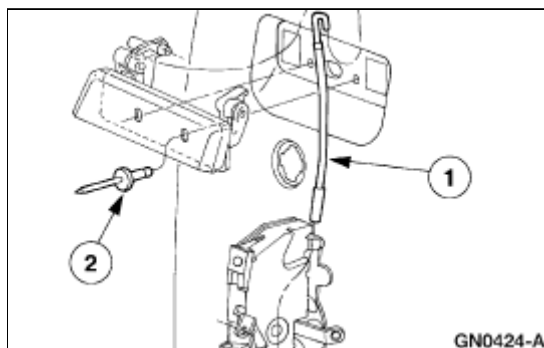
Removal

NOTE: Front door shown, rear door similar.

1. Remove the door trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the watershield.
3. **NOTE:** The front door window glass must be completely up.

Remove the outside door handle.

1. Disconnect the front door latch to door handle rod.
2. Drill out the two rivets and remove the outside door handle.



Installation

1. **NOTE:** Front door shown, rear door similar.

To install, reverse the removal procedure.

- Use Heavy-Duty Riveter to install the rivets.
-

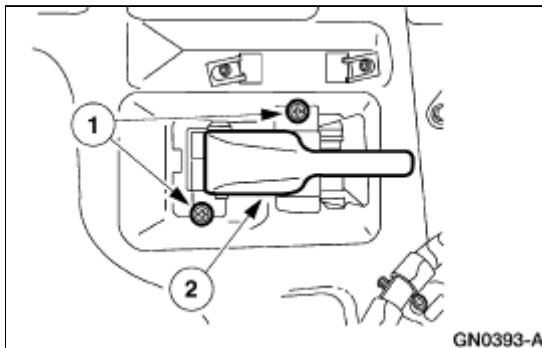
SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Handle —Door, Inside

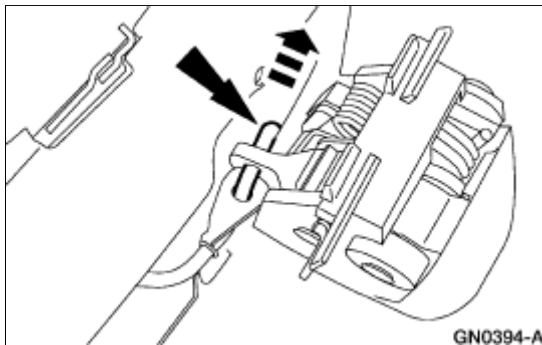
Removal

NOTE: Front door shown, rear door similar.

1. Remove the door trim panel. For additional information, refer to [Section 501-05](#).
2. Disconnect the inside door handle (22600) from the door.
 1. Remove the screws.
 2. Disconnect the inside door handle.



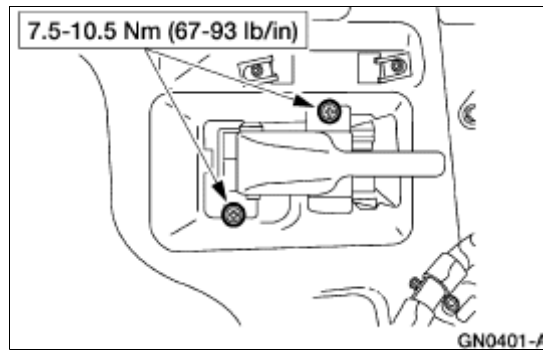
3. Disconnect the rod from the inside door handle.



Installation

1. **NOTE:** Front door shown, rear door similar.

To install, reverse the removal procedure.



SECTION 501-14A: Handles, Locks, Latches and Mechanisms
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

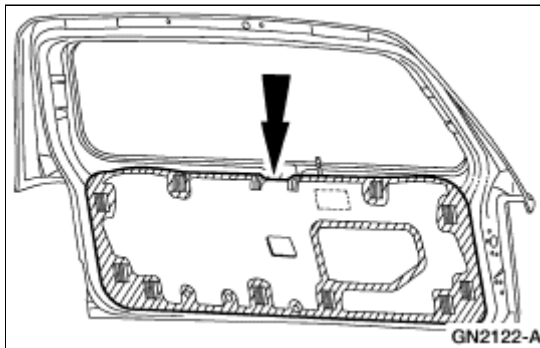
Handle —Liftgate

Special Tool(s)

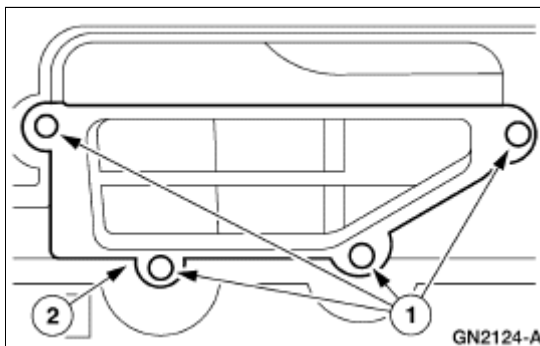
 ST1132-A	Heavy-Duty Riveter or equivalent D80-23200-A

Removal

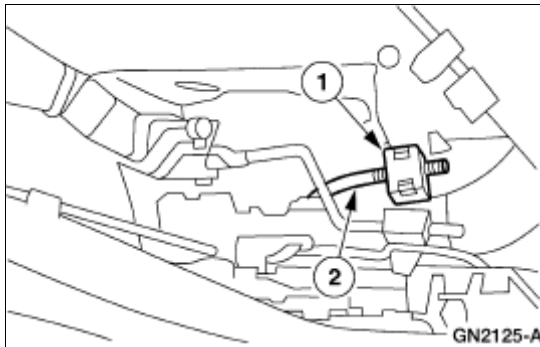
1. Remove the liftgate trim panel For additional information, refer to [Section 501-05](#).
2. Remove the liftgate watershield.



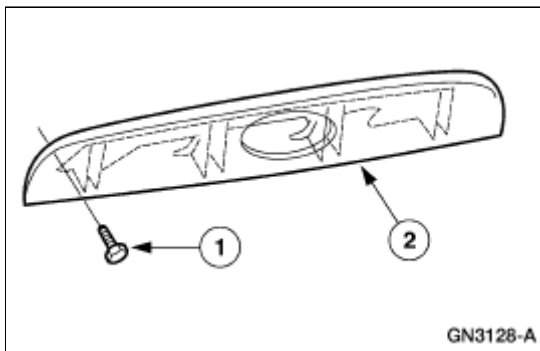
3. Remove the vent panel.
 1. Remove the pin-type retainers.
 2. Remove the vent panel.



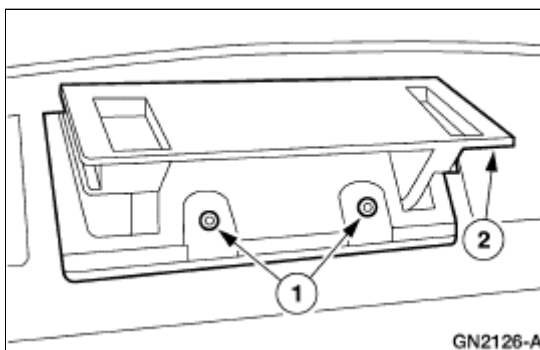
4. Disconnect the outside liftgate handle actuating rod.
 1. Open the clip.
 2. Disconnect the outside liftgate handle actuating rod.



5. Remove the license plate lamp shield.
 1. Remove the screws.
 2. Remove the license plate lamp shield.

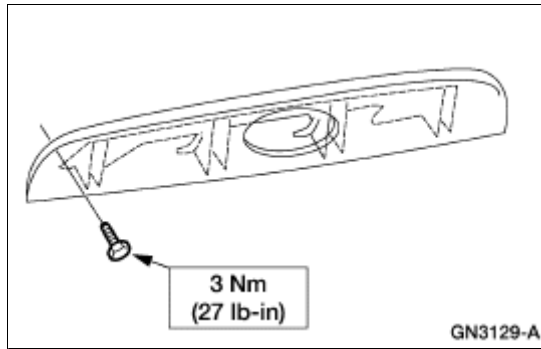


6. Remove the outside liftgate handle.
 1. Drill out the rivets.
 2. Remove the outside liftgate handle.



Installation

1. To install, reverse the removal procedure.
 - Use Heavy-Duty Riveter to install the rivets.



SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

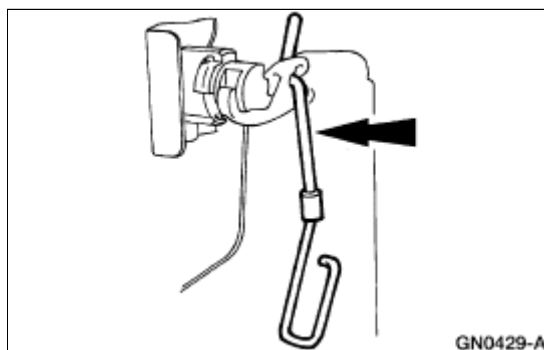
Lock Cylinder —Door

Removal and Installation

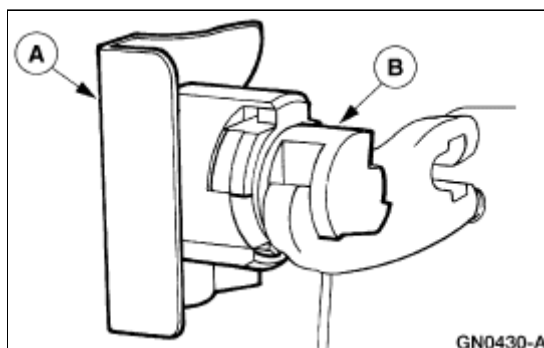
NOTE: When a lock cylinder is replaced, both door lock cylinders, liftgate lock cylinders and ignition lock cylinder should be replaced as a set. This will eliminate carrying an extra key which will fit only one lock. If a key is to be replaced, the new key code number is stamped on a metal tag attached to the key.

NOTE: Individual lock cylinders are repaired by discarding the inoperative cylinder and building a new lock cylinder using the appropriate lock repair package. The lock repair package includes a detailed instruction sheet to build the new lock cylinder to the current key code of the vehicle.

1. Remove the front door trim panel (23942). For additional information, refer to [Section 501-05](#).
2. If equipped with power windows, connect the battery ground cable. For additional information, refer to [Section 414-01](#).
3. Raise the window to the closed position.
4. Position the watershield aside.
5. Disconnect the front door latch control cylinder rod from the door lock cylinder lever.



6. Slide the (A) door lock cylinder retainer away from the (B) lock cylinder and remove the cylinder.



7. To install, reverse the removal procedure.



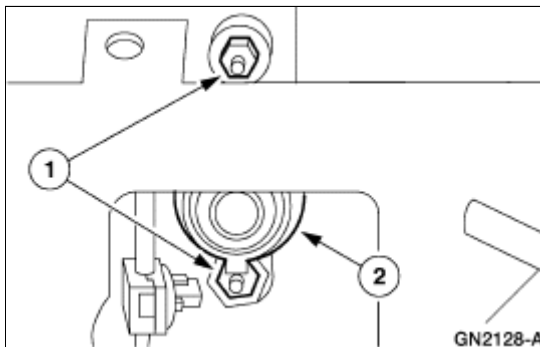
SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Lock Cylinder —Liftgate

Removal

NOTE: Individual lock cylinders are repaired by discarding the inoperative cylinder and building a new lock cylinder using the appropriate lock repair package. The lock repair package includes a detailed instruction sheet to build the new lock cylinder to the current key code of the vehicle.

1. If equipped, remove the liftgate lock actuator. For additional information, refer to [Actuator—Liftgate Lock](#).
2. Remove the liftgate latch remote control. For additional information, refer to [Latch Remote Control—Liftgate](#).
3. Remove the liftgate lock cylinder.
 1. Remove the nuts.
 2. Remove the liftgate lock cylinder.
 - If equipped, disconnect the electrical connector.

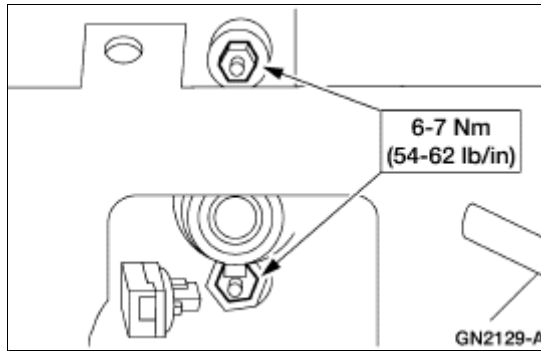


Installation

1. **NOTE:** Manually close the liftgate window latch to set the latch control rod length.

NOTE: Make sure the liftgate window latch actuating rod is not preloading the liftgate window latch. It should be clipped in a relaxed state with no slack.

To install, reverse the removal procedure.



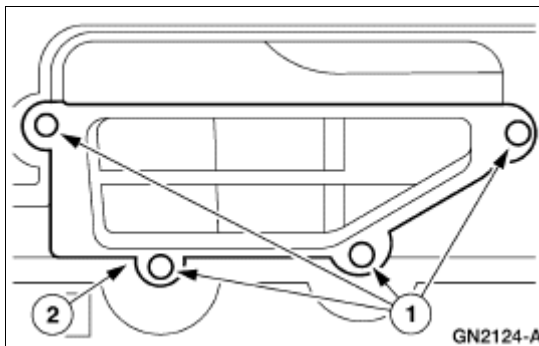
SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Latch Remote Control —Liftgate

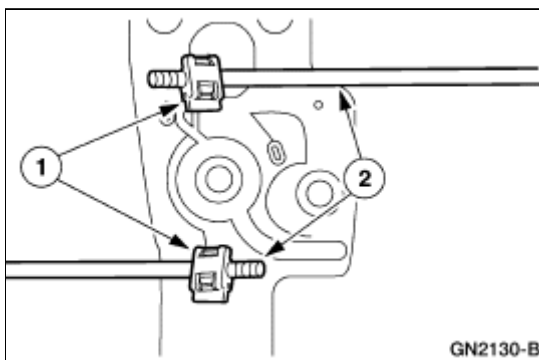
Removal

NOTE: If equipped with power locks, perform steps one and eight.

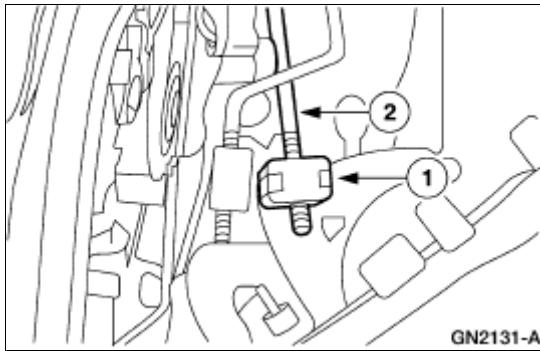
1. Remove the liftgate lock actuator. For additional information, refer to [Actuator—Liftgate Lock](#).
2. Remove the liftgate window latch. For additional information, refer to [Latch—Liftgate Window](#).
3. Remove the vent panel.
 1. Remove the pin-type retainers.
 2. Remove the vent panel.



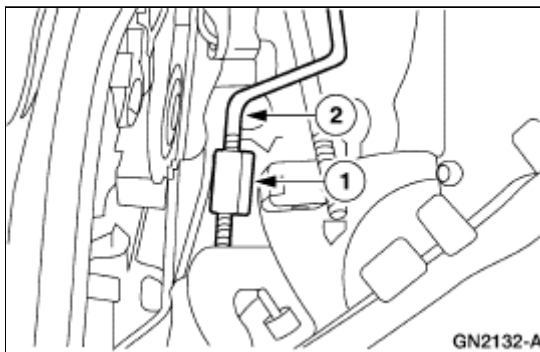
4. Disconnect the liftgate latch release rods.
 1. Open the clips.
 2. Disconnect the liftgate latch release rods.



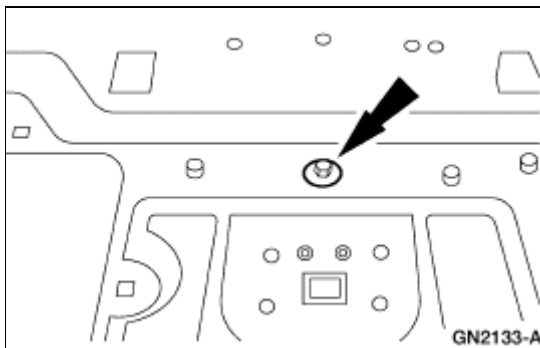
5. Disconnect the liftgate handle rod.
 1. Open the clip.
 2. Disconnect the liftgate handle rod.



6. Disconnect the lock cylinder rod.
 1. Open the clip.
 2. Disconnect the lock cylinder rod.



7. Remove the liftgate latch remote control bolt.

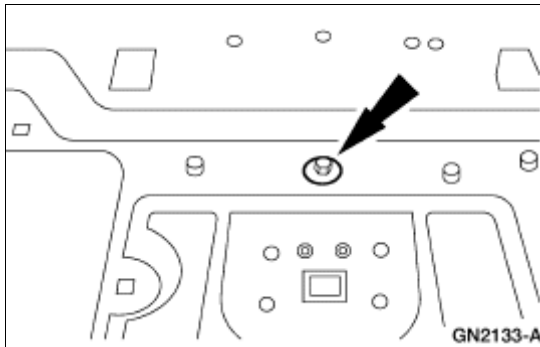


8. Remove the liftgate latch remote control from the liftgate.

Installation

NOTE: If equipped with power locks, perform steps one and two.

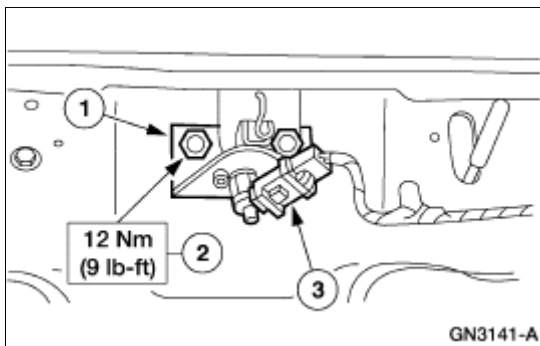
1. Install the latch remote control and (if equipped) the push button rod into the liftgate.
2. Install the liftgate lock actuator. For additional information, refer to [Actuator—Liftgate Lock](#).
3. Loosely install the liftgate latch remote control bolt.



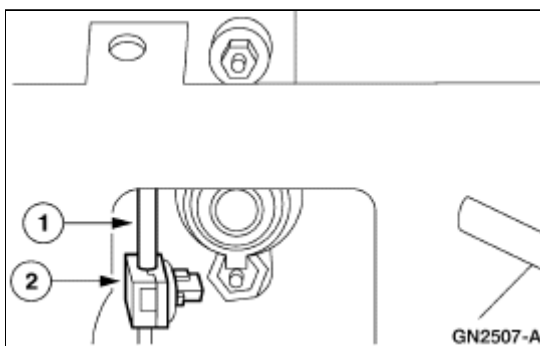
4. **NOTE:** Manually close the liftgate window latch to set the latch control rod length.

Install the liftgate window latch.

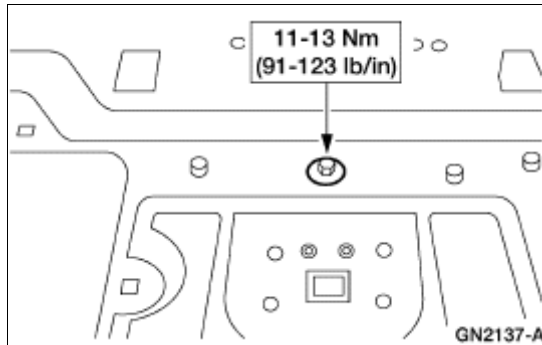
1. Position the liftgate window latch.
2. Install the nuts.
3. Connect the electrical connector.



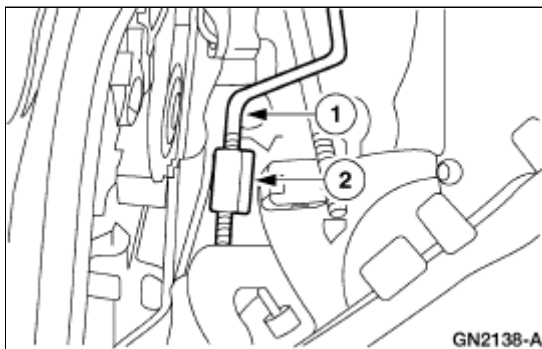
5. Connect the liftgate window latch actuating rod.
1. Position the liftgate window latch actuating rod.
 2. Close the clip.



6. Tighten the liftgate latch remote control bolt.



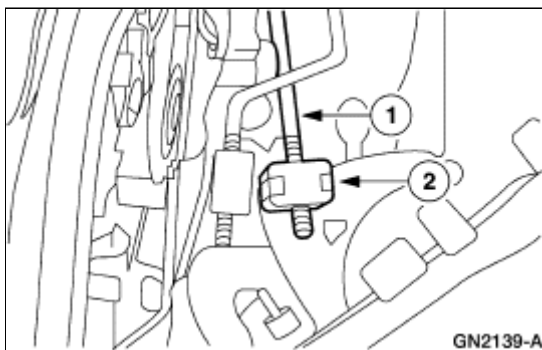
7. Connect the lock cylinder rod.
 1. Position the lock cylinder rod.
 2. Close the clip.



8. **NOTE:** Make sure the liftgate handle rod is not preloading the liftgate latch remote control. It should be clipped in a relaxed state with no slack.

Connect the liftgate handle rod.

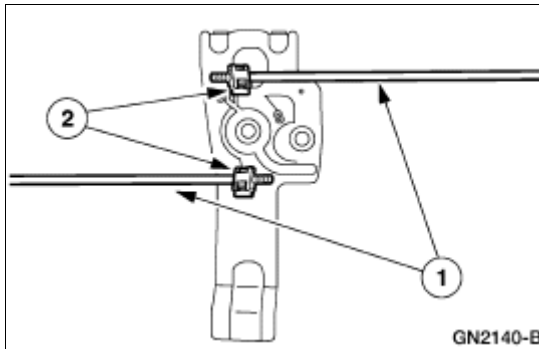
1. Position the liftgate handle rod.
2. Close the clip.



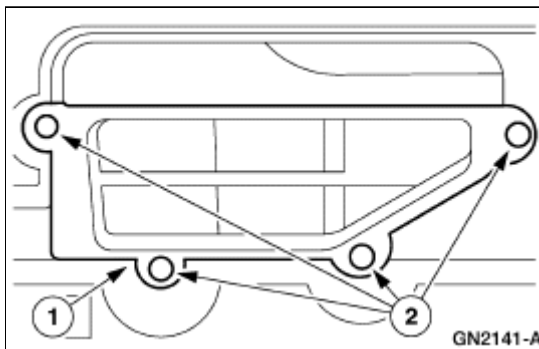
9. **NOTE:** Make sure the latch release rods are not preloading the liftgate latch remote control. They should be clipped in a relaxed state with no slack.

Connect the liftgate latch release rods.

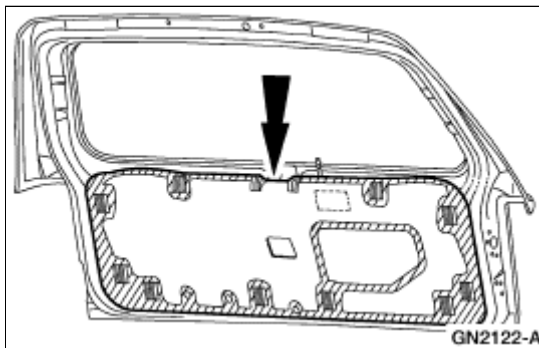
1. Position the liftgate latch release rods by pushing outboard to remove the slack.
2. Close the clips.



10. Install the vent panel.
 1. Position the vent panel.
 2. Install the pin-type retainers.



11. Adjust the liftgate window latch. For additional information, refer to [Latch—Liftgate Window Adjustment](#).
12. Install the liftgate watershield.

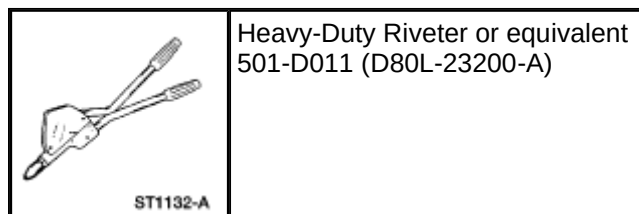


13. Install the liftgate trim panel. For additional information, refer to [Section 501-05](#).
-

SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

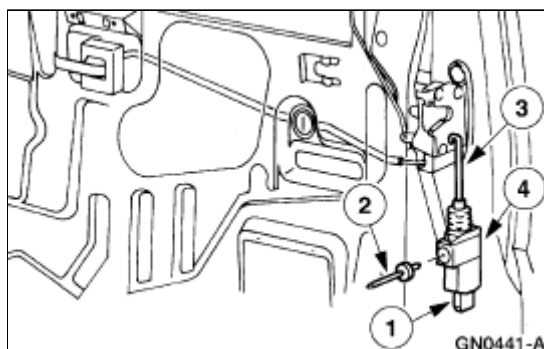
Actuator —Door, Front

Special Tool(s)



Removal

1. Remove the front door trim panel (23942). For additional information, refer to [Section 501-05](#).
2. Remove the watershield.
3. Remove the power door lock actuator.
 1. Disconnect the electrical connector.
 2. Drill out the rivet.
 3. Disconnect the actuator rod.
 4. Remove the actuator.



Installation

1. To install, reverse the removal procedure.
 - Use Heavy-Duty Riveter to install the actuator rivet.
-

SECTION 501-14A: Handles, Locks, Latches and Mechanisms
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

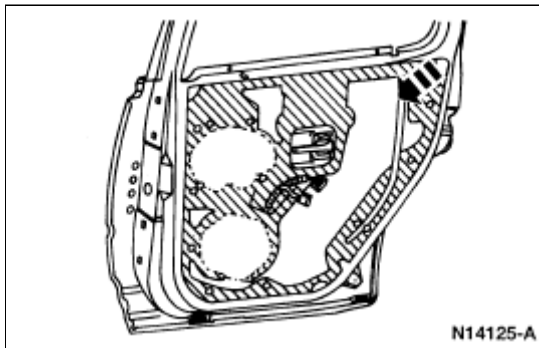
Actuator —Door, Rear

Special Tool(s)

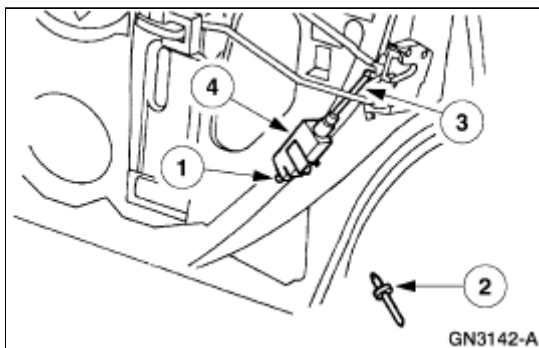
 ST1132-A	Heavy-Duty Riveter or equivalent 501-D011 (D80L-23200-A)

Removal

1. Remove the rear door trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the rear door watershield.



3. Remove the power door lock actuator.
 1. Disconnect the electrical connector.
 2. Drill out the rivet.
 3. Disconnect the actuator rod.
 4. Remove the actuator.



Installation

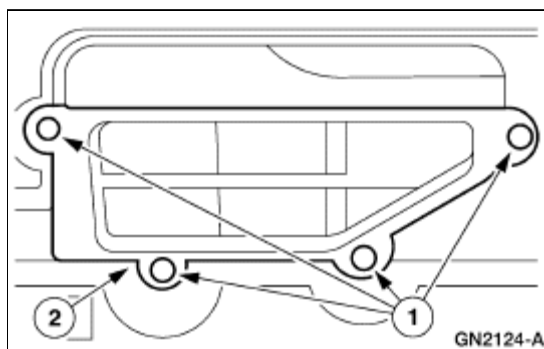
1. To install, reverse the removal procedure.
 - Use Heavy-Duty Riveter to install the actuator rivet.
-

SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

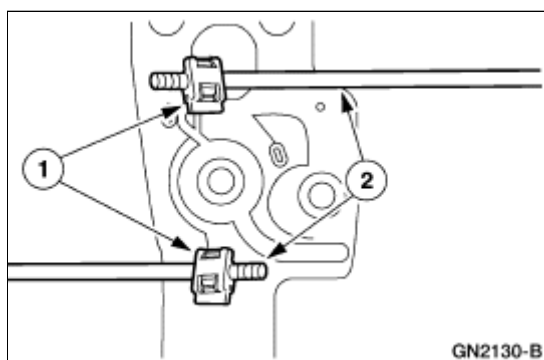
Actuator —Liftgate Lock

Removal

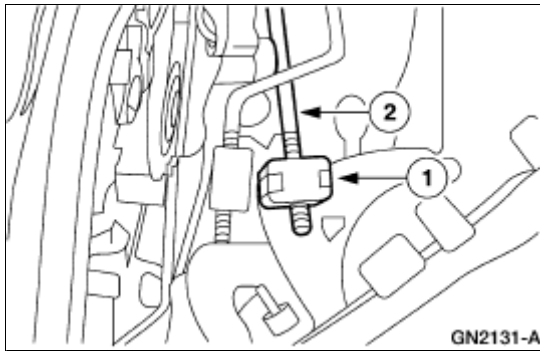
1. Disconnect the battery ground cable (14301).
2. Remove the liftgate window latch. For additional information, refer to [Latch—Liftgate Window](#).
3. Remove the vent panel.
 1. Remove the pin-type retainers.
 2. Remove the vent panel.



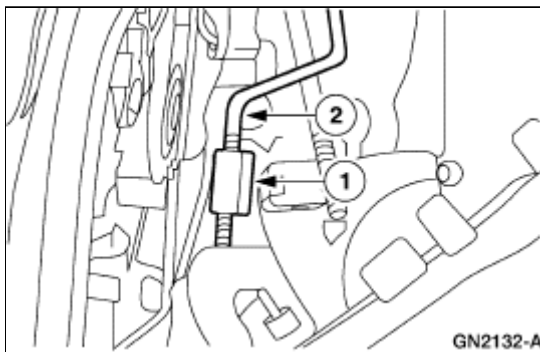
4. Disconnect the liftgate latch release rods.
 1. Open the clips.
 2. Disconnect the liftgate latch release rods.



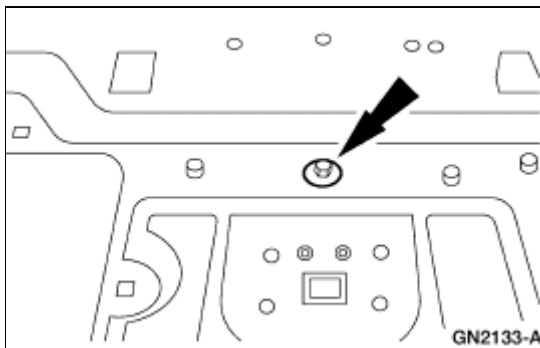
5. Disconnect the liftgate handle rod.
 1. Open the clip.
 2. Disconnect the liftgate handle rod.



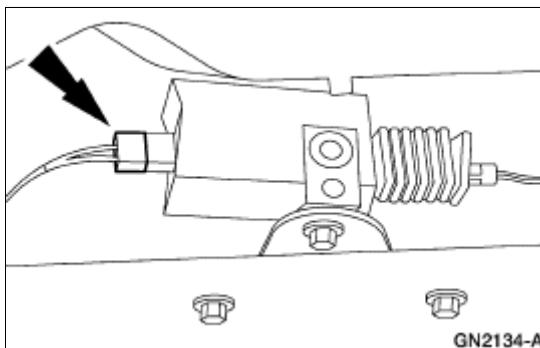
6. Disconnect the lock cylinder rod.
 1. Open the clip.
 2. Disconnect the lock cylinder rod.



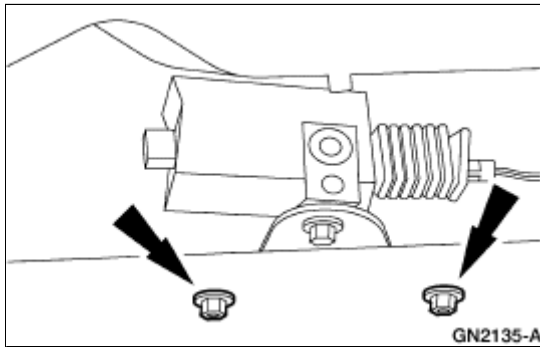
7. Remove the liftgate latch remote control bolt.



8. Disconnect the liftgate lock actuator electrical connector.



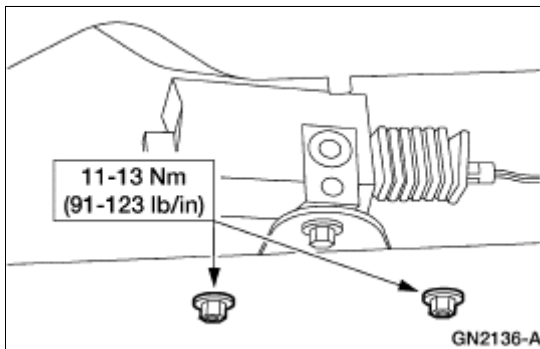
9. Remove the liftgate lock actuator nuts.



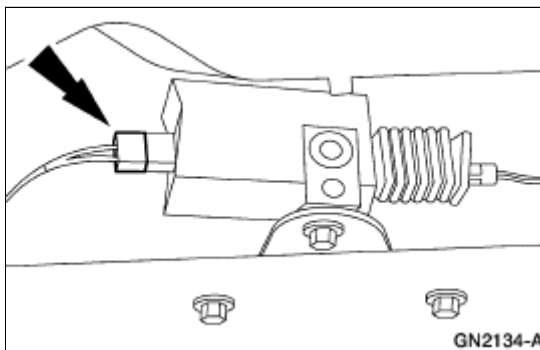
10. Move the liftgate latch remote control to the LH opening and remove the liftgate lock actuator.

Installation

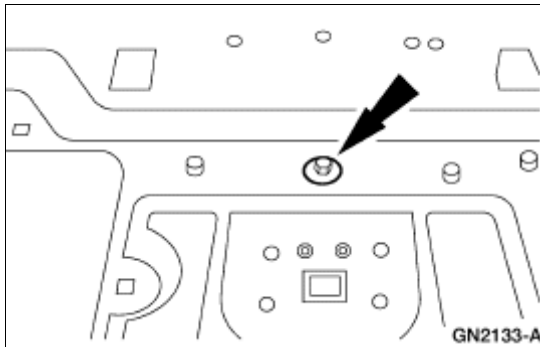
1. Connect and position the liftgate lock actuator.
2. Install the liftgate lock actuator nuts.



3. Connect the liftgate lock actuator electrical connector.



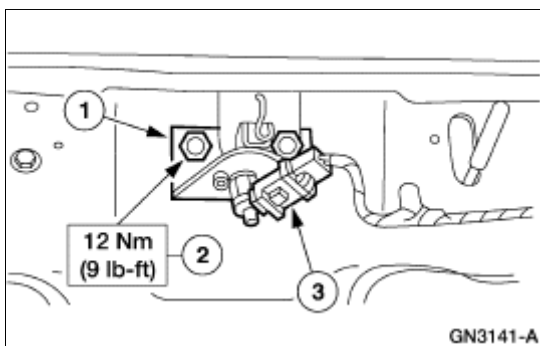
4. Position the liftgate latch remote control.
5. Loosely install the liftgate latch remote control bolt.



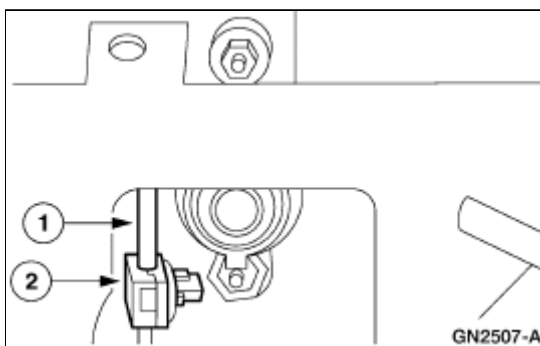
6. **NOTE:** Manually close the liftgate window latch to set the latch control rod length.

Install the liftgate window latch.

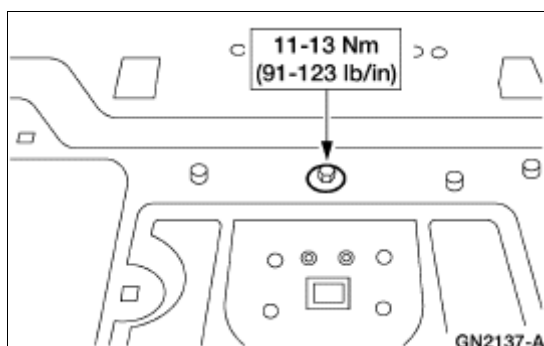
1. Position the liftgate window latch.
2. Install the nuts.
3. Connect the electrical connector.



7. Connect the liftgate window latch actuating rod.
1. Position the liftgate window latch actuating rod.
 2. Close the clip.



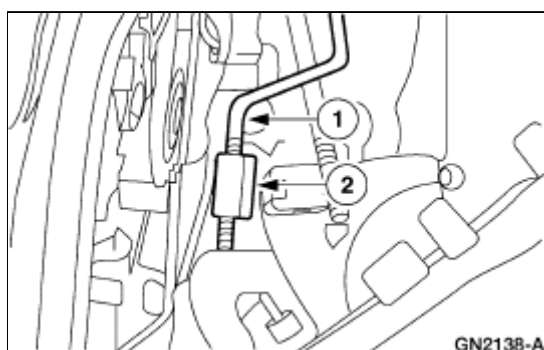
8. Tighten the liftgate latch remote control bolt.



9. **NOTE:** Be sure the bell crank of the liftgate latch remote control is in the unlocked position (upward) for proper lock cylinder rod length.

Connect the lock cylinder rod.

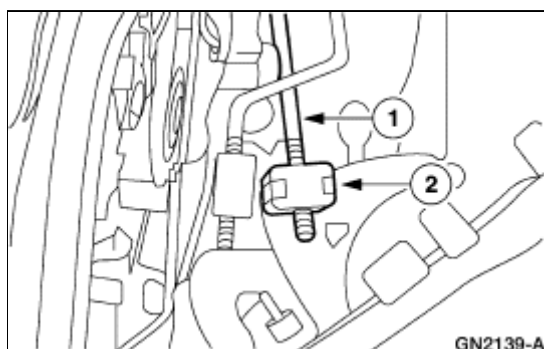
1. Position the lock cylinder rod.
2. Close the clip.



10. **NOTE:** Make sure the liftgate handle rod is not preloading the liftgate latch remote control. It should be clipped in a relaxed state with no slack.

Connect the liftgate handle rod.

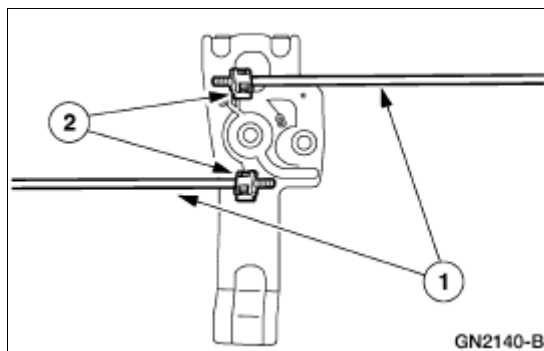
1. Position the liftgate handle rod.
2. Close the clip.



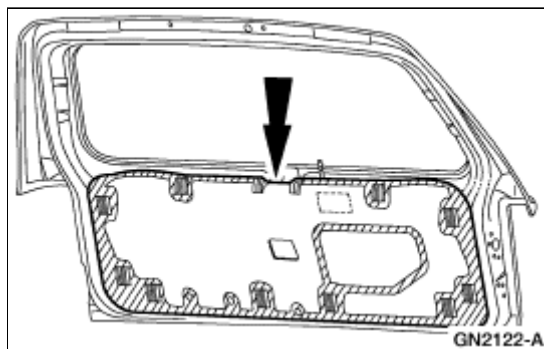
11. **NOTE:** Make sure the latch release rods are not preloading the liftgate latch. They should be clipped in a relaxed state with no slack.

Connect the liftgate latch release rods.

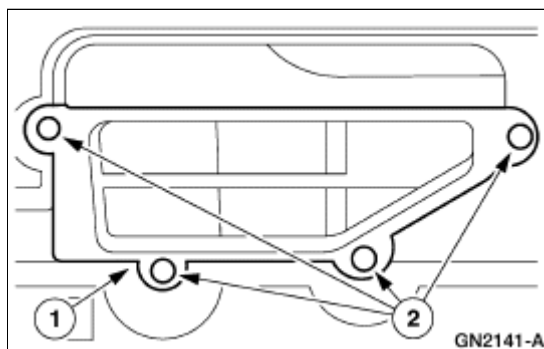
1. Position the liftgate latch release rods by pushing outboard to remove the slack.
2. Close the clips.



12. Adjust the liftgate window latch. For additional information, refer to [Latch—Liftgate Window, Adjustment](#).
13. Install the liftgate watershield.



14. Install the vent panel.
 1. Position the vent panel.
 2. Install the pin-type retainers.



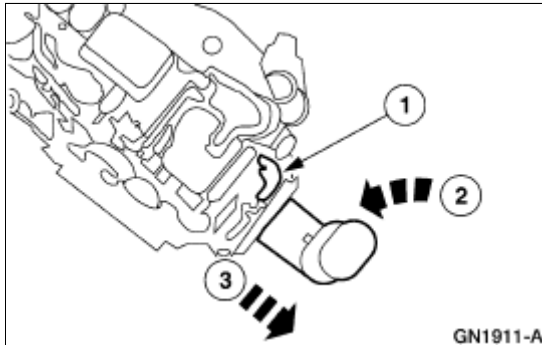
15. Install the liftgate trim panel. For additional information, refer to [Section 501-05](#).
 16. Connect the battery ground cable.
-

SECTION 501-14A: Handles, Locks, Latches and Mechanisms 2000 Explorer/Mountaineer Workshop Manual
REMOVAL AND INSTALLATION

Switch —Door Open Warning

Removal

1. Remove the door trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the door latch. For additional information, refer to [Latch—Door](#).
3. Remove the door opening warning lamp switch.
 1. Lift the locking tab.
 2. Rotate the door opening warning lamp switch counterclockwise.
 3. Remove the door opening warning lamp switch.



Installation

1. To install, reverse the removal procedure.
-

SECTION 501-14B: Keyless Entry/Computer Operated Locks
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

Torque Specifications

Description	Nm	lb-in
Battery ground cable	10	89

SECTION 501-14B: Keyless Entry/Computer Operated Locks
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Keyless Entry

The keyless entry system components consist of the following:

- keyless entry remote transmitter (15K601)
- remote anti-theft personality (RAP) module (15K602)
- driver unlock relay (if equipped with two step unlocking)
- all unlock relay
- all lock relay
- keyless entry keypad (14A626)

The electronic door lock system has three main components: the remote anti-theft personality (RAP) module, attached to the rear left hand quarter panel, the three-button (hand held) keyless entry remote transmitter (15K601), and the keyless entry keypad (14A626) on the driver side door.

The door locks are controlled by the RAP module through three external relays: the driver unlock relay (if equipped with two step unlocking), the all unlock relay, and the all lock relay. These relays are located in the relay box on the LH rear quarter panel.

The keyless entry remote transmitter initiates the following electronic door lock system functions:

- Unlocks the driver door (if equipped with two step unlocking).
- Unlocks all doors.
- Locks all doors.
- Enables the panic alarm.
- Issues the interior lamps on (when unlocking) and off (when locking) commands to the generic electronic module (GEM).
- Sounds the horn (13832) once when LOCK on keyless entry remote transmitter is pressed twice, and doors are closed.
- Sounds the horn twice when LOCK on the keyless entry remote transmitter is pressed twice, and any door or the liftgate window is ajar.
- Allows up to four keyless entry remote transmitters to be programmed.
- The order that the transmitters are programmed into the module will set the memory seat to the corresponding position when the driver door is unlocked with the transmitter.

NOTE: The remote entry features will not function when the ignition switch (11572) is in the RUN or ACC position.

The keyless entry remote transmitters are reprogrammable and must be set at the same time.

To confirm that the doors have been locked and that the anti-theft system has armed, press the LOCK button again, within five seconds of the first press. The horn will sound once if the doors have locked and all doors are closed.

To activate the panic alarm:

- Press the red PANIC button on the keyless entry remote transmitter. The horn will sound and the headlamps (13008) and exterior lamps will flash for a maximum of two minutes and 45 seconds.

To deactivate the panic alarm:

- Press the red PANIC button again on the keyless entry remote transmitter.
- Turn the ignition switch to RUN/ACC.

The keyless entry keypad can be used to unlock the driver door (if equipped with two step unlocking) or lock and unlock all the doors and the liftgate. It also lights the keypad lamp, allows one user code to be programmed and issues illuminated entry on/off requests to the GEM when locking and unlocking.

The system (permanent) entry code is located on the owner's wallet card in the glove box; it is also electronically accessible by asking for the RAP KEYCODE PID on the scan tool and on the receiver assembly housing.

The receiver assembly is programmed at the factory with a five-digit entry code. A replacement receiver assembly includes a new owner's code card.

To turn on the interior lamps and light all illuminated components, press any button on the keyless entry keypad.

To program a temporary access code:

- Enter the permanent code on the keyless entry keypad.
- Press the 1/2 button within 5 seconds of last digit of permanent code. (This alerts system to accept temporary code.)
- Enter alternate 5-digit code. Do not exceed 5 seconds between entering digits or between pressing the 1/2 button and entering the first digit.

If equipped with two step unlocking:

To unlock the driver door, enter the permanent factory code or enter the owner's alternate code. To unlock the passenger door(s) and liftgate, press the 3/4 button within five seconds of unlocking the driver door.

If not equipped with two step unlocking:

To unlock all the doors and the liftgate, enter the permanent factory code or enter the owner's alternate code.

To lock all doors, press the 7/8 and 9/0 buttons at the same time. (It is not necessary to enter the key code first.) This will turn off courtesy lamps.

NOTE: The doors will not lock if the vehicle is started in neutral and passed into any forward gear.

If the autolock feature is enabled, the autolock feature will activate when the ignition switch is in the RUN/ACC position, the shift control selector is passed into or through the reverse (R) position and all doors, liftgate and liftgate window are closed when the driver releases the brake pedal (2455).

After the initial lock, all doors will automatically relock when any door is opened and then closed followed by the release of the brake pedal. However, the doors will not relock if the ignition switch is in the OFF position.

NOTE: The door ajar state will be monitored continuously for 500 ms after locking has occurred. If a door is opened again within 500 ms, the driver door will unlock.

The door may not automatically lock if the vehicle is shifted quickly into gear after starting the engine (6007).

Autolock Enable/Disable — Using the Keypad

A manual enable/disable mode allows the autolock and memory seat features to be turned off and on; there are PIDs in RAP (autolock and memory seat) which reflect if the feature is ON or OFF. The RAP module configuration can be used to turn the "autolock" on/off and turn the "move mem. seat w/ key fob" on/off. These PIDs (AUTOLOCK and MEMSEAT) are only available on the Ford Service Function (FSF) Card. RAP module configuration will not be available at the beginning of the 1998 model year.

To enable or disable autolock using the keyless entry keypad:

1. Enter the five-digit permanent entry code into the keyless entry keypad.
2. Within five seconds of entering the code, press and hold the 7/8 button on the keypad.
3. Within five seconds of Step 2, and while holding the 7/8 button, press the 3/4 button on the keypad and release it.
4. Within five seconds of Step 3, release the 7/8 button on the keypad.

If the autolock sound is disabled, the horn will chirp once. If the autolock feature is enabled, the horn will chirp once shortly and then sound a second time with a longer sound of the horn once the above sequence is completed.

Autolock Enable/Disable — Using the Ignition Switch

Another way to turn the autolock off/on is by following this series of steps:

1. Close all doors.
2. Confirm that the ignition switch is in the OFF position.
3. **NOTE:** Steps 4 through 8 must be performed within 30 seconds.

Turn the ignition switch from OFF to RUN.

4. Press the driver interior power door lock UNLOCK button three times.
5. Turn the ignition switch from RUN to OFF.
6. Press the driver interior power door lock UNLOCK button three times.
7. Turn the ignition switch from OFF to RUN.
8. Verify that the RAP module chirps the horn. This indicates that the RAP module is now in the enable/disable mode and ready to accept program changes.
9. Press the driver interior power door lock UNLOCK button one time to command the RAP module to toggle the autolock/relock feature OFF.
10. Press the driver interior power door lock LOCK button once to enter the command.
11. Verify that the horn chirps one time to signal the RAP module confirmation of the command. There should only be one chirp indicating that autolock/relock feature has been disabled. If one chirp is heard, followed by a longer sound of the horn, the autolock/relock feature has just been enabled.

Return to step 10.

12. Turn the ignition switch to the OFF position to exit the enable/disable mode.
 13. Exit the vehicle and verify that the RAP module chirps the horn once to indicate that a feature has been changed and that autolock/relock has been disabled.
-

SECTION 501-14B: Keyless Entry/Computer Operated Locks
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop Manual

Keyless Entry

Refer to Wiring Diagrams Cell [117](#), Remote Control Alarm and Lock System for schematic and connector information.

Special Tool(s)

 ST1137-A	73 Digital Multimeter or equivalent 105-R0051
 ST2332-A	Worldwide Diagnostic System (WDS) 418-F224, New Generation STAR Tester 418-F052, or equivalent

Inspection and Verification

1. Verify the customer concern by operating the electronic door lock control system.
2. Visually inspect for obvious signs of mechanical and electrical damage; refer to the following chart:

Visual Inspection Chart

Mechanical	Electrical
• Binding latches	• Fuse(s) 20 (7.5A), 9 (20A), 18 (10A), 1 (60A), and 25 (7.5A) • Relays • Wiring harness • Loose or corroded connections • Keyless entry keypad • Remote transmitter • Door open warning lamp switch

3. If the concern remains after the inspection, connect the scan tool to the data link connector (DLC) located beneath the instrument panel and select the vehicle to be tested from the scan tool menu. If scan tool does not communicate with the vehicle:
 - check that the program card is properly installed.
 - check the connections to the vehicle.
 - check the ignition switch position.
4. If scan tool still does not communicate with the vehicle, refer to the scan tool manual.
5. Perform the DATA LINK DIAGNOSTIC TEST. If the scan tool responds with:

- CKT914, CKT915 or CKT70 = ALL ECUS NO RESP/NOT EQUIP, refer to [Section 418-00](#).
 - NO RESP/NOT EQUIP for RAP, go to Pinpoint Test A.
 - NO RESP/NOT EQUIP for GEM/CTM, go to Pinpoint Test G.
 - SYSTEM PASSED, retrieve and record the continuous diagnostic trouble codes (DTCs), erase the continuous DTCs and perform self-test diagnostics for the RAP.
6. If the DTCs retrieved are related to the concern, go to RAP Diagnostic Trouble Code (DTC) Index or GEM/CTM Diagnostic Trouble Code (DTC) Index to continue diagnostics.
7. If no DTCs related to the concern are retrieved, proceed to Symptom Chart to continue diagnostics.

RAP Module Diagnostic Trouble Code (DTC) Index

RAP Module Diagnostic Trouble Code (DTC) Index

DTC	Description	DTC Caused By	Action
B1309	Power Door Lock Circuit Short to Ground	RAP	GO to Pinpoint Test C .
B1341	Power Door Unlock Circuit Short to Ground	RAP	GO to Pinpoint Test C .
B1485	Brake Pedal Input Circuit Short to Battery	RAP	GO to Pinpoint Test D .
B1526	Keyless Entry Keypad Switch Circuit Short to Ground	RAP	GO to Pinpoint Test B .
B1629	PRNDL Reverse Input Short to Battery	RAP	GO to Pinpoint Test E .
B1845	Ignition Tamper Circuit Failure	RAP	Invalid DTC. Ignore this DTC.
B2425	Keyless Entry Out of Synchronization	RAP	GO to Pinpoint Test C .
B1334	Decklid Ajar Rear Door Circuit Short to Ground	RAP	REFER to Section 417-02 .

RAP Module Parameter Identification (PID) Index

RAP Module Parameter Identification (PID) Index

PID	Description	Expected Value
AL_EVT#	Last 8 Alarm Events	DROPEN, HOODTR, IGNTAM, PANIC, T_AJAR, NOEVNT
BOO	Brake Switch Input	OFF, ON
D_DOOR	Left Front Door Ajar Switch	CLOSED, AJAR
DECKLID	Decklid / Hatch Ajar	CLOSED, AJAR
DR_LOCK	Driver Door Lock Output State	NO, YES
DR_UNLK	All Doors Unlock Output State	NO, YES
DRLKCYL	Door Lock Cylinder	notACT, ACTIVE
HOOD_SW	Decklid/Hatch Or Hood Punchout	notPUN, PUNCHD
IGN_A	Ignition Switch -ACCY Position	NO, YES
IGN_R	Ignition Switch -RUN Position	NO, YES

IGN_RES	Ignition Tamper Sensor	HIGH
KEY_PAD	Keypad	1/2, 3/4, 5/6, 7/8, 9/0
KEYCODE	Factory Keyless Entry Code	5 Digit #, INVLD
TRANSGR	Transmission Gear	notREV, REV

RAP Active Command Index

RAP Active Command Index

Active Command	Display	Action
THEFT LED	ALARM	ON, OFF
ILLUMINATED ENTRY	INT LAMPS	ON, OFF
HEAD/PARKING LAMPS	PARKLAMPS	ON, OFF
HEAD/PARKING LAMPS	HEADLAMPS	ON, OFF
DOOR LOCK CONTROL	LOCK	ON, OFF
DOOR LOCK CONTROL	UNLOCK	ON, OFF
DOOR LOCK CONTROL	DD UNLOCK	ON, OFF
HORN CONTROL	HORN	ON, OFF
STARTER INTERRUPT CONTROL	STARTER	ON, OFF
KEYPAD BACKLIGHTING	LIGHT	ON, OFF
SEAT MEMORY SELECT CONTROL	MEMORY 1	ON, OFF
SEAT MEMORY SELECT CONTROL	MEMORY 2	ON, OFF

GEM/CTM Diagnostic Trouble Code (DTC) Index

GEM/CTM Diagnostic Trouble Code (DTC) Index

DTC	Description	DTC Caused By	Action
P0500	Vehicle Speed Signal Circuit Failure	GEM	REFER to Section 308-07A .
B1302	Accessory Delay Relay Coil Circuit Failure	GEM	REFER to Section 501-11 .
B1304	Accessory Delay Relay Coil Circuit Short to Battery	GEM	REFER to Section 501-11 .
B1313	Battery Saver Relay Coil Circuit Failure	GEM/CTM	REFER to Section 417-02 .
B1315	Battery Saver Relay Coil Circuit Short to Battery	GEM/CTM	REFER to Section 417-02 .
B1317	Battery Voltage HIGH	GEM/CTM	REFER to Section 414-00 .
B1318	Battery Voltage LOW	GEM/CTM	REFER to Section 414-00 .

B1322	Door Ajar LF Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1323	Door Ajar Lamp Circuit Failure	GEM/CTM	REFER to Section 413-01 .
B1325	Door Ajar Lamp Circuit Short to Battery	GEM/CTM	REFER to Section 413-01 .
B1330	Door Ajar RF Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1334	Decklid Ajar Rear Door Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1338	RR Door Ajar Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1340	Chime Input Request Circuit Short to Ground	GEM/CTM	REFER to Section 413-09 .
B1342	GEM/CTM is Defective	GEM/CTM	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved, REPLACE the GEM/CTM; REFER to Section 419-10 . TEST the system for normal operation.
B1345	Heated Backlite Input Circuit Short to Ground	GEM	REFER to Section 501-11 .
B1347	Heated Backlite Relay Circuit Failure	GEM	REFER to Section 501-11 .
B1349	Heated Backlite Relay Circuit Short to Battery	GEM	REFER to Section 501-11 .
B1352	Ignition Key-In Circuit Failure	GEM/CTM	REFER to Section 413-09 .
B1355	Ignition RUN Circuit Failure	GEM/CTM	REFER to Section 211-05 , Symptom Chart.
B1359	Ignition RUN/ACC Circuit Failure	GEM/CTM	REFER to Section 211-05 , Symptom Chart.
B1371	Illuminated Entry Relay Circuit Failure	GEM/CTM	REFER to Section 417-02 .
B1373	Interior Lamp Relay Coil Circuit Short to Battery	GEM/CTM	REFER to Section 417-02 .
B1398	Power Window Driver One-Touch Window Relay Circuit Failure	GEM	REFER to Section 501-11 .
B1400	Power Window Driver One-Touch Window Relay Coil Circuit Short to Battery	GEM	REFER to Section 501-11 .
B1404	Power Window Driver Down Circuit Open	GEM	REFER to Section 501-11 .
B1405	Driver Power Window Down Circuit to Battery	GEM	REFER to Section 501-11 .
B1410	Power Window Driver Motor Circuit Failure	GEM	REFER to Section 501-11 .
B1426	Seat Belt Lamp Circuit	GEM/CTM	REFER to Section 413-01 .

	Short to Battery		
B1428	Seat Belt Lamp Circuit Failure	GEM/CTM	REFER to Section 413-01 .
B1431	Wiper Brake/Run Relay — Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1432	Wiper Brake/Run Relay Short to Battery	GEM/CTM	REFER to Section 501-16 .
B1434	Wiper Hi/Lo Speed Relay — Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1436	Wiper Hi/Lo Speed Relay Circuit Short to Battery	GEM/CTM	REFER to Section 501-16 .
B1438	Wiper Mode Select Switch Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1441	Wiper Mode Select Switch Input Short to Ground	GEM/CTM	REFER to Section 501-16 .
B1446	Wiper Park Sense Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1450	Wiper/Wash Interval Delay Switch Input Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1453	Wiper/Wash Interval Delay Switch Input Short to Ground	GEM/CTM	REFER to Section 501-16 .
B1458	Wiper/Washer Pump Motor Relay Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1460	Wiper/Washer Pump Motor Relay Coil Short to Battery	GEM/CTM	REFER to Section 501-16 .
B1462	Seat Belt Switch Circuit Failure	GEM/CTM	REFER to Section 413-09 .
B1466	Wiper Hi/Lo Speed Not Switching	GEM/CTM	REFER to Section 501-16 .
B1467	Wiper Hi/Lo Speed Circuit Motor Short to Battery	GEM/CTM	REFER to Section 501-16 .
B1473	Wiper Low Speed Circuit Motor Failure	GEM/CTM	REFER to Section 501-16 .
B1475	Accessory Delay Relay Contacts Short to Battery	GEM/CTM	REFER to Section 501-11 .
B1476	Wiper High Speed Circuit Motor Failure	GEM/CTM	REFER to Section 501-16 .
B1483	Brake Pedal Input Circuit Failure	GEM	REFER to Section 308-07A .
B1485	Brake Pedal Input	GEM	REFER to Section 308-07A .

	Short Circuit to Battery		
B1574	LR Door Ajar Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1577	Lamp Park Input Short Circuit to Battery	GEM/CTM	REFER to Section 413-09 .
B1610	Illuminated Entry Input (From RAP Module) Circuit Short to Ground	GEM	REFER to Section 417-02 .
B1611	Wiper Rear Mode Select Switch Circuit Failure	GEM	REFER to Section 501-16 .
B1614	Wiper Rear Mode Select Switch Circuit Short to Ground	GEM	REFER to Section 501-16 .
B1814	Wiper Rear Motor Down Relay Circuit Failure	GEM	REFER to Section 501-16 .
B1816	Wiper Rear Motor Down Relay Coil Circuit Short to Battery	GEM	REFER to Section 501-16 .
B1818	Wiper Rear Motor Up Relay Coil Circuit Failure	GEM	REFER to Section 501-16 .
B1820	Rear Wiper Motor Up Relay Circuit Short to Battery	GEM	REFER to Section 501-16 .
B1833	Door Unlock Switch Circuit Short to Ground	GEM	GO to Pinpoint Test F .
B1834	Door Unlock Disarm Output Circuit Failure	GEM	GO to Pinpoint Test F .
B1836	Door Unlock Disarm Output Circuit Short to Battery	GEM	GO to Pinpoint Test F .
B1839	Wiper Rear Rear Motor Circuit Failure	GEM	REFER to Section 501-16 .
B1840	Wiper Front Power Circuit Failure	GEM/CTM	REFER to Section 501-16 .
B1894	Wiper Rear Motor Speed Sense Circuit Failure	GEM	REFER to Section 501-16 .
B2105	Throttle Position Input (TPI) Signal Out of Range Low	GEM	REFER to Section 308-07A .
B2106	Throttle Position Input (TPI) Signal Out of Range High	GEM	REFER to Section 308-07A .
B2141	NVM Configuration Failure	GEM/CTM	Vehicle speed calibration data is not programmed into the GEM/CTM. REFER to the scan tool help screen on the configuration card to program the tire size and axle ratio.

			TEST the system for normal operation. If DTC B2141 is still present, REPLACE the GEM/CTM. REFER to Section 419-10 . TEST the system for normal operation.
P1763	Transmission Neutral "In Tow" Indicator Circuit Short to Battery	GEM	REFER to Section 413-09 .
P1764	Transmission Neutral "In Tow" Indicator Circuit Fault	GEM	REFER to Section 413-09 .
P1804	4WD High Indicator Circuit Failure	GEM	REFER to Section 308-07A .
P1806	4WD High Indicator Short Circuit to Battery	GEM	REFER to Section 308-07A .
P1808	4WD Low Indicator Circuit Failure	GEM	REFER to Section 308-07A .
P1810	4WD Low Indicator Short Circuit to Battery	GEM	REFER to Section 308-07A .
P1812	4WD Mode Select Switch Circuit Failure	GEM	REFER to Section 308-07A .
P1815	4WD Mode Select Short Circuit to Ground	GEM	REFER to Section 308-07A .
P1820	Transfer Case CW Shift Relay Coil Circuit Failure	GEM	REFER to Section 308-07A .
P1822	Transfer Case CW Shift Relay Coil Short to Power	GEM	REFER to Section 308-07A .
P1824	4WD Electric Clutch Relay Circuit Failure	GEM	REFER to Section 308-07A .
P1826	4WD LOW Clutch Relay Short to Battery	GEM	REFER to Section 308-07A .
P1828	Transfer Case CCW Shift Relay Circuit Failure	GEM	REFER to Section 308-07A .
P1830	Transfer Case CCW Shift Relay Coil Short to Battery	GEM	REFER to Section 308-07A .
P1836	Transfer Case Front Shaft Speed Sensor Circuit Failure	GEM	REFER to Section 308-07A .
P1837	Transfer Case Rear Shaft Speed Sensor Circuit Failure	GEM	REFER to Section 308-07A .
P1838	Transfer Case Shift Motor Circuit Failure	GEM	REFER to Section 308-07A .
P1846	Transfer Case CONTACT PLATE "A" Circuit Failure	GEM	REFER to Section 308-07A .
P1850	Transfer Case	GEM	REFER to Section 308-07A .

	CONTACT PLATE "B" Circuit Failure		
P1854	Transfer Case CONTACT PLATE "C" Circuit Failure	GEM	REFER to Section 308-07A .
P1858	Transfer Case CONTACT PLATE "D" Circuit Failure	GEM	REFER to Section 308-07A .
P1866	Transfer Case System Concern	GEM	REFER to Section 308-07A .
P1867	Transfer Case Contact Plate General Circuit Failure	GEM	REFER to Section 308-07A .
P1874	Automatic Hall Effect Sensor Power Circuit Failure	GEM	REFER to Section 308-07A .
P1875	Automatic Hall Effect Sensor Power Circuit Short to Battery	GEM	REFER to Section 308-07A .
P1891	Transfer Case Contact Plate Ground Return Open Circuit	GEM	REFER to Section 308-07A .

GEM/CTM Parameter Identification (PID) Index

GEM/CTM Parameter Identification (PID) Index

PID	Description	Expected Values
VSS_GEM	Vehicle Speed Input	0 - 255 KPH
PARK_SW	External Access Ajar Switch Status	OFF, ON
D_DR_SW	Driver Door Ajar Switch Status	CLOSED, AJAR
DR_DSRM	Door Disarm Switch Status	L_DOOR, R_DOOR, LIFT_G, OFF
DR_UNLK	All Doors Unlock Output State	ON---, OFF---, ON-B-, OFFO-G
P_DR_SW	Passenger Door Ajar Switch Status	CLOSED, AJAR
IGN_KEY	Key-In-Ignition Status	IN, OUT
IGN_GEM	Ignition Switch Status	START, RUN, OFF, ACCY
BATSAV	Battery Saver Relay Circuit	ON---, OFF---, ON-B-, OFFO-G
VBATGEM	Battery Voltage	0.0 VDC - 14.3 VDC
LGATESW	Liftgate Ajar Switch Status	CLOSED - AJAR
LRDR_SW	Left Rear Door Ajar Switch Status	CLOSED - AJAR
RRDR_SW	Right Rear Door Ajar Switch Status	CLOSED - AJAR
INTLMP	Illuminated Entry Relay Circuit	ON---, OFF---, ON-B-, OFFO-G
CLTCHSW	Transmission Clutch Interlock Switch (GEM Only)	ENGAGED, NOT ENGAGED
NTRL_SW	Neutral Safety Switch Input (GEM Only)	NTRL, not NTRL
MTR_CCW	Transmission Transfer CCW Motor Output (GEM	ON---, OFF--, ON-B--, OFFO-G

	Only)	
MTR_CW	CW Shift Relay Coil Status (GEM Only)	OFF---, ON---, ON-B-, OFFO-G
4WD_SW	4WD Switch Status (GEM Only)	AUTO, 4WDLOW, 4WDHIGH
4WDELCL	4WD Electric Clutch	ON---, OFF---, ON-B-, OFFO-G
TRANSGR	Transmission Gear Status	REV, notREV
4WDCLCH	4WD Electronic Clutch Output Status (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
4WDLOW	4WD Low Indicator Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
4WDHIGH	4WD High Indicator Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
PLATE_A	Transfer Case Contact Plate Switch A (GEM Only)	OPEN, CLOSED
PLATE_B	Transfer Case Contact Plate Switch B (GEM Only)	OPEN, CLOSED
PLATE_C	Transfer Case Contact Plate Switch C (GEM Only)	OPEN, CLOSED
PLATE_D	Transfer Case Contact Plate Switch D (GEM Only)	OPEN, CLOSED
BOO_GEM	Brake Pedal Position (BPP) Switch Input (GEM Only)	ON, OFF
HALLPWR	Hall Effect Speed Sensor Power (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
4WDCLST	4WD Clutch PWM Output Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
TRA_RSP	Rear Shaft Speed (GEM Only)	0-255 mph
TRA_FSP	Front Shaft Speed (GEM Only)	0-225 mph
PLATEPW	Contact Plate Ground Output (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
PWR_RLY	ABS Active Input	ON, OFF
NTF	Neutral Tow Function (GEM Only)	ON, OFF
NTF_LMP	Neutral Tow Light (GEM Only)	ON, OFF
D_SBELT	Driver Seat Belt Status	OUT, IN
IPCHIME	External Chime Request	ON, OFF
SBLTMP	Seat Belt Indicator Status	OFF, ON, OFFO-G, ON-B-
DRAJR_L	Door Ajar Warning Lamp Circuit	OFF, ON
D_PWRLY	One Touch Down Relay Coil Circuit Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
D_PWAMP	Driver Power Window Regulator Electric Drive Current (GEM Only)	0.25 amp increments
D_PWPK	Driver Power Window Regulator Electric Drive Peak Current (GEM Only)	0.25 amp increments
ACCDLY	Accessory Delay Relay Coil Circuit (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
RDEF_SW	Rear Defrost Control Switch Status	ON, OFF
RDEFRLY	Rear Window Defrost Relay Coil Circuit	ON---, OFF---, ON-B-, OFFO-G
WASHRLY	Washer Relay Status	ON---, OFF---, ON-B-, OFFO-G
WPPK_PK	Wiper Park-to-Park Time	0 - 65 Seconds
WPMODE	Wiper Control Mode Status	WASH, OPEN, INVLD, OFF, INTVL 1-7, LOW, HIGH
WPPRKSW	Wiper Motor Status	PARKED, notPRK

WPRUN	Wiper Mode Run Relay	ON---, OFF---, ON-B-, OFFO-G
WPHISP	Windshield Wiper HI/LO Relay Status	ON---, OFF---, ON-B-, OFFO-G
WASH_SW	Washer Pump Relay Switch Status	OFF, ON, ON-B-, OFFO-G
R_WP_UP	Rear Wiper Up Relay Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
R_WP_DN	Rear Wiper Down Relay Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
R_WP_SW	Rear Wiper Input Switch Status (GEM Only)	WPLOW, OFF, WPHIGH
R_WP_MD	Rear Wiper Mode Switch Status (GEM Only)	OFF, INTVL 1-2, LOW WASH
R_WP_PK	Rear Wiper Park Status (GEM Only)	PARKED, notPRK

GEM/CTM Active Command Index

GEM/CTM Active Command Index

Active Command	Display	Action
PID LATCH	PID LATCH	ON, OFF
FRONT WIPER	WIPER RLY	ON, OFF
FRONT WIPER	SPEED RLY	ON, OFF
FRONT WIPER	WASH RLY	ON, OFF
WARNING LAMPS AND CHIME	SBLT LAMP	ON, OFF
WARNING LAMPS AND CHIME	CHIME	ON, OFF
WARNING LAMPS AND CHIME	AJAR LAMP	ON, OFF
BATTERY SAVER	BATT SAVR	ON, OFF
INTERIOR COURTESY LAMPS	INT LAMPS	ON, OFF
ONE TOUCH DOWN AND ACCY DELAY (GEM Only)	ACCY RLY	ON, OFF
ONE TOUCH DOWN AND ACCY DELAY (GEM Only)	ONE TOUCH	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	CW/CCW	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	HIGH LAMP	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	LOW LAMP	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	PLATE PWR	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	SHFT CLCH	ON, OFF
SHIFT CLUTCH CONTROL	CLUTCH SOL	ANALOG %
NEUTRAL IN TOW LAMP	NTFLAMP	ON, OFF
REAR WIPER (GEM Only)	UP RELAY	ON, OFF
REAR WIPER (GEM Only)	DWN RELAY	ON, OFF
HEATED BACKLIGHT	RLY CNTRL	ON, OFF
DOOR LOCK CONTROL	DD UNLOCK	ON, OFF

GEM/CTM Wiggle Test Diagnostic Trouble Code (DTC) Index

GEM/CTM Wiggle Test Diagnostic Trouble Code (DTC) Index

DTC	Description	DTC Caused By

B1317	Battery Voltage HIGH	GEM/CTM
B1318	Battery Voltage LOW	GEM/CTM
B1322	Door Ajar LF Circuit Short to Ground	GEM/CTM
B1330	Passenger Door Ajar Circuit Short to Ground	GEM/CTM
B1352	Ignition Key-In Circuit Failure	GEM/CTM
B1410	Driver Power Window Motor Circuit Failure	GEM
B1438	Wiper Mode Select Switch Circuit Failure	GEM/CTM
B1441	Wiper Mode Select Switch Input Short to Ground	GEM/CTM
B1446	Wiper Park Sense Circuit Failure	GEM/CTM
B1450	Wiper/Wash Interval Delay Switch Input Circuit Failure	GEM/CTM
B1453	Wiper/Wash Interval Delay Switch Input Short to Ground	GEM/CTM
B1462	Seat Belt Switch Circuit Failure	GEM/CTM
B1577	Lamp Park Input Short Circuit to Battery	GEM/CTM
B1610	Illuminated Entry Input (From RAP Module) Circuit Short to Ground	GEM
B1833	Door Unlock Disarm Switch Circuit Short to Ground	GEM

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
No Communication With the Module — Remote Anti-Theft Personality (RAP)	- Fuse(s) 20 (7.5A) and 9 (20A). - Circuitry. - RAP module.	GO to Pinpoint Test A.
The Doors Do Not Lock/Unlock Using the Keyless Entry Keypad	- Keyless entry keypad. - Circuitry. - RAP module.	GO to Pinpoint Test B.
The Doors Do Not Lock/Unlock Using the Remote Transmitter — If Equipped With Two Step Unlocking	- Keyless entry remote transmitter. - Antenna. - Keyless entry remote transmitter program. - Radio/TV tower.	GO to Pinpoint Test C.
The Illuminated Entry Does Not Operate From Remote Transmitter	- GEM. - Circuitry. - RAP module.	REFER to Section 417-02.
The Auto-lock Does Not Operate Properly	- Circuitry. - Door open	GO to Pinpoint Test D.

	warning lamp switch. • Brake Pedal Position (BPP) switch. • Digital TR sensor.	
• The Memory Seat Does Not Operate Properly Using the Remote Transmitter	• Circuitry. • RAP module. • Seat module (DSM).	• GO to Pinpoint Test E .
• All Door Locks Are Inoperative — Two Step Unlock Does Not Operate Properly (If Equipped)	• Switches. • Circuitry. • Door unlock relay. • GEM. • DTC B1833. • DTC B1834. • DTC B1836. • Fuse 18 (10A).	• GO to Pinpoint Test F .
• No Communication With The Module — Generic Electronic Module/Central Timer Module	• Circuitry. • Fuse(s) 1 (60A) and 25 (7.5A). • GEM.	• GO to Pinpoint Test G .
• The Panic Button Does Not Operate Using the Remote Transmitter (Unlock and Lock Operate Properly)	• Keyless entry remote transmitter. • RAP module.	• CHECK both transmitters for panic operation. If only one transmitter does not operate, REPLACE the batteries. TEST the transmitter panic operation. If the transmitter still does not operate, REPLACE the transmitter. If both transmitters do not operate, REPLACE the RAP module; REFER to Section 419-10 . TEST the system for normal operation.

Pinpoint Tests



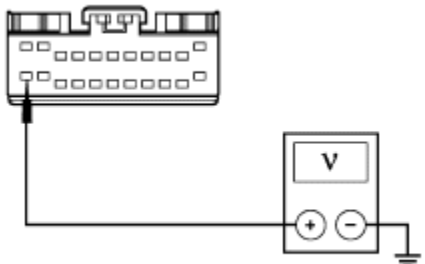
CAUTION: Be careful when probing the fuse junction panel, battery junction box or any connectors. Damage will result to the connector receptacle if the probe or terminal being used is too large.



CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage may result.

NOTE: If continuous DTCs are recorded and the symptom is not present when performing the pinpoint tests, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.

PINPOINT TEST A: NO COMMUNICATION WITH THE MODULE — REMOTE ANTI-THEFT PERSONALITY (RAP)

CONDITIONS	DETAILS/RESULTS/ACTIONS
A1 CHECK FUSE JUNCTION PANEL FUSE 20 (7.5A) AND BATTERY JUNCTION BOX MINI-FUSE 9 (20A) 1  2  Fuse 20 (7.5A) 3  Fuse 9 (20A)	• Are the fuses OK? → Yes GO to A2. → No REPLACE the fuse(s). TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.
A2 CHECK VOLTAGE TO THE RAP MODULE — CIRCUIT 645 (W/LB) 1  RAP Module C338 2 	2 Measure the voltage between RAP module C338-12, circuit 645 (W/LB), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

GO to [A3](#).

→ **No**

REPAIR circuit 645 (W/LB). TEST the system for normal operation.

A3 CHECK CIRCUIT 1002 (BK/PK) FOR VOLTAGE

1

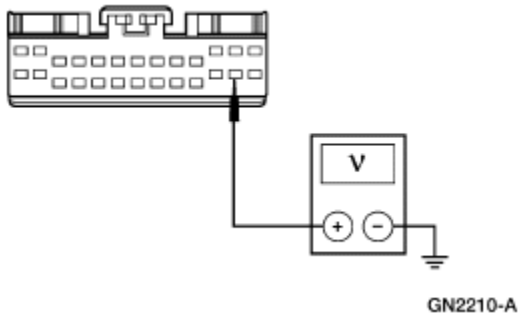


RAP Module C336

2



3



3

Measure the voltage between RAP module C336-25, circuit 1002 (BK/PK), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

GO to [A4](#).

→ **No**

REPAIR circuit 1002 (BK/PK). TEST the system for normal operation.

A4 CHECK RAP MODULE GROUND FOR OPEN — CIRCUIT 570 (BK/W)

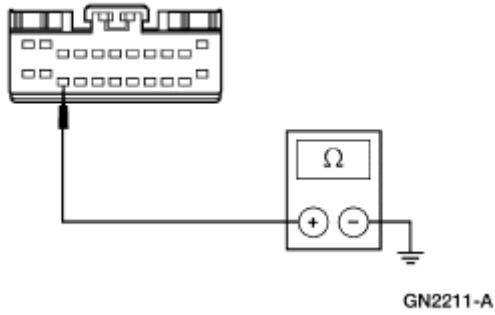
1



2

2

Measure the resistance between RAP module C338-14, circuit 570 (BK/W), and ground.



- Is the resistance less than 5 ohms?

→ **Yes**

REFER to [Section 418-00](#).

→ **No**

REPAIR circuit 570 (BK/W). TEST the system for normal operation.

PINPOINT TEST B: THE DOORS DO NOT LOCK/UNLOCK USING THE KEYLESS ENTRY KEYPAD

CONDITIONS	DETAILS/RESULTS/ACTIONS
B1 CONFIRM NORMAL KEYLESS ENTRY KEYPAD OPERATION	
	1 Unlock the driver door with keypad code. 2 Confirm keyless entry keypad back lighting and interior lamp illumination after first keypad button pressed. 3 Press the 3/4 button within five seconds of unlocking driver door with keypad code to unlock all doors. 4 Press 7/8 and 9/0 buttons to lock all doors. Keypad back lighting and interior lamp illumination should turn off. • Do all functions operate as expected? → Yes VERIFY the concern. RETURN to the Symptom Chart. → No If keyless entry keypad code does not operate (or has been lost), GO to B2. If the doors unlock, but the keyless entry keypad back lighting does not operate, GO to B7.

If interior lights do not illuminate, but keyless entry keypad back lighting does illuminate when buttons are pressed, REFER to [Section 417-02](#).

If only a certain button is inoperative on the keypad, GO to [B5](#).

B2 RETRIEVE THE DTCS

1



2



Scan Tool

3



4



Clear continuous DTCs

5



RAP On-Demand Self-Test

3 Retrieve and document continuous DTCs.

- Are any DTCs retrieved?

→ **Yes**
If DTC B1526, GO to [B3](#).

→ **No**
GO to [B4](#).

B3 CHECK THE KEYLESS ENTRY KEYPAD — MONITOR THE RAP PID KEY_PAD

1



1 Monitor the RAP PID KEY_PAD.

- Does the RAP PID KEY_PAD show any button(s) as active?

	→ Yes GO to B11. → No GO to B4.
B4 CHECK THE KEYLESS ENTRY KEYPAD CODE — MONITOR THE RAP PID KEY_CODE	
1  2 	2 Monitor the RAP PID KEY_CODE. • Does the keypad code retrieved match the keycode entered in test step B1? → Yes GO to B5. → No REPEAT test step B1 to confirm operation. INFORM customer of correct keycode.
B5 CHECK KEYLESS ENTRY KEYPAD BUTTONS — MONITOR THE RAP PID KEY_PAD	
1  3 	1 Monitor the RAP PID KEY_PAD. 2 Verify the numbers are not displayed. 3 NOTE: Only the odd numbers will be displayed when the keyless entry keypad buttons are pressed. Monitor the RAP PID KEY_PAD while pressing each keyless entry keypad button separately. Verify only the button pressed is displayed. • Are all keyless entry keypad buttons displayed correctly? → Yes REPLACE the RAP module; REFER to Section 419-10. TEST the system for normal operation. → No

GO to [B6](#).**B6 CHECK KEYLESS ENTRY KEYPAD BUTTON CIRCUITS**

1



2



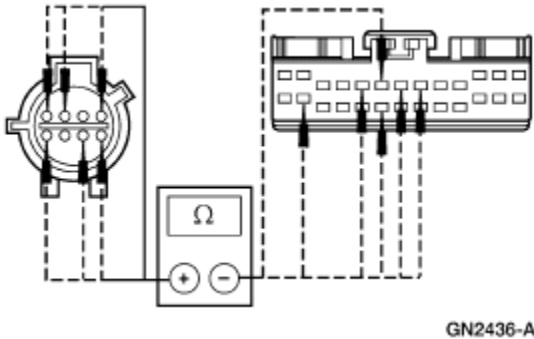
RAP Module C336

3



Keyless Entry Keypad

4



GN2436-A

4

Measure the resistance between RAP module C336 and keyless entry keypad C516; refer to the following table.

RAP	Keypad	Circuit
C336-5	C516-3	78 (LB/Y)
C336-6	C516-4	79 (LG/R)
C336-19	C516-5	121 (Y/BK)
C336-7	C516-6	122 (Y)
C336-8	C516-1	123 (R)
C336-15	C516-8	124 (BR)

- Are the resistances less than 5 ohms?

→ **Yes**

REPLACE the keyless entry keypad; REFER to [Keypad—Keyless Entry](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR the circuit(s) in question. CLEAR the DTCs. TEST the system for normal operation.

B7 CHECK KEYLESS ENTRY KEYPAD BACK LIGHTING OPERATION

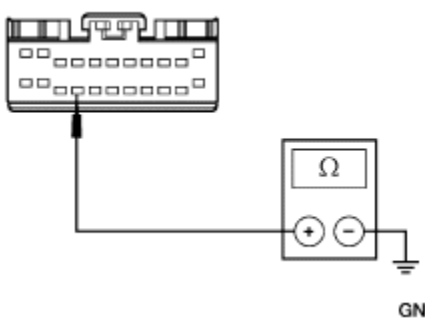
1



2

 Scan Tool 3	4 Trigger the RAP active command KEYPAD BACK LIGHTING to ON. Does the keypad back lighting illuminate when the RAP active command is triggered ON? → Yes GO to B5. → No GO to B8.

B8 CHECK KEYLESS ENTRY KEYPAD BACK LIGHTING ACTIVATION CIRCUIT

1  2  RAP Module C338 3  GN2213-A	3 Measure the resistance between RAP module C338-15, circuit 66 (LB), and ground. Does continuity exist? → Yes REPLACE the RAP module; REFER to Section 419-10. TEST the system for normal operation.

→ **No**
GO to [B9](#).

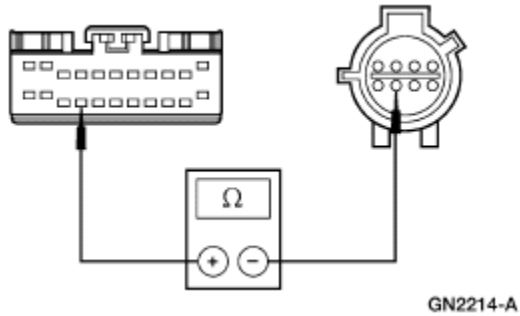
B9 CHECK CIRCUIT 66 (LB) FOR OPEN

1



Keyless Entry Keypad C516

2



2

Measure the resistance between RAP module C338-15, circuit 66 (LB), and keyless entry keypad C516-7, circuit 66 (LB).

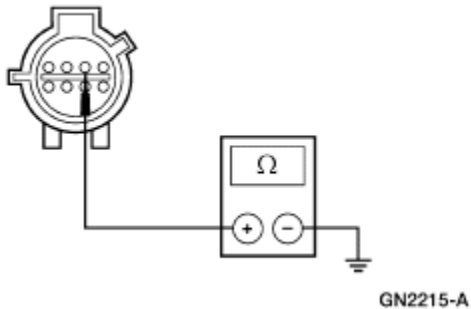
- Is the resistance less than 5 ohms?

→ **Yes**
GO to [B10](#).

→ **No**
REPAIR circuit 66 (LB). TEST the system for normal operation.

B10 CHECK CIRCUIT 57 (BK) FOR OPEN

1



1

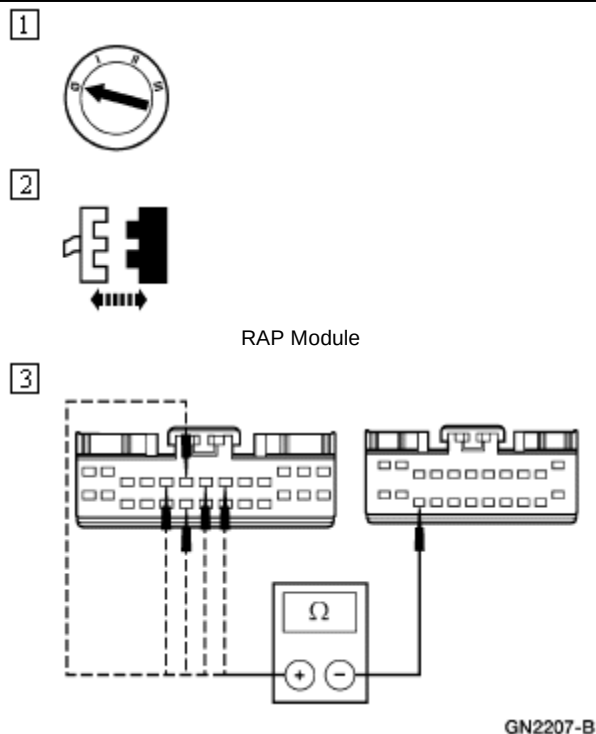
Measure the resistance between keyless entry keypad C516-2, circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the keyless entry keypad; REFER to [Keypad—Keyless Entry](#). TEST the system for normal operation.

→ **No**
REPAIR circuit 57 (BK). TEST the system for normal operation.

B11 CHECK THE KEYLESS ENTRY KEYPAD CIRCUITS FOR SHORT TO GROUND — KEYPAD CONNECTED



3 Measure the resistance between RAP module C338-14 circuit 570 (BK/W), and RAP module C336. Refer to the following chart:

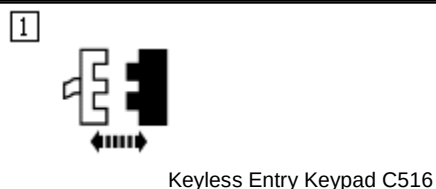
RAP Module	Circuit
C336-5	78 (LB/Y)
C336-6	79 (LG/R)
C336-19	121 (Y/BK)
C336-7	122 (Y)
C336-8	123 (R)

- Are the resistances greater than 10,000 ohms?

→ **Yes**
REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

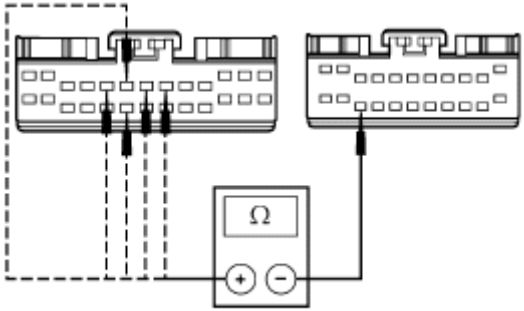
→ **No**
GO to [B12](#).

B12 CHECK THE KEYLESS ENTRY KEYPAD CIRCUITS FOR SHORT TO GROUND — KEYPAD DISCONNECTED



2 Measure the resistance between RAP module C338-14 circuit 570 (BK/W), and RAP module C336. Refer to the following chart:

RAP Module	Circuit



GN2207-B

RAP Module	Circuit
C336-5	78 (LB/Y)
C336-6	79 (LG/R)
C336-19	121 (Y/BK)
C336-7	122 (Y)
C336-8	123 (R)

• **Are the resistances greater than 10,000 ohms?**

→ **Yes**
REPLACE the keyless entry keypad; REFER to [Keypad—Keyless Entry](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR the circuit(s) in question. CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST C: THE DOORS DO NOT LOCK/UNLOCK USING THE REMOTE TRANSMITTER — IF EQUIPPED WITH TWO STEP UNLOCKING

CONDITIONS	DETAILS/RESULTS/ACTIONS
C1 CHECK DOOR LOCK/UNLOCK OPERATION USING THE REMOTE TRANSMITTER	
1 	2 NOTE: Verify that the doors are locked. Press the keyless entry remote transmitter UNLOCK button. The driver door should unlock. 3 Press the keyless entry remote transmitter UNLOCK button again within 5 seconds. The rest of the doors should unlock. 4 NOTE: Verify that all the doors are unlocked. Press the keyless entry remote transmitter LOCK button. All doors should lock. • Do the power locks operate as described?

→ **Yes**
System is OK.

→ **No**
If all the doors do not lock and unlock properly, GO to [C17](#).

If all the doors do not lock properly, GO to [C10](#).

If all the doors do not unlock properly, GO to [C2](#).

If the driver door does unlock but the rest of the doors do not unlock properly, GO to [C9](#).

If the driver door does not unlock properly but the rest of the doors do unlock, GO to [C6](#).

C2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)

1



Scan Tool

2



3



Clear Continuous DTCs

4



RAP On-Demand Self-Test

2 Retrieve and document continuous DTCs.

• Is DTC B1309 or B2425 retrieved?

→ **Yes**
If DTC B1309, GO to [C3](#).

If DTC B2425, GO to [C31](#).

→ **No**
GO to [C21](#).

C3 CHECK THE RAP PID DD_LOCK

1



1

Monitor the RAP PID DD_LOCK.

- Does the RAP PID DD_LOCK indicate LOCK?

→ Yes

GO to [C4](#).

→ No

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

C4 CHECK CIRCUIT 119 (PK/Y) FOR SHORT TO GROUND

1



RAP Module C338

2

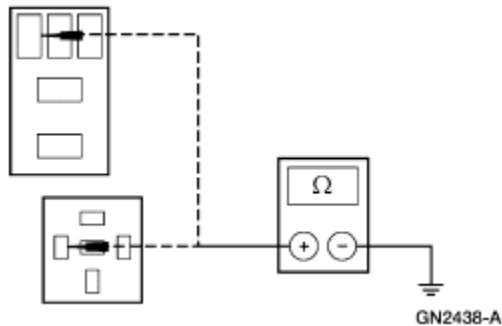


All Lock Relay

3



4



3

Disconnect master window/door lock control switch C501 or driver power door lock switch C514, passenger power door lock switch C614 and liftgate lock switch C404.

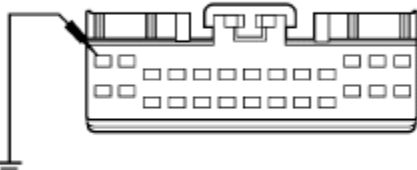
4

Measure the resistance between all lock relay connector pin 85 or pin 2, circuit 119 (PK/Y), and ground.

- Is the resistance greater than 10,000 ohms?

→ Yes

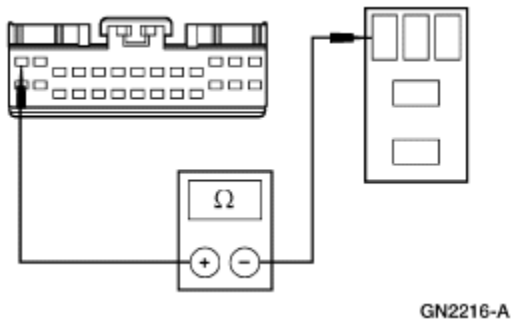
GO to [C5](#).

	→ No REPAIR circuit 119 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.
C5 CHECK THE POWER DOOR LOCK SWITCHES	
	1 Check the power door lock switches; refer to Wiring Diagrams cell 149. • Are the power door lock switches OK? → Yes REPLACE the RAP module; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the power door lock switch in question; REFER to Section 501-14A. CLEAR the DTCs. TEST the system for normal operation.
C6 CHECK DRIVER DOOR UNLOCK OPERATION OF RAP MODULE	
1  RAP Module C336 2  GN1542-A	2 NOTE: Verify the driver door is locked. Connect a jumper wire between RAP module C336-1, circuit 129 (LG), and ground. • Does the driver door unlock? → Yes REPLACE the RAP module; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REMOVE the jumper wire. GO to C7.
C7 CHECK CIRCUIT 129 (LG) FOR OPEN	
1	



Driver Unlock Relay

2



2

Measure the resistance between driver unlock relay connector pin 2, circuit 129 (LG), and RAP module C336-1, circuit 129 (LG).

- Is the resistance less than 5 ohms?

→ Yes

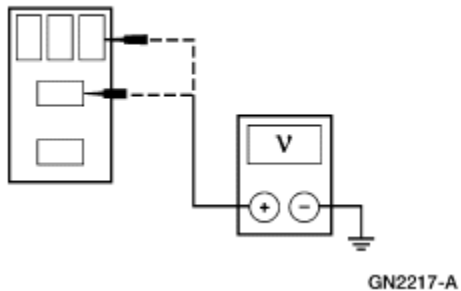
GO to [C8](#).

→ No

REPAIR circuit 129 (LG). CLEAR the DTCs. TEST the system for normal operation.

C8 VERIFY THE VOLTAGE TO THE DRIVER UNLOCK RELAY — CIRCUIT 171 (BK/W)

1



1

Measure the voltage between driver unlock relay connector pin 1, circuit 171 (BK/W), and ground; and between driver unlock relay connector pin 5, circuit 171 (BK/W).

- Are the voltages greater than 10 volts?

→ Yes

REPLACE the driver unlock relay. CLEAR the DTCs. TEST the system for normal operation.

→ No

REPAIR circuit 171 (BK/W). CLEAR the DTCs. TEST the system for normal operation.

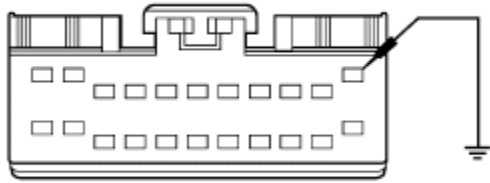
C9 CHECK PASSENGER DOOR UNLOCK OPERATION OF RAP MODULE

1



RAP Module C338

2



GN1543-A

2

NOTE: Verify all doors are locked.

Connect a jumper wire between the RAP module C338-11, circuit 120 (PK/LG), and ground.

- **Do all doors unlock?**

→ **Yes**

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 120 (PK/LG). CLEAR the DTCs. TEST the system for normal operation

C10 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)

1



Scan Tool

2



3



Clear Continuous DTCs

4



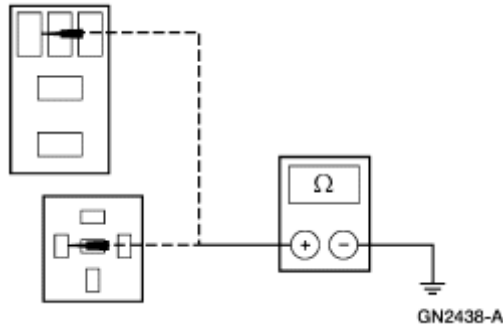
RAP On-Demand Self-Test

2

Retrieve and document continuous DTCs.

- **Is DTC B1341 retrieved?**

	→ Yes GO to C11. → No GO to C14.
C11 CHECK THE RAP PID DD_LOCK	
1  2 	2 Monitor the RAP PID DD_LOCK. • Does the RAP PID DD_LOCK indicate UNLOCK? → Yes GO to C12. → No REPLACE the RAP module; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation.
C12 CHECK CIRCUIT 120 (PK/LG) FOR SHORT TO GROUND	
1  RAP Module C338 2  All Unlock Relay 3  4 	3 Disconnect master window/door lock control switch C501 or driver power door lock switch C514, passenger power door lock switch C614 and liftgate lock switch C404. 4 Measure the resistance between all unlock relay connector pin 85 or pin 2, circuit 120 (PK/LG), and ground.



- Is the resistance greater than 10,000 ohms?

→ **Yes**

GO to [C13](#).

→ **No**

REPAIR circuit 120 (PK/LG). CLEAR the DTCs. TEST the system for normal operation.

C13 CHECK THE POWER DOOR LOCK SWITCHES

- 1 Check the power door lock switches; refer to Wiring Diagrams cell 149.

- Are the power door lock switches OK?

→ **Yes**

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPLACE the power door lock switch in question. CLEAR the DTCs. TEST the system for normal operation.

C14 CHECK ALL DOOR LOCK OPERATION OF RAP MODULE

1

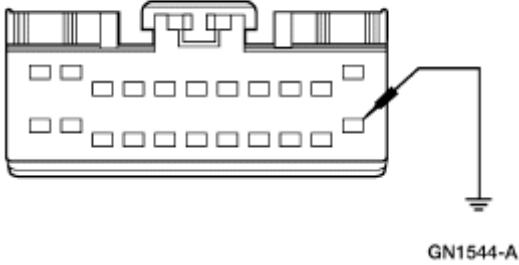


RAP Module C338

2

- 2 **NOTE:** Verify all doors are unlocked.

Connect a jumper wire between RAP module C338-22, circuit 119 (PK/Y), and ground.



- Do all the doors lock?

→ **Yes**

REMOVE the jumper wire. RECONNECT RAP module C338. GO to [C21](#).

→ **No**

REMOVE the jumper wire. GO to [C15](#).

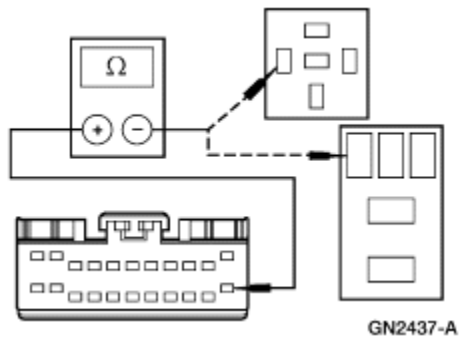
C15 CHECK CIRCUIT 119 (PK/Y) FOR OPEN

1



All Lock Relay

2



2

Measure the resistance between all lock relay connector pin 85 or pin 2, circuit 119 (PK/Y), and RAP module C338-22, circuit 119 (PK/Y).

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [C16](#).

→ **No**

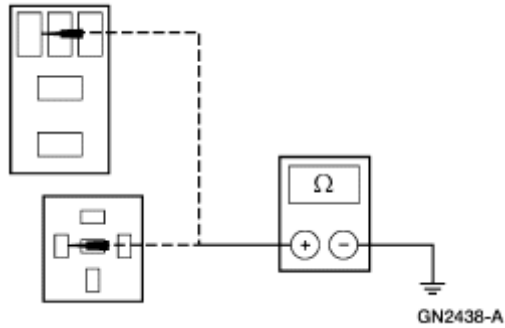
REPAIR circuit 119 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

C16 CHECK CIRCUIT 119 (PK/Y) FOR SHORT TO GROUND

1

1

Measure the resistance between all lock relay connector pin 85 or pin 2, circuit 119 (PK/Y), and ground.



- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the driver unlock relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 119 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

C17 CHECK RAP PID DD_LOCK FOR SHORT

1



Scan Tool

2



3



3 Monitor the RAP PID DD_LOCK.

- Does the RAP PID DD_LOCK indicate SHORT?

→ **Yes**

GO to [C18](#).

→ **No**

GO to [C19](#).

C18 CHECK CIRCUIT 119 (PK/Y) AND CIRCUIT 120 (PK/LG) FOR SHORT TO POWER

1



2



RAP Module C338

3



All Lock Relay

4

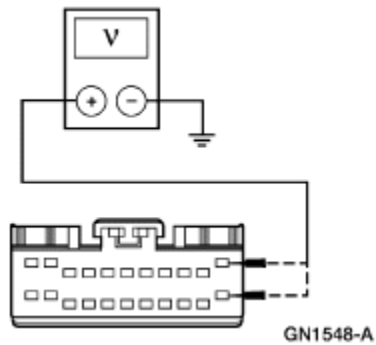


All Unlock Relay

5



6



6

Measure the voltage between RAP module C338-11, circuit 120 (PK/LG), and ground; and between RAP module C338-22, circuit 119 (PK/Y), and ground.

• Is any voltage indicated?

→ **Yes**

REPAIR circuit 119 (PK/Y) and/or circuit 120 (PK/LG). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

C19 CHECK TRANSMITTER LOCK INPUT — MONITOR THE RAP PID DD_LOCK

1



2



2

Monitor the RAP PID DD_LOCK.

3

Press the lock button on the keyless entry remote transmitter.

- Does the RAP PID DD_LOCK change from OFF to LOCK to OFF?

→ Yes

GO to [C20](#).

→ No

GO to [C21](#).

C20 CHECK TRANSMITTER UNLOCK INPUT — MONITOR THE RAP PID DD_LOCK

1



1

Monitor the RAP PID DD_LOCK

2

Press the unlock button on the keyless entry remote transmitter.

- Does the RAP PID DD_LOCK change from OFF to UNLOCK to OFF?

→ Yes

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ No

GO to [C21](#).

C21 CHECK TRANSMITTER OPERATION

1

NOTE: If the vehicle is within 0.8 km (1/2 mi) of radio or TV towers, the operating distance of the remote transmitter may be reduced.

Press each button on the keyless entry remote transmitter while standing 3 m (10 ft) away from the vehicle and confirm that operation is as described in Description and Operation.

- Is there an appropriate response for

	each button pressed? → Yes System is OK. → No GO to C22.
C22 CHECK FOR ANY RESPONSE FROM TRANSMITTER NO. 1	
	1 Stand next to or sit inside the vehicle. 2 Press each button on the keyless entry remote transmitter. • Does the system respond to any button pressed from transmitter No. 1? → Yes GO to C24. → No GO to C23.
C23 CHECK FOR ANY RESPONSE FROM TRANSMITTER NO. 2	
	1 Stand next to or sit inside the vehicle. 2 Press each button on the keyless entry remote transmitter. • Does the system respond to any button pressed from transmitter No. 2? → Yes GO to C24. → No GO to C30.
C24 CHECK TRANSMITTER TIC/DATA	
NOTE: When TRANSMITTER TIC/DATA screen first appears, different eight digit letter/number codes should appear next to the TIC 1: and TIC 2: symbols. These are the stored transmitter identification codes (TICs) for the No. 1 and No. 2 transmitters.	
	1 Enter RAP, FUNCTION TESTS, TRANSMITTER TIC/DATA through the scan tool menus. • Is there at least one transmitter stored and displayed next to TIC 1? → Yes GO to C25. → No

	PROGRAM all of the keyless entry remote transmitters. REFER to Programming. CLEAR the DTCs. TEST the system for normal operation.
C25 CHECK LAST TIC RECEIVED	
1  TIC/DATA	1 NOTE: It is normal for LAST TIC RECEIVED and LAST DATA RECEIVED to flash different information momentarily when the button is pressed. Information will lock in on the correct values. The tester is seeing the computer update its memory. NOTE: Pressing CLEAR will clear the last transmission received, but will not clear stored TICs in memory. Press and release the UNLOCK button of a keyless entry remote transmitter. The transmission received contains TICs for the keyless entry remote transmitter being operated and DATA for which the button has been pressed. • Does an eight digit letter/number code appear under LAST TIC RECEIVED: and the word UNLOCK appear under LAST DATA RECEIVED:? → Yes GO to C28. → No GO to C26.
C26 CHECK TRANSMITTER TIC/DATA—SECOND TRANSMITTER	
	1 Repeat step C25 for the second keyless entry remote transmitter. • Does an eight digit letter/number code appear under LAST TIC RECEIVED: and the word UNLOCK appear under LAST DATA RECEIVED:? → Yes GO to C27. → No GO to C29.
C27 TEST KEYLESS ENTRY REMOTE TRANSMITTER BATTERIES	
	1 Switch batteries from the No. 2 to the No. 1 keyless entry remote transmitter. 2 Repeat step C25 for the No. 1 keyless entry

	remote transmitter. • Does an eight digit letter/number code appear under LAST TIC RECEIVED: and the word UNLOCK appear under LAST DATA RECEIVED:? → Yes RETURN original batteries to both keyless entry remote transmitters; REPLACE batteries in the No. 1 keyless entry remote transmitter. CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the No. 1 keyless entry remote transmitter. CLEAR the DTCs. TEST the system for normal operation.
C28 CHECK TIC/DATA FOR TIC MATCH	
1  TIC/DATA	• Does the TIC under LAST TIC RECEIVED: match TIC 1 or TIC 2? → Yes GO to C29. → No PROGRAM all of the keyless entry remote transmitters to be used with this system (at least two). REFER to Programming. REPEAT C21.
C29 CHECK TIC/DATA FOR DATA MATCH	
1  TIC/DATA	• Do all buttons pressed for each transmitter create expected LAST DATA RECEIVED response? → Yes REPLACE the RAP module; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

If one keyless entry remote transmitter is not operating properly, PROGRAM all keyless entry remote transmitters to be used with this system (at least two). REFER to [Programming](#). REPEAT test step **C21**. If the concern remains. REPLACE the keyless entry remote transmitter. CLEAR the DTCs. TEST the system for normal operation.

If both keyless entry remote transmitters are not operating properly, PROGRAM all keyless entry remote transmitters to be used with this system (at least two). REFER to [Programming](#). REPEAT step **C21**. If the concern remains, GO to [C32](#).

C30 CHECK CIRCUIT 1002 (BK/PK) FOR SHORT TO POWER — KEY OFF

1

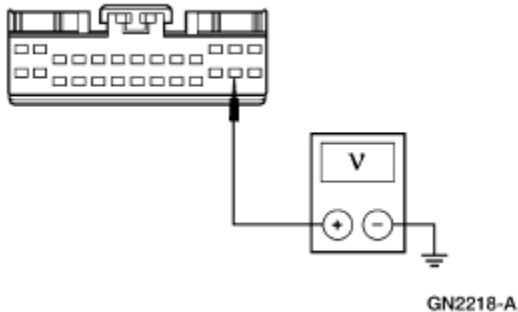


2



RAP Module C336

3



3

Measure the voltage between RAP module C336-25, circuit 1002 (BK/PK), and ground.

• Is any voltage indicated?

→ **Yes**

REPAIR circuit 1002 (BK/PK). TEST the system for normal operation.

→ **No**

REPROGRAM transmitter No. 1; REFER to [Programming](#). TEST the system for normal operation. If the transmitter still does not operate, CHECK the transmitter batteries. If OK, REPLACE the transmitter. TEST the system for normal operation.

C31 RESYNCHRONIZE KEYLESS ENTRY REMOTE TRANSMITTER	
	1 Press any button on the inoperative keyless entry remote transmitter four times consecutively. Does the keyless entry remote transmitter operate properly? → Yes CLEAR the DTCs. TEST the system for normal operation. → No GO to C32.
C32 CHECK FOR SECOND KEYLESS ENTRY REMOTE TRANSMITTER	
	1 Check for another keyless entry remote transmitter that works with the vehicle. Is there another keyless entry remote transmitter that works with the vehicle? → Yes GO to C33. → No GO to C34.
C33 RESYNCHRONIZE THE INOPERATIVE KEYLESS ENTRY REMOTE TRANSMITTER USING THE SECOND KEYLESS ENTRY REMOTE TRANSMITTER	
	1 Press any button on the operational keyless entry remote transmitter. 2 Within 30 seconds press a button on the inoperative keyless entry remote transmitter. 3 Check the inoperative keyless entry remote for proper operation. Does the keyless entry remote transmitter in question operate properly? → Yes CLEAR the DTCs. TEST the system for normal operation. → No GO to C34.
C34 REPROGRAM THE INOPERATIVE KEYLESS ENTRY REMOTE TRANSMITTER	
	1 Reprogram all keyless entry remote transmitters; refer to Programming.

	• Does the keyless entry remote transmitter operate properly? → Yes CLEAR the DTC. INFORM the customer that any additional keyless entry remote transmitters not present during the programming mode will not operate with the vehicle. All keyless entry remote transmitters must be programmed at the same time. TEST the system for normal operation. → No GO to C17.

PINPOINT TEST D: THE AUTO-LOCK DOES NOT OPERATE PROPERLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
D1 ATTEMPT NORMAL AUTOLOCK/RELOCK OPERATION	
	1 NOTE: Understand the conditions required for autolock to function; refer to Description and Operation. Perform the autolock and relock sequences. • Do the autolock and relock features work? → Yes Autolock/relock functions are OK. CLARIFY with owner and RETURN to Symptom Chart. → No GO to D2.
D2 CONFIRM AUTOLOCK IS ENABLED	
	1 Perform enable/disable sequence for autolock/relock feature. Refer to Description and Operation. • As this sequence is performed for the first time, does the horn chirp once followed by a longer honk? → Yes GO to D1 (a feature became enabled which was previously disabled). → No If one horn chirp sounded, but no longer horn

honk followed, ENABLE autolock feature again with same sequence, but with a longer honk. (Autolock feature was enabled originally, and was disabled in **D2**). GO to [D3](#) after enabling autolock.

D3 RETRIEVE THE DIAGNOSTIC TROUBLE CODES(DTCS)

1



2



Scan Tool

3



4



Clear Continuous DTCs

5



RAP On-Demand Self-Test

3 Retrieve and document continuous DTCs.

- Are any DTCs retrieved?

→ Yes

If DTC B1485, GO to [D4](#) .

If DTC B1629, GO to [D9](#) .

→ No

GO to [D12](#) .

D4 CHECK THE RAP PID BOO_RAP

1



1 Monitor the RAP PID BOO_RAP.

- Does the RAP PID BOO_RAP indicate ON?

→ **Yes**
GO to [D6](#).

→ **No**
GO to [D5](#).

D5 CHECK THE BRAKE PEDAL POSITION (BPP) SWITCH INPUT — MONITOR THE RAP PID BOO_RAP

1



1

Monitor the RAP PID BOO_RAP while pressing and releasing the brake pedal.

- Does the RAP PID BOO_RAP indicate **ON** when the brake pedal is depressed and **OFF** when the brake pedal is released?

→ **Yes**
GO to [D9](#).

→ **No**
If the RAP PID BOO_RAP always displays ON, GO to [D6](#).

If the RAP PID BOO_RAP always displays OFF, GO to [D7](#).

D6 CHECK CIRCUIT 511 (LG) FOR SHORT TO POWER

1

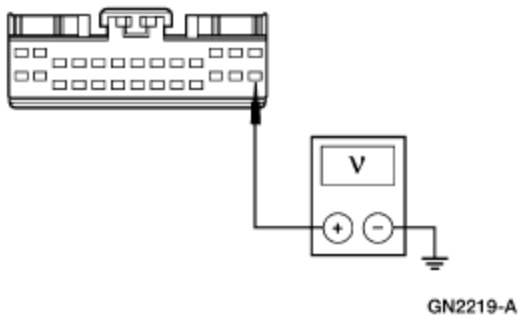


2



RAP C336

3

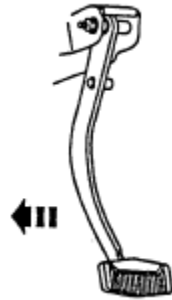


3

Measure the voltage between RAP module C336-26, circuit 511 (LG), and ground.

- Is any voltage indicated?

- **Yes**
REPAIR circuit 511 (LG). CLEAR the DTCs. TEST the system for normal operation.
- **No**
REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

D7 CHECK THE STOPLAMP OPERATION**1**

GN0237-A

1 Press the brake pedal.

- Do the stoplamps operate?

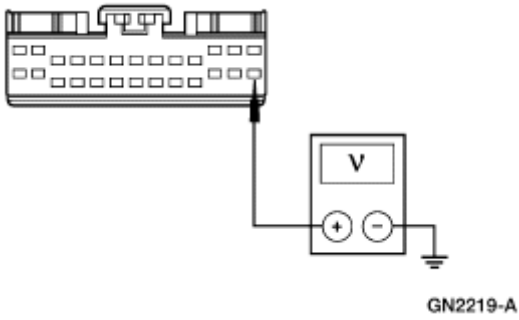
- **Yes**
GO to [D8](#).
- **No**
DIAGNOSE the stoplamps; REFER to [Section 417-01](#).

D8 CHECK THE BPP SWITCH INPUT — BRAKE PEDAL PRESSED**1****2**

RAP C336

3

3 Measure the voltage between RAP module C336-26, circuit 511 (LG), and ground while pressing the brake pedal.



- Is the voltage greater than 10 volts?

→ **Yes**

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 511 (LG). CLEAR the DTCs. TEST the system for normal operation.

D9 CHECK THE RAP PID TRANSGR

1



1

Monitor the RAP PID TRANSGR.

- Does the RAP PID TRANSGR indicate REV?

→ **Yes**

GO to [D11](#).

→ **No**

GO to [D10](#).

D10 CHECK THE REVERSE INPUT — MONITOR THE RAP PID TRANSGR

1



2



3



1

Monitor the RAP PID TRANSGR.

- Does the RAP PID TRANSGR indicate REV when the gearshift lever (7210) is in reverse and notREV when the gearshift lever is in park?

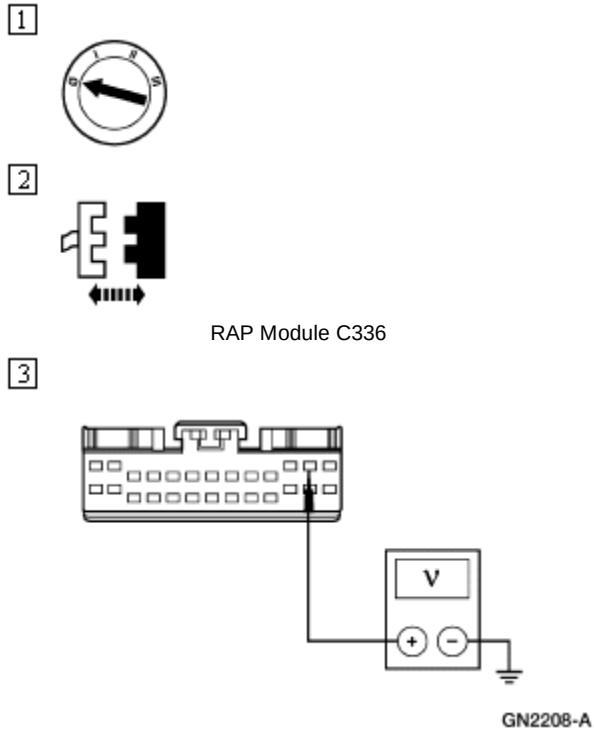
→ **Yes**

CLEAR the DTCs. PERFORM the RAP On-Demand Self-Test. If DTC B1629 is retrieved, REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [D11](#).

D11 CHECK CIRCUIT 140 (BK/PK) FOR SHORT TO POWER



- 3 Measure the voltage between RAP module C336-12, circuit 140 (BK/PK), and ground.

- Is any voltage indicated?

→ **Yes**

REPAIR circuit 140 (BK/PK). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

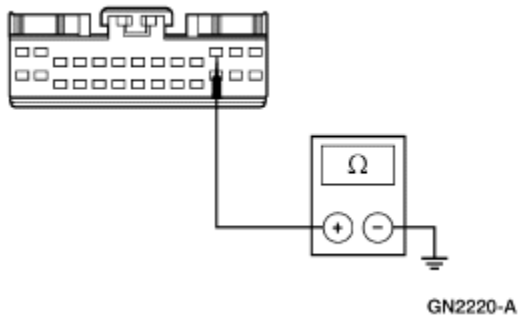
REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

D12 CHECK THE DOOR AJAR INPUT — MONITOR THE RAP PID DOORRAP

- 1 Verify all doors are closed.

2 	2 Monitor the RAP PID DOORRAP while opening and closing the driver door. • Does the RAP PID DOORRAP indicate CLOSED when all doors are closed and AJAR when the driver door is opened? → Yes GO to D16. → No If the RAP PID DOORRAP indicates AJAR, GO to D13. If the RAP PID DOORRAP indicates CLOSED, GO to D15.
D13 CHECK THE GEM FOR DTCS	
1  GEM On-Demand Self-Test	• Is DTC B1332, B1330, B1574, B1338, or B1334 retrieved? → Yes REFER to Section 417-02. → No GO to D14.
D14 CHECK CIRCUIT 999 (LB/W) FOR SHORT TO GROUND	
1  2  RAP C336 3  GEM C281	

4



4

Measure the resistance between RAP module C336-11, circuit 999 (LB/W), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 999 (LB/W). CLEAR the DTCs. TEST the system for normal operation.

D15 CHECK DOOR AJAR CIRCUIT 999 (LB/W) INPUT TO RAP MODULE

1

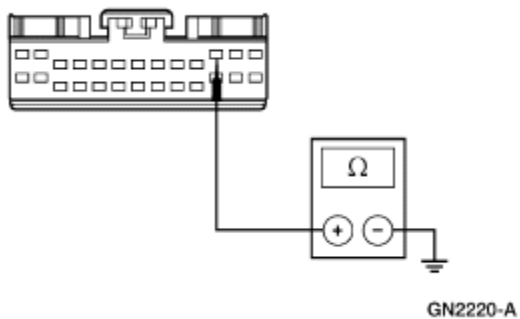


2



RAP C336

3



3

While a door is ajar, measure the resistance between RAP module C336-11, circuit 999 (LB/W), and ground.

- Is the resistance less than 10,000 ohms?

→ **Yes**

REPLACE the RAP module; REFER to [Section](#)

[419-10](#) . CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 999 (LB/W). CLEAR the DTCs. TEST the system for normal operation.

D16 CHECK THE IGNITION INPUT TO THE RAP MODULE — MONITOR THE RAP PID IGN_RAP

1



1

Monitor the RAP PID IGN_RAP while turning the ignition from OFF to RUN.

- Does the RAP PID IGN_RAP indicate OFF when the ignition switch is in the off position and RUN/ACC when the ignition switch is in the run position?

→ **Yes**
All inputs are OK. CLARIFY with owner and return to Symptom Chart.

→ **No**
If the RAP PID IGN_RAP indicates ON, GO to [D17](#) .

If the RAP PID IGN_RAP indicates OFF, GO to [D18](#) .

D17 CHECK CIRCUIT 1002 (BK/PK) FOR SHORT TO POWER — KEY OFF

1

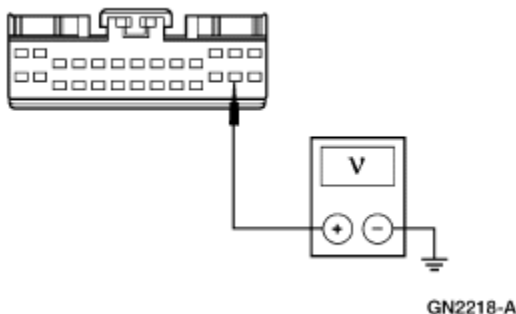


2



RAP Module C336

3



3

Measure the voltage between RAP module C336-25, circuit 1002 (BK/PK), and ground.

- Is any voltage present?

→ **Yes**

REPAIR circuit 1002 (BK/PK). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

D18 CHECK CIRCUIT 1002 (BK/PK) FOR VOLTAGE

1



2

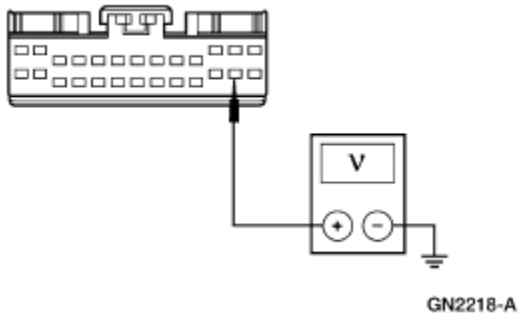


RAP Module C336

3



4



4

Measure the voltage between RAP module C336-25, circuit 1002 (BK/PK), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

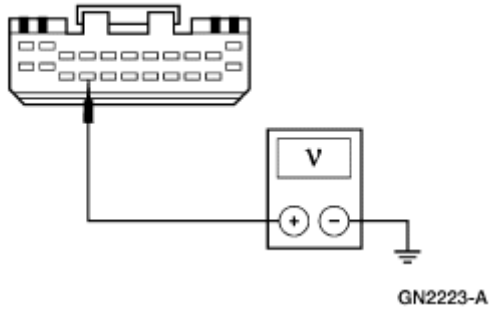
REPAIR circuit 1002 (BK/PK). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST E: THE MEMORY SEAT DOES NOT OPERATE PROPERLY USING THE REMOTE

TRANSMITTER

CONDITIONS	DETAILS/RESULTS/ACTIONS
E1 DETERMINE TRANSMITTER ONE AND TWO	
1  2  Scan Tool 3  5 	4 With the ignition off, press any button on the remote transmitter. 5 NOTE: Transmitter with TIC1, TIC2, or TIC3 will cause the memory seat to move to corresponding locations 1, 2, or 3 as set by the memory seat control switches. A transmitter under TIC4 does not cause any seat movement. Select TRANSMITTER TIC/DATA from the scan tool RAP FUNCTION TEST list. 6 Compare the LAST TIC RECEIVED with the data stored in TIC1, TIC2, TIC3, TIC4, to determine transmitter 1 (TIC1), transmitter 2 (TIC2), transmitter 3 (TIC3), and transmitter 4 (TIC4). 7 Repeat step 5 for the second remote transmitter. • Are remote transmitters one and two identified? → Yes GO to E2. → No If remote transmitters do not match any stored TICs, REPROGRAM all transmitters; REFER to Programming.
E2 CHECK REMOTE TRANSMITTER ONE FOR MEMORY SEAT OPERATION	
	1 Press the UNLOCK button on remote

	transmitter one. • Does the seat move to the memory seat position one? → Yes GO to E3. → No GO to E7.
E3 CHECK REMOTE TRANSMITTER TWO FOR MEMORY SEAT OPERATION	
	1 Press the UNLOCK button on remote transmitter two. • Does the seat move to the memory seat position two? → Yes System is OK. → No GO to E4.
E4 CHECK THE RAP SEAT MEMORY TWO OUTPUT USING THE SCAN TOOL	
1 	1 NOTE: Memory one must be OFF. Trigger the RAP active command MEMORY 2 to ON. • Does the seat move to memory seat position two? → Yes REPLACE the RAP module; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No GO to E5.
E5 CHECK THE RAP MODULE OUTPUT FOR MEMORY SEAT POSITION TWO FOR VOLTAGE — CIRCUIT 268 (BK/O)	
1  DSM C337 2	2 Measure the voltage between DSM C337-15, circuit 268 (BK/O), and ground.

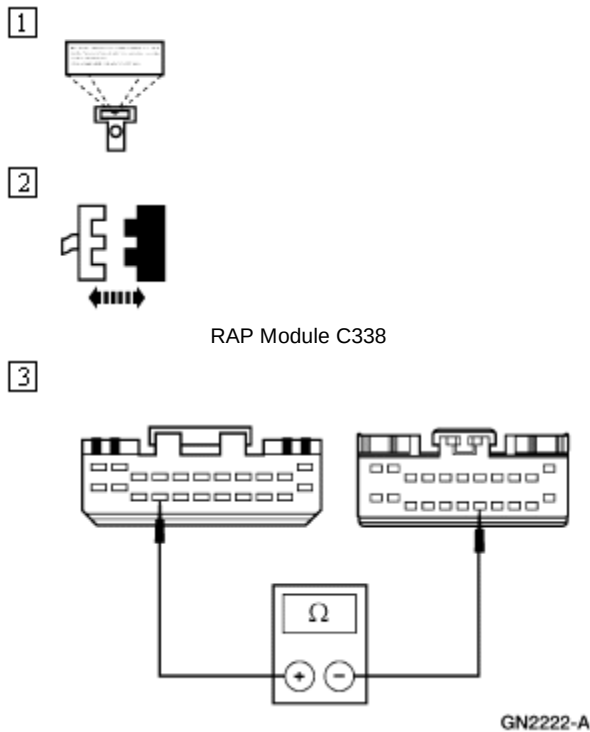


- Is the voltage greater than 10 volts?

→ **Yes**
REPLACE the DSM; REFER to [Section 501-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
GO to [E6](#).

E6 CHECK CIRCUIT 268 (BK/O) FOR OPEN

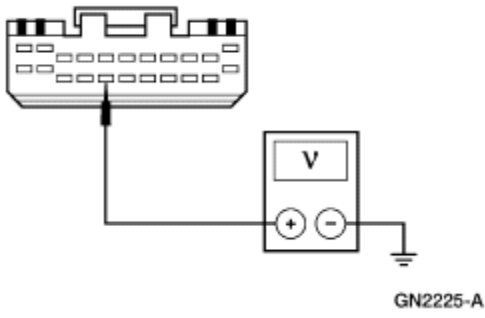


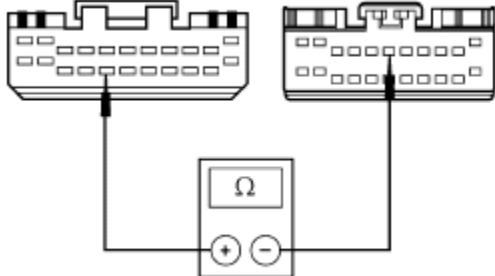
1 Trigger the RAP active command MEMORY 2 to OFF.

3 Measure the resistance between RAP module C338-18, circuit 268 (BK/O), and DSM C337-15, circuit 268 (BK/O).

- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the RAP module; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

	→ No REPAIR circuit 268 (BK/O). CLEAR the DTCs. TEST the system for normal operation.
E7 CHECK THE RAP SEAT MEMORY ONE OUTPUT USING THE SCAN TOOL	
1 	1 NOTE: Memory one must be OFF. Trigger RAP active command MEMORY 1 to ON. • Does the memory seat move to memory seat position one? → Yes REPLACE the RAP module; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No GO to E8.
E8 CHECK THE RAP MODULE OUTPUT FOR MEMORY SEAT POSITION ONE FOR VOLTAGE — CIRCUIT 267 (BR/LG)	
1  DSM C337 2 	2 Measure the voltage between DSM C337-16, circuit 267 (BR/LG), and ground. • Is the voltage greater than 10 volts? → Yes REPLACE the DSM; REFER to Section 501-10. CLEAR the DTCs. TEST the system for normal operation. → No GO to E9.
E9 CHECK CIRCUIT 267 (BR/LG) FOR OPEN	

1  2  RAP Module C338 3  GN2224-A	1 Trigger the RAP active command MEMORY 1 to OFF. 3 Measure the resistance between RAP module C338-6, circuit 267 (BR/LG), and DSM C337-16, circuit 267 (BR/LG). • Is the resistance less than 5 ohms? → Yes REPLACE the RAP module; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 267 (BR/LG). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST F: ALL DOOR LOCKS ARE INOPERATIVE — TWO STEP UNLOCK DOES NOT OPERATE PROPERLY (IF EQUIPPED)

CONDITIONS	DETAILS/RESULTS/ACTIONS
1  2  Scan Tool 3	F1 CHECK IGNITION STATES — MONITORING THE PID GEM PID IGN_GEM 3 Monitor the GEM PID IGN_GEM while cycling



the ignition switch through the RUN, OFF and ACC positions.

- Do the PID values agree with the ignition switch positions?

→ **Yes**
GO to [F2](#).

→ **No**
REFER to [Section 417-02](#).

F2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)

1



2



Clear Continuous DTCs

3



GEM On-Demand Self-Test

1 Retrieve and document continuous DTCs.

- Are any DTCs recorded?

→ **Yes**
If DTC B1833, GO to [F13](#).

If DTC B1834, GO to [F3](#).

If DTC B1836, GO to [F3](#).

If DTC B1342, REPLACE the GEM; REFER to [Section 419-10](#). TEST the system for normal operation.

→ **No**
GO to [F3](#).

F3 CHECK THE TWO STEP UNLOCK CIRCUIT — MONITOR THE GEM PID DR_UNLK

1



1 Monitor the GEM PID DR_UNLK while triggering the GEM active command mode DD UNLOCK ON and OFF.

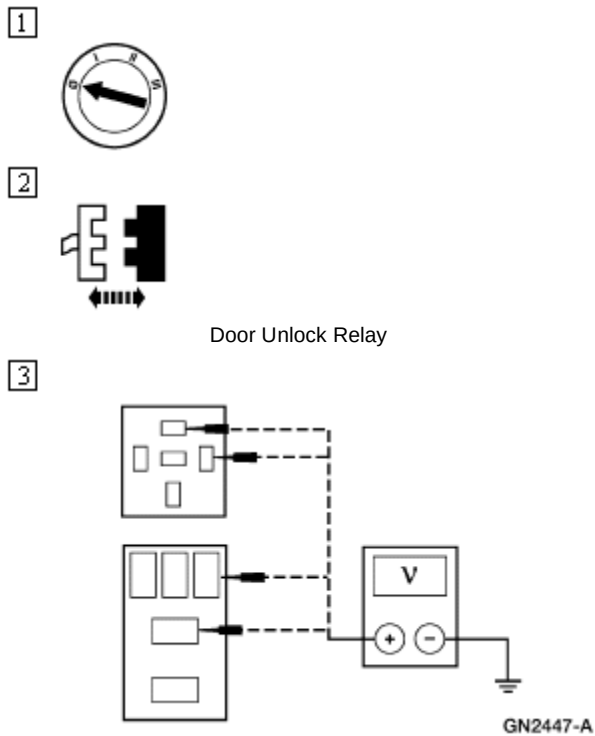
- Does the GEM PID DR_UNLK agree with the active command mode?

→ **Yes**
GO to [F13](#).

→ **No**
If the PID DR_UNLK displays OFFO-G, GO to [F4](#).

If the PID DR_UNLK displays ON-B-, GO to [F11](#).

F4 CHECK THE VOLTAGE TO DOOR UNLOCK RELAY — CIRCUIT 171 (BK/W)



- 3 Measure the voltage between door unlock relay connector pin 1 or 86, circuit 171 (BK/W), and ground; and between door unlock relay connector pin 5 or 87, circuit 171 (BK/W), and ground.

- Are the voltages greater than 10 volts?

→ **Yes**
GO to [F5](#).

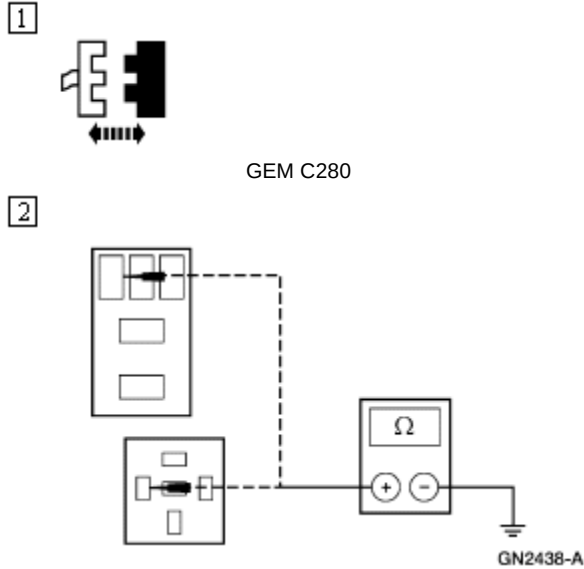
→ **No**
CHECK fuse junction box fuse 18 (10A). If OK repair circuit 171 (BK/W). CLEAR the DTCs. TEST the system for normal operation.

F5 CHECK THE DOOR UNLOCK RELAY

- 1 Check the door unlock relay; refer to Wiring Diagrams cell 149.

- Is the door unlock relay OK?

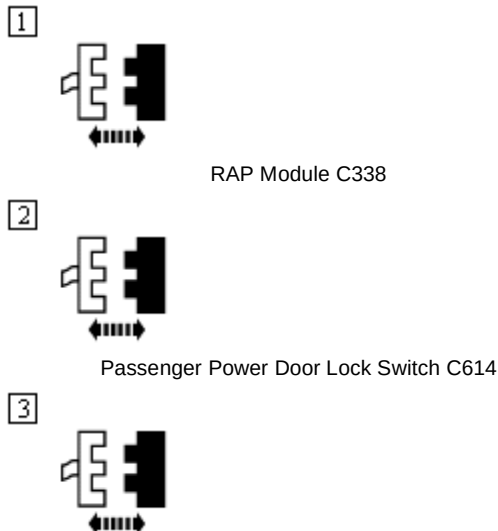
- **Yes**
GO to [F6](#).
- **No**
REPLACE the door unlock relay. CLEAR the DTCs. TEST the system for normal operation.

F6 CHECK CIRCUIT 120 (PK/LG) FOR OPEN

- 2 Measure the resistance between door unlock relay pin 85 or pin 2, circuit 120 (PK/LG), and GEM C280-16, circuit 120 (PK/LG).

- Is the resistance less than 5 ohms?

- **Yes**
GO to [F7](#).
- **No**
REPAIR circuit 120 (PK/LG). CLEAR the DTCs. TEST the system for normal operation.

F7 CHECK CIRCUIT 120 (PK/LG) FOR SHORT TO GROUND

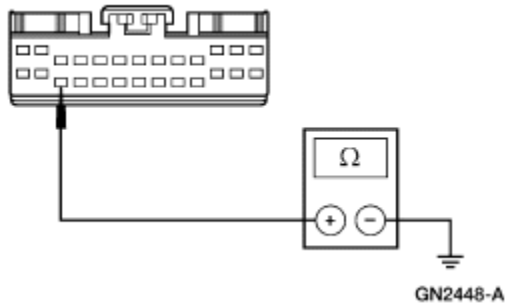
Liftgate Lock Switch C404

4



Master Window/Door Lock Switch C501

5



5 Measure the resistance between GEM C280-16, circuit 120 (PK/LG), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**
GO to [F8](#).

→ **No**
REPAIR circuit 120 (PK/LG). CLEAR the DTCs. TEST the system for normal operation.

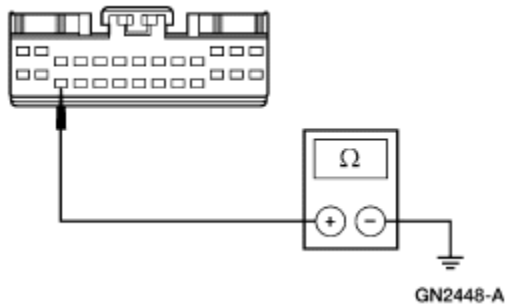
F8 CHECK THE RIGHT FRONT POWER DOOR LOCK SWITCH FOR SHORT TO GROUND

1



Passenger Power Door Lock Switch C414

2



2 Measure the resistance between GEM C280-16, circuit 120 (PK/LG), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**

GO to [F9](#).

→ **No**
REPLACE RF power door lock switch. CLEAR the DTCs. TEST the system for normal operation.

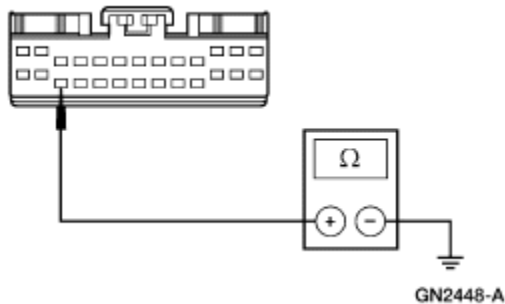
F9 CHECK THE LIFTGATE LOCK SWITCH FOR SHORT TO GROUND

1



Liftgate Lock Switch C404

2



2 Measure the resistance between GEM C280-16, circuit 120 (PK/LG), and ground.

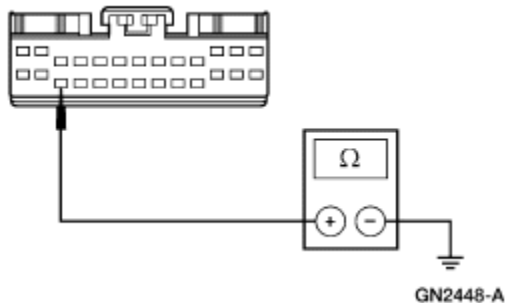
- Is the resistance greater than 10,000 ohms?

→ **Yes**
GO to [F10](#).

→ **No**
REPLACE liftgate lock switch. CLEAR the DTCs. TEST the system for normal operation.

F10 CHECK THE MASTER WINDOW DOOR/LOCK SWITCH FOR SHORT TO GROUND

1



1 Measure the resistance between GEM C280-16, circuit 120 (PK/LG), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPLACE the master window/door lock switch. CLEAR the DTCs. TEST the system for normal operation.

F11 CHECK CIRCUIT 120 (PK/LG) FOR SHORT TO POWER

1



2

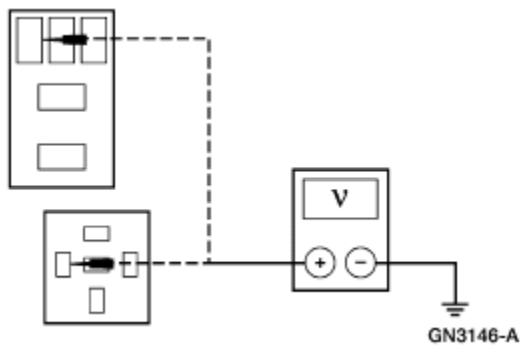


Door Unlock Relay

3



4



4

Measure the voltage between door unlock relay connector pin 85 or pin 2, circuit 120 (PK/LG), and ground.

- Is any voltage indicated?

→ **Yes**

REPAIR circuit 120 (PK/LG). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [F12](#).

F12 CHECK THE DOOR UNLOCK RELAY

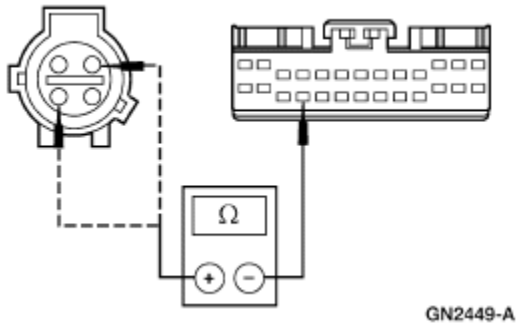
1

Check the door unlock relay; refer to Wiring Diagrams cell 149.

- Is the relay OK?

	→ Yes REPLACE the GEM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the door unlock relay. CLEAR the DTCs. TEST the system for normal operation.
F13 CHECK THE DOOR DISARM INPUT CIRCUIT — MONITOR THE GEM PID DR_DSRM	
1 	1 Monitor the GEM PID DR_DSRM while unlocking the LF door, RF door and liftgate with the key. • Does the PID indicate L_Door when in the unlock position and OFF when in the unlock position for each door? → Yes REPLACE the GEM. CLEAR the DTCs. TEST the system for normal operation. → No If the GEM PID DR_DSRM indicates L_Door only, GO to F14. If the GEM PID DR_DSRM indicates R_Door only, GO to F15. If the GEM PID DR_DSRM indicates LIFT_G only, GO to F16. If the GEM PID DR_DSRM indicates L_Door for all locks, GO to F17.
F14 CHECK THE DRIVER DOOR DISARM SWITCH CIRCUIT 25 (DG/P) AND CIRCUIT 57 (BK) FOR OPEN	
1  2  Driver Door Disarm Switch C510 3  GEM C280	

4



4

Measure the resistance between driver door disarm switch C510F, circuit 25 (DG/P), C510F and GEM C280-17, circuit 25 (DG/P); and between driver door disarm switch C510F, circuit 57 (BK), and ground.

- Are the resistances less than 5 ohms?

→ Yes

REPLACE the driver door disarm switch.
CLEAR the DTCs. TEST the system for normal operation.

→ No

REPAIR circuit 25 (DG/P) or circuit 57 (BK).
CLEAR the DTCs. TEST the system for normal operation.

F15 CHECK THE PASSENGER DOOR DISARM SWITCH CIRCUIT 25 (DG/P) AND CIRCUIT 57 (BK) FOR OPEN

1



2



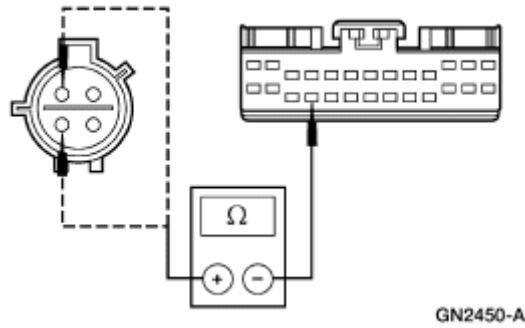
3



4

4

Measure the resistance between passenger door disarm switch C607F, circuit 25 (DG/P), and GEM C280-17, circuit 25 (DG/P); and between passenger door disarm switch C607F, circuit 57 (BK), and ground.



- Are the resistances less than 5 ohms?

→ **Yes**

REPLACE the passenger door disarm switch.
CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 25 (DG/P) or circuit 57 (BK).
CLEAR the DTCs. TEST the system for normal operation.

F16 CHECK THE LIFTGATE DISARM SWITCH CIRCUIT 25 (DG/P) AND CIRCUIT 57 (BK) FOR OPEN

1



2



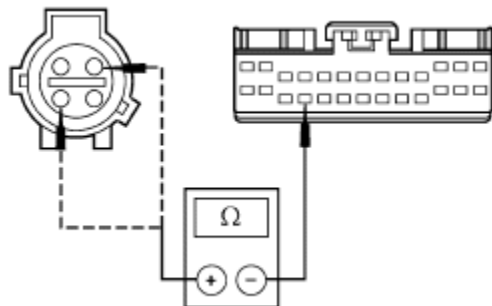
Liftgate Disarm Switch C426

3



GEM C280

4

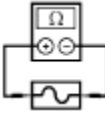


4

Measure the resistance between liftgate disarm switch C426F, circuit 25 (DG/P), and GEM C280-17, circuit 25 (DG/P); and between liftgate disarm switch C426F, circuit 57 (BK), and ground.

	• Are the resistances less than 5 ohms? → Yes REPLACE the liftgate disarm switch. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 25 (DG/P) or circuit 57 (BK). CLEAR the DTCs. TEST the system for normal operation.
F17 CHECK CIRCUIT 25 (DG/P) FOR SHORT TO GROUND — MONITOR THE GEM PID DR_DSRM	
1 	1 Monitor the GEM PID DR_DSRM while disconnecting each disarm switch. • Does PID indicate OFF when any of the disarm switches is disconnected? → Yes REPLACE the disarm switch that changed PID value when disconnected. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 25 (DG/P). CLEAR the DTCs. TEST the system for normal operation.

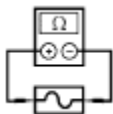
PINPOINT TEST G: NO COMMUNICATION WITH THE MODULE — GENERIC ELECTRONIC MODULE/CENTRAL TIMER MODULE

CONDITIONS	DETAILS/RESULTS/ACTIONS
G1 CHECK BATTERY JUNCTION BOX MAXI-FUSE 1 (50A)	
1  Maxi-Fuse 1 (60A)	• Is the fuse OK? → Yes GO to G2. → No REPLACE the fuse. CLEAR the DTCs. TEST

the system for normal operation. If the fuse fails again, CHECK circuit 1052 (T/BK) for a short to ground. REPAIR as necessary.

G2 CHECK FUSE JUNCTION PANEL FUSE 25 (7.5A)

1



Fuse 25 (7.5A)

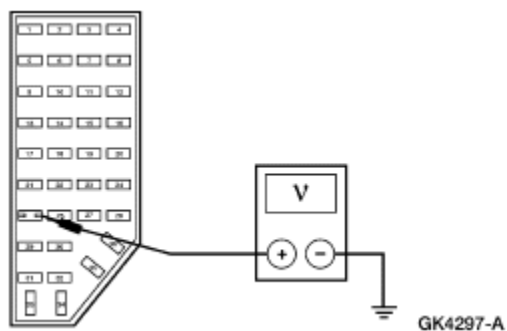
- Is the fuse OK?

→ **Yes**
GO to [G3](#).

→ **No**
REPLACE the fuse. CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK circuit 1001 (W/Y) for a short to ground. REPAIR as necessary.

G3 CHECK CIRCUIT 1052 (T/BK) FOR VOLTAGE

1



- 1 Measure the voltage between fuse junction panel fuse 25 (7.5A) pin 2, circuit 1052 (T/BK), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [G4](#).

→ **No**
REPAIR circuit 1052 (T/BK). CLEAR the DTCs. TEST the system for normal operation.

G4 CHECK THE VOLTAGE TO THE GEM — CIRCUIT 1001 (W/Y)

1

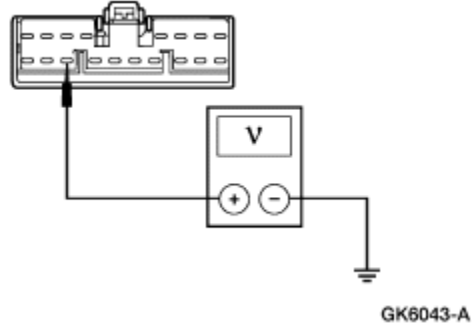


2



GEM C283

3



- 3 Measure the voltage between GEM C283-11, circuit 1001 (W/Y), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [G5](#).

→ **No**
REPAIR circuit 1001 (W/Y). CLEAR the DTCs.
TEST the system for normal operation.

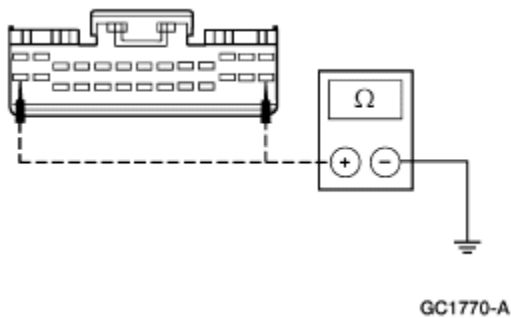
G5 CHECK CIRCUIT 570 (BK/W) FOR OPEN

1



GEM C280

2



- 2 Measure the resistance between GEM C280-14, circuit 570 (BK/W), and ground; and between GEM C280-26, circuit 570 (BK/W), and ground.

- Are the resistances less than 5 ohms?

→ **Yes**
REFER to [Section 418-00](#).

→ **No**
REPAIR circuit 570 (BK/W). CLEAR the DTCs.

	TEST the system for normal operation.	

Programming

NOTE: All keyless entry remote transmitters (15K601) are programmable and must be set at the same time.

NOTE: To program (or reprogram) the keyless entry remote transmitters into the RAP module, perform the following steps:

1. Make sure that the anti-theft system is not armed or triggered.
 2. Turn the ignition switch (11572) from OFF to RUN eight times within ten seconds, ending in RUN. If the RAP module has successfully entered program mode, it will lock and then unlock all doors.
 3. Press any button on a keyless entry remote transmitter, and the doors will lock and then unlock to confirm that each keyless entry remote transmitter has been programmed.
 4. If the door locks do not respond for any keyless entry remote transmitter, wait several seconds and press the button again. If the door locks still fail to respond, refer to Diagnosis and Testing.
 5. Turn the ignition switch to the OFF position, or wait up to 20 seconds after step 2, to exit program mode. If a keyless entry remote transmitter has been programmed (or reprogrammed), the RAP module will lock and unlock all doors one last time to confirm.
-

SECTION 501-14B: Keyless Entry/Computer Operated Locks
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

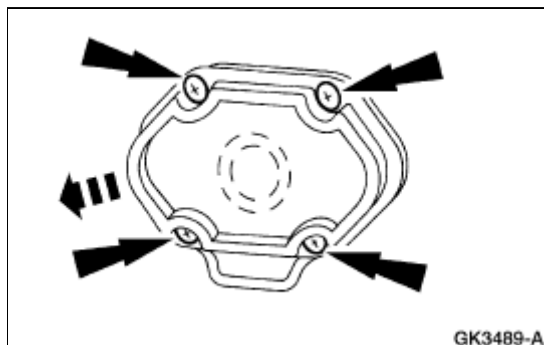
Keypad —Keyless Entry

Removal

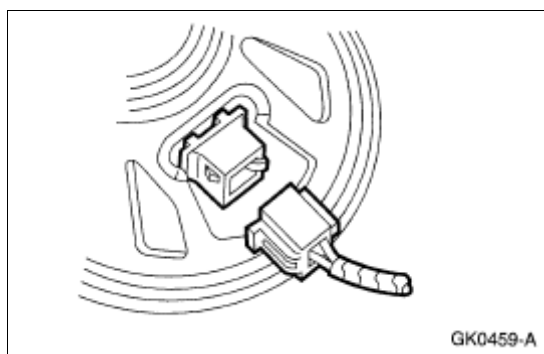
1. Disconnect the battery ground cable.
2.  **CAUTION: Do not operate the radio chassis with a radio speaker disconnected.**

Remove the front door trim panel. For additional information, refer to [Section 501-05](#).

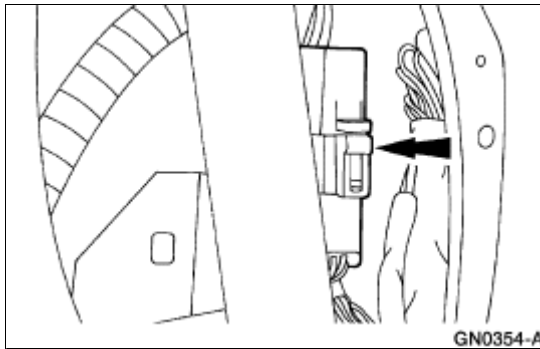
3. Remove the screws and lift the radio speaker out to gain access to the electrical connector.



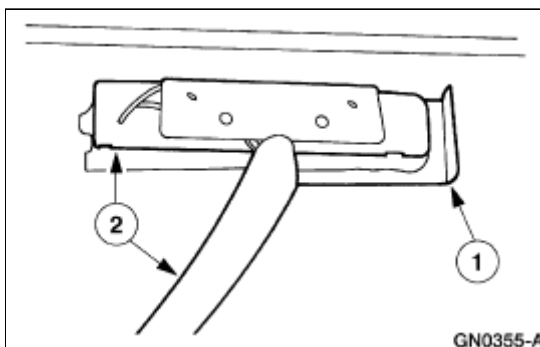
4. Disconnect the speaker wiring connector.



5. Disconnect the electrical connector.
 - Release harness pin-type retainers.



6. Remove the keyless entry keypad and harness.
 1. Remove the clip.
 2. Remove the keyless entry keypad and harness.



Installation

1. **NOTE:** When the is disconnected and reconnected, some abnormal drive symptoms may occur while the vehicle relearns its adaptive strategy. The vehicle may need to be driven 10 miles (16 km) or more to relearn the strategy.

To install, reverse the removal procedure.

SECTION 501-14B: Keyless Entry/Computer Operated Locks
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Module —Remote Anti-Theft Personality (RAP)

Removal and Installation

For additional information, refer to [Section 419-10](#).

SECTION 501-16: Wipers and Washers
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

Torque Specifications

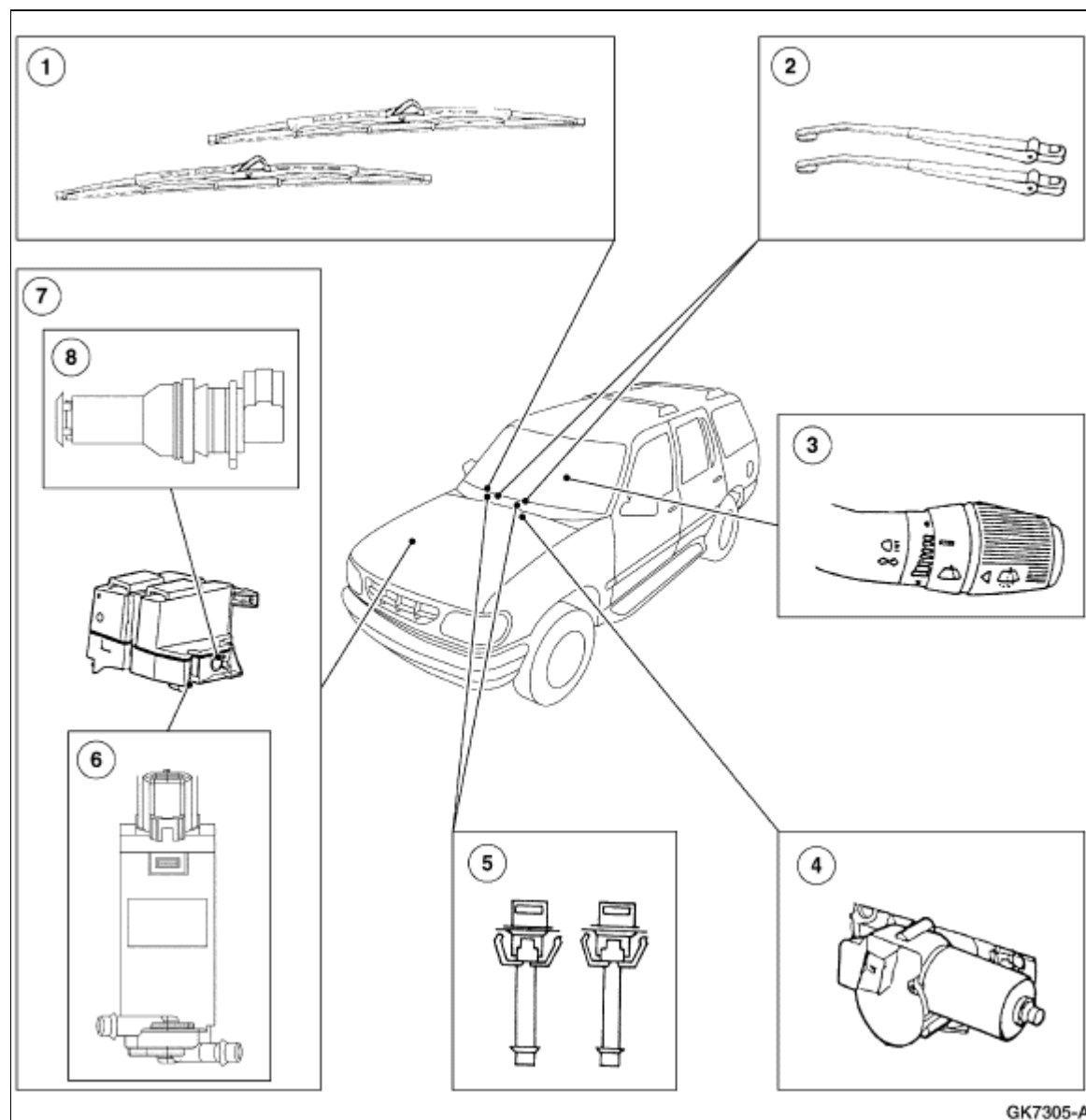
Description	Nm	lb-ft	lb-in
Instrument Panel Finish Panel Screws	2-3	—	18-26
Ground Strap Nut	7-9	—	61-82
Windshield Wiper Washer Switch	2-3	—	18-26
Windshield Wiper Pivot Shaft Nut	10-13	—	89-115
Windshield Wiper Motor Bolts	7.0-9.0	—	61-82
Windshield Wiper/Washer Reservoir Screw and Nut	5-6	—	44-53
Pivot Arm — Rear Nut	13-17	—	113-154
Rear Wiper Motor Bolts	9-12	—	79-108

SECTION 501-16: Wipers and Washers
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Wipers and Washers

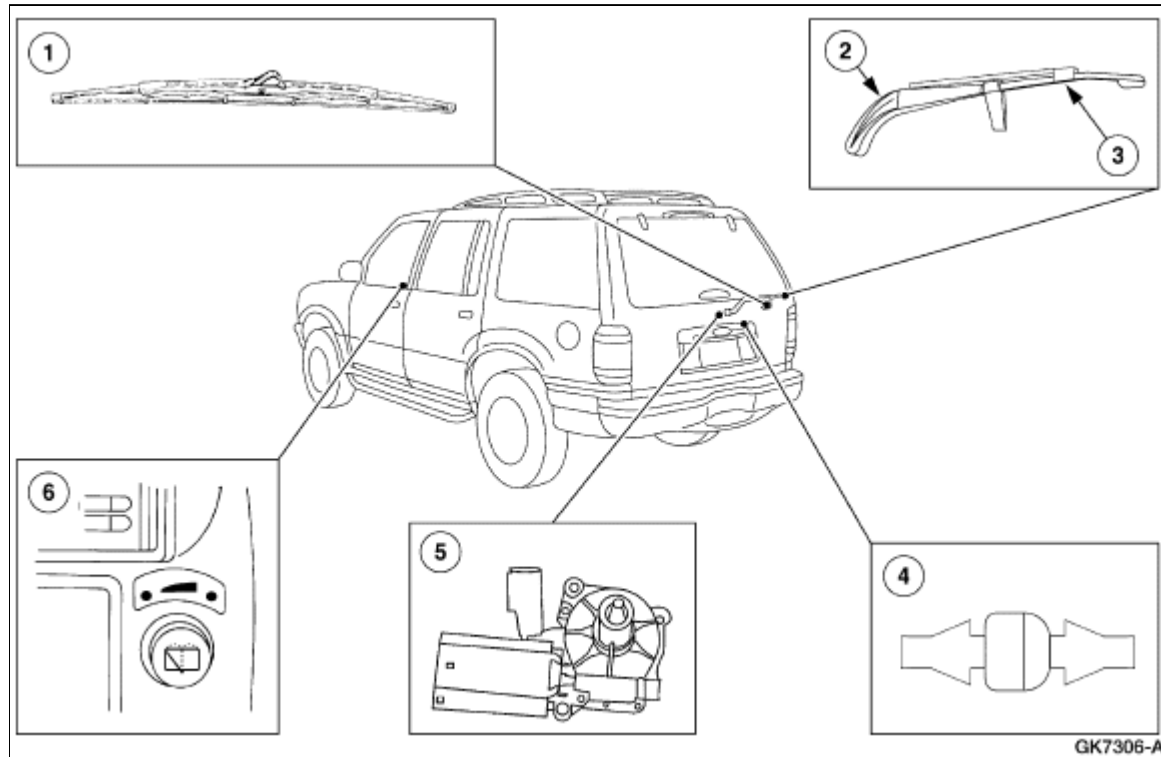
Wiper and Washer Systems



Item	Part Number	Description
1	17528	Windshield Wiper Blade
2	—	Windshield Wiper Pivot Arm
3	13K359	Multi-Function Switch
4	17504	Windshield Wiper Motor
5	17603	Windshield Washer Nozzle Jet and Bracket

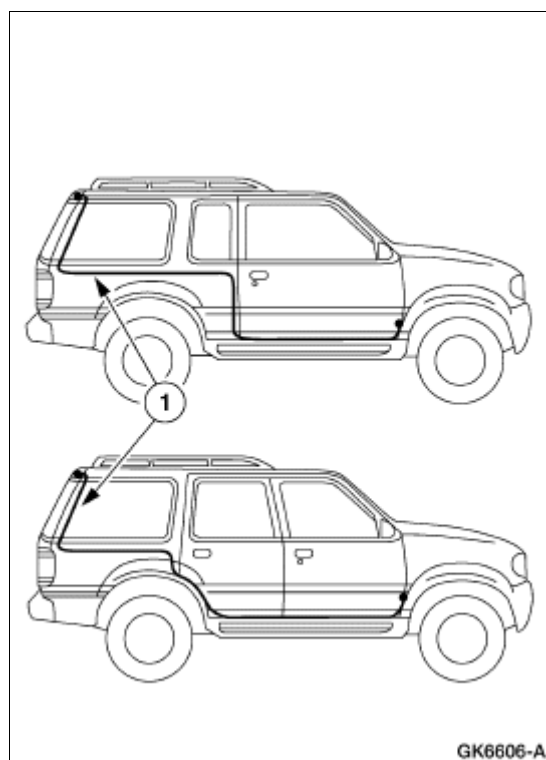
6	17664	Windshield Washer Pump
7	17618	Windshield Washer Reservoir
8	17B649	Windshield Washer Reservoir Fluid Level Sensor (If Equipped)

Rear Wiper and Washer System



Item	Part Number	Description
1	17528	Windshield Wiper Blade
2	17526	Windshield Wiper Pivot Arm
3	—	Rear Washer Nozzle
4	—	Check Valve
5	17508	Rear Wiper Motor
6	17A553	Rear Wiper Switch

Rear Washer Hose Location and Routing



Item	Part Number	Description
1	—	Rear Washer Hose

SECTION 501-16: Wipers and Washers
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Wipers and Washers —Front

The wiper system has four different operating modes: off mode, low speed mode, high speed mode, and interval mode.

In the off mode, there is no windshield wiper motor activity, and the windshield wiper motor is in the PARK position.

In the low speed mode, the windshield wiper motor is set to a low speed setting. The windshield wiper hi/lo relay is deactivated, while the windshield wiper run/park relay is activated.

In the high speed mode, the windshield wiper motor is set to a high speed setting. The windshield wiper hi/lo relay and the windshield wiper run/park relay are both activated.

In the interval mode, the windshield wiper motor is set to a low speed setting with the windshield wiper hi/lo relay deactivated. The windshield wiper run/park relay is activated at the beginning of each wipe and deactivated when the windshield wiper motor park switch reaches the RUN position.

The permanent magnet three-brush windshield wiper motor allows selection of either low or high speed, when selected the steering column mounted multi-function switch (13K359). When the multi-function switch is in the LOW position, the common brush and low speed brush are used. When the multi-function switch is in the HIGH position, current bypasses part of the armature winding to the high speed brush. When the multi-function switch is moved to the off position, the windshield wiper motor will continue to run at low speed until the windshield wipers (17500) park.

When the multi-function switch is in the interval (INT) position, the windshield wipers will make a single sweep followed by a pause. The control knob on the end of the multi-function switch adjusts the pause from approximately 1-20 seconds.

Vehicles equipped with a generic electronic module (GEM) are available with the speed-dependant interval wiper feature. During the interval mode, the delay between successive wipes will decrease with higher vehicle speed to compensate for increased water on the windshield glass. This feature will relieve the operator from constantly switching between interval settings.

Dwell Intervals for Each Switch State

Delay/Wash Switch State	Dwell Interval	
	0-10 MPH	65 MPH and Above
1 (Long)	18	18
2	16	5
3	13	4
4	10	3
5	7	2
6	4	1
7 (Short)	1	0

If the washer switch is pressed between 100 ms and 300 ms, with the mode switch in the OFF position, the wiper system will provide one low speed wipe with no wash.

To engage the windshield washer, push the knob of the multi-function switch toward the steering column (3C529). When the multi-function switch is in the OFF or INT position, the windshield wipers will run as long as the knob is depressed up to 10 seconds. When the knob is released, the washer will stop immediately, but the windshield wipers will continue to run for two to three sweeps, then return to their previous set operation. Washer engagement does not affect windshield wiper operation when the multi-function switch is in the LOW or HIGH position, but the washer will be deactivated if the knob is held greater than 10 seconds.

Feature inputs:

- Ignition switch RUN position: (battery potential on both RUN and RUN/ACC inputs).
- Ignition switch ACC position: (battery potential on RUN/ACC input only).
- Wiper switch position: (different resistance for each mode; see Wiper Switch Resistance Values table).
- Interval Delay/Wash switch position: (different resistance for each mode; See Interval Delay/Wash Switch Resistance Values table).
- Windshield wiper motor park switch: (ground for PARK position and battery potential for RUN position).

Feature outputs:

- Windshield wiper hi/lo relay control: (ground to activate and open circuit to deactivate.)
 - Windshield wiper run/park relay control: (ground to activate and open circuit to deactivate.)
 - Washer pump relay control: (ground to activate and open circuit to deactivate.)
-

SECTION 501-16: Wipers and Washers
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Wipers and Washers —Rear

The generic electronic module (GEM) allows operation of the rear wiper functions when the ignition switch is in the RUN or ACC position only. When the liftgate or liftgate glass is ajar (ground potential is present at the liftgate and/or liftgate glass ajar switch), the rear wiper is moved to the PARK position (if not in this position) and deactivated. The GEM controls the cycling of the rear wiper motor through two external relays (rear wiper up relay and rear wiper down relay).

There are four modes of operation: off mode, interval mode, low mode and wash mode.

In the off mode, there is no liftgate wiper motor activity and the liftgate wiper motor will be in the PARK position.

In the interval mode, there are two interval wiper settings to provide the following rear wiper dwell times:

Setting	Dwell
Interval 1	12 seconds
Interval 2	6 seconds

When the rear wiper mode/wash switch is placed in one of the intervals in the table, the GEM will activate one rear wipe cycle of the rear wiper motor. Once the wiper cycle has reached the LO position, after the initial wipe, the GEM will start a cyclical timing function with the dwell times specified in the table.

In the low mode, the liftgate wiper motor will cycle the rear motor continuously at a low speed setting.

In the wash mode, when the rear wiper wash switch is pressed and held for a time greater than 100 ms, the GEM will cycle the rear wiper motor three times.

NOTE: The GEM does not control the rear washer, only the wiper.

In the mist mode, the washer switch is pressed between 100 ms and 300 ms with the mode switch in the OFF position, the wiper system will provide one low speed wipe with no wash.

SECTION 501-16: Wipers and Washers
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Wipers and Washers —Rear Washer Hose

Fluid for the rear washer is supplied by a two-way washer pump located in the windshield washer fluid reservoir in the engine compartment.

The rear washer hose contains a check valve, which is located in the hose that passes through the liftgate in the rear of the vehicle. This check valve holds the entire line full of washer fluid between washer operation. There is also a stand pipe located along the right hand D-pillar of the vehicle. This stand pipe prevents the unintentional release of washer fluid from the rear washer nozzle. If the hose is cut or disconnected after the line was initially primed with fluid, and the washer system is turned on, the stand pipe may fill with fluid. To resolve this, once the hose is repaired, temporarily disconnect the check valve to allow fluid in stand pipe to drain to lowest point in the hose; then reinstall the check valve.

SECTION 501-16: Wipers and Washers
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop Manual

Wipers and Washers

Refer to Wiring Diagrams Cell [59](#), Generic Electronic Module for schematic and connector information.

Refer to Wiring Diagrams Cell [81](#), Interval Wiper/Washer for schematic and connector information.

Refer to Wiring Diagrams Cell [82](#), Liftgate Wiper/Washer for schematic and connector information.

Special Tool(s)

 ST1137-A	73 Digital Multimeter or equivalent 105-R0051
 ST2332-A	Worldwide Diagnostic System (WDS) 418-F224, New Generation STAR (NGS) Tester 418-F052, or equivalent scan tool
 ST1453-A	Alternator, Regulator, Battery and Starter Tester (ARBST) or equivalent 010-00725

Inspection and Verification

1. **NOTE:** The CTM must be reconfigured upon replacement. Refer to the scan tool help screen on the configuration card to program the tire size and axle ratio.

The wiper washer system is a generic electronic module (GEM)/central timer module (CTM) controlled system.

2. Verify the customer concern by operating the system in question.
3. Visually inspect for the following obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical

• Switch(es) • Wiper arms • Wiper mechanism	• BJB Fuses: ■ 1 (60A) ■ 8 (15A) • CJB Fuses: ■ 12 (7.5A) ■ 16 (30A) ■ 25 (7.5A) • Damaged wiring harness • Loose or corroded connections • Lamps • Circuitry

- If the concern remains after the inspection, connect scan tool to the data link connector (DLC) located beneath the instrument panel and select the vehicle to be tested from the scan tool menu. If the scan tool does not communicate with the vehicle:
 - check that the program card is properly installed.
 - check the connections to the vehicle.
 - check the ignition switch position.
- If the scan tool still does not communicate with the vehicle, refer to the scan tool manual.
- Perform the DATA LINK DIAGNOSTIC TEST. If the scan tool responds with:
 - CKT914, CKT915 or CKT70 = ALL ECUS NO RESP/NOT EQUIP, refer to [Section 418-00](#).
 - NO RESPONSE/NOT EQUIPPED for GEM/CTM, go to Pinpoint Test M.
 - SYSTEM PASSED, retrieve and record the continuous diagnostic trouble codes (DTCs), erase the continuous DTCs and perform front and rear wiper self-test diagnostics for the GEM/CTM.
- If the DTCs retrieved are related to the concern, go to GEM/CTM Diagnostic Trouble Code (DTC) Reference Chart to continue diagnostics.
- If no DTCs related to the concern are retrieved, proceed to Symptom Chart to continue diagnostics.

GEM/CTM Diagnostic Trouble Code (DTC) Index

GEM/CTM Diagnostic Trouble Code (DTC) Index

DTC	Description	DTC Caused By	Action
P0500	Vehicle Speed Signal Circuit Failure	GEM	GO to Pinpoint Test F .
B1302	Accessory Delay Relay Coil Circuit Failure	GEM	REFER to Section 501-11 .
B1304	Accessory Delay Relay Coil Circuit Short to Battery	GEM	REFER to Section 501-11 .
B1313	Battery Saver Relay Coil Circuit Failure	GEM/CTM	REFER to Section 417-02 .
B1315	Battery Saver Relay Coil Circuit Short to Battery	GEM/CTM	REFER to Section 417-02 .

B1317	Battery Voltage HIGH	GEM/CTM	REFER to Section 414-00 .
B1318	Battery Voltage LOW	GEM/CTM	REFER to Section 414-00 .
B1322	Door Ajar Driver Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1323	Door Ajar Lamp Circuit Failure	GEM/CTM	REFER to Section 413-01 .
B1325	Door Ajar Lamp Circuit Short to Battery	GEM/CTM	REFER to Section 413-01 .
B1330	Door Ajar RF Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1334	Decklid Ajar Rear Door Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1338	RR Door Ajar Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1340	Chime Input Request Circuit Short to Ground	GEM/CTM	REFER to Section 413-09 .
B1342	GEM/CTM is Defective	GEM/CTM	CLEAR the DTCs. RETRIEVE the DTCs. If DTC B1342 is retrieved, REPLACE the GEM/CTM; REFER to Section 419-10 . TEST the system for normal operation.
B1345	Heated Backlite Input Circuit Short to Ground	GEM	REFER to Section 501-11 .
B1347	Heated Backlite Relay Circuit Failure	GEM	REFER to Section 501-11 .
B1349	Heated Backlite Relay Circuit Short to Battery	GEM	REFER to Section 501-11 .
B1352	Ignition Key-In Circuit Failure	GEM/CTM	REFER to Section 413-09 .
B1355	Ignition RUN Circuit Failure	GEM/CTM	REFER to Section 211-05 , Symptom Chart.
B1359	Ignition RUN/ACC Circuit Failure	GEM/CTM	REFER to Section 211-05 , Symptom Chart.
B1371	Illuminated Entry Relay Circuit Failure	GEM/CTM	REFER to Section 417-02 .
B1373	Interior Lamp Relay Coil Circuit Short to Battery	GEM/CTM	REFER to Section 417-02 .
B1398	Power Window Driver One-Touch Window Relay Circuit Failure	GEM	REFER to Section 501-11 .
B1400	Power Window Driver One-Touch Window Relay Coil Circuit Short to Battery	GEM	REFER to Section 501-11 .
B1404	Power Window Driver Down Circuit Open	GEM	REFER to Section 501-11 .
B1405	Driver Power Window Down Circuit to Battery	GEM	REFER to Section 501-11 .

B1410	Power Window Driver Motor Circuit Failure	GEM	REFER to Section 501-11 .
B1426	Seat Belt Lamp Circuit Short to Battery	GEM/CTM	REFER to Section 413-01 .
B1428	Seat Belt Lamp Circuit Failure	GEM/CTM	REFER to Section 413-01 .
B1431	Wiper Brake/Run Relay — Circuit Failure	GEM/CTM	GO to Symptom Chart.
B1432	Wiper Brake/Run Relay Short to Battery	GEM/CTM	GO to Pinpoint Test A .
B1434	Wiper Hi/Lo Speed Relay — Circuit Failure	GEM/CTM	GO to Symptom Chart.
B1436	Wiper Hi/Lo Speed Relay Circuit Short to Battery	GEM/CTM	GO to Pinpoint Test C .
B1438	Wiper Mode Select Switch Circuit Failure	GEM/CTM	GO to Symptom Chart.
B1441	Wiper Mode Select Switch Input Short to Ground	GEM/CTM	GO to Symptom Chart.
B1446	Wiper Park Sense Circuit Failure	GEM/CTM	GO to Pinpoint Test D .
B1450	Wiper/Washer Interval Delay Switch Input Circuit Failure	GEM/CTM	GO to Symptom Chart.
B1453	Wiper/Washer Interval Delay Switch Input Short to Ground	GEM/CTM	GO to Symptom Chart.
B1458	Wiper/Washer Pump Motor Relay Circuit Failure	GEM/CTM	GO to Pinpoint Test E .
B1460	Wiper/Washer Pump Motor Relay Coil Short to Battery	GEM/CTM	GO to Pinpoint Test E .
B1462	Seat Belt Switch Circuit Failure	GEM/CTM	REFER to Section 413-09 .
B1466	Wiper Hi/Lo Speed Not Switching	GEM/CTM	GO to Symptom Chart.
B1467	Wiper Hi/Lo Speed Circuit Motor Short to Battery	GEM/CTM	GO to Symptom Chart.
B1473	Wiper Low Speed Circuit Motor Failure	GEM/CTM	GO to Symptom Chart.
B1475	Accessory Delayed Relay Contacts Short to Battery	GEM/CTM	REFER to Section 501-11 .
B1476	Wiper High Speed Circuit Motor Failure	GEM/CTM	GO to Symptom Chart.

B1483	Brake Pedal Input Circuit Failure	GEM	REFER to Section 308-07A .
B1485	Brake Pedal Input Short Circuit to Battery	GEM	REFER to Section 308-07A .
B1574	LR Door Ajar Circuit Short to Ground	GEM/CTM	REFER to Section 417-02 .
B1577	Lamp Park Input Short Circuit to Battery	GEM/CTM	REFER to Section 413-09 .
B1610	Illuminated Entry Input (From RAP Module) Circuit Short to Ground	GEM	REFER to Section 417-02 .
B1611	Wiper Rear Mode Select Switch Circuit Failure	GEM	GO to Symptom Chart.
B1614	Wiper Rear Mode Select Switch Circuit Short to Ground	GEM	GO to Symptom Chart.
B1814	Wiper Rear Motor Down Relay Circuit Failure	GEM	GO to Pinpoint Test K .
B1816	Wiper Rear Motor Down Relay Coil Circuit Short to Battery	GEM	GO to Pinpoint Test K .
B1818	Wiper Rear Motor Up Relay Coil Circuit Failure	GEM	GO to Symptom Chart.
B1820	Rear Wiper Motor Up Relay Circuit Short to Battery	GEM	GO to Pinpoint Test K .
B1833	Door Unlock Switch Circuit Short to Ground	GEM	REFER to Section 501-14B .
B1834	Door Unlock Disarm Output Circuit Failure	GEM	REFER to Section 501-14B .
B1836	Door Unlock Disarm Output Circuit Short to Battery	GEM	REFER to Section 501-14B .
B1839	Wiper Rear Motor Circuit Failure	GEM	GO to Pinpoint Test K .
B1840	Wiper Front Power Circuit Failure	GEM/CTM	GO to Pinpoint Test A .
B1894	Wiper Rear Motor Speed Sense Circuit Failure	GEM	GO to Pinpoint Test K .
B2105	Throttle Position Input (TPI) Signal Out of Range Low	GEM	REFER to Section 308-07A .
B2106	Throttle Position Input (TPI) Signal Out of Range High	GEM	REFER to Section 308-07A .

B2141	NVM Configuration Failure	GEM/CTM	Vehicle speed calibration data is not programmed into the GEM/CTM. REFER to the scan tool help screen on the configuration card to program the tire size ratio. TEST the system for normal operation. If DTC B2141 is still present, REPLACE the GEM/CTM. REFER to Section 419-10 . TEST the system for normal operation.
P1763	Transmission Neutral InTow Indicator Circuit Short to Battery	GEM	REFER to Section 413-09 .
P1764	Transmission Neutral InTow Indicator Circuit Fault	GEM	REFER to Section 413-09 .
P1804	4WD High Indicator Circuit Failure	GEM	REFER to Section 308-07A .
P1806	4WD High Indicator Short Circuit to Battery	GEM	REFER to Section 308-07A .
P1808	4WD Low Indicator Circuit Failure	GEM	REFER to Section 308-07A .
P1810	4WD Low Indicator Short Circuit to Battery	GEM	REFER to Section 308-07A .
P1812	4WD Mode Select Circuit Failure	GEM	REFER to Section 308-07A .
P1815	4WD Mode Select Short Circuit to Ground	GEM	REFER to Section 308-07A .
P1820	Transfer Case CW Shift Relay Coil Circuit Failure	GEM	REFER to Section 308-07A .
P1822	Transfer Case CW Shift Relay Coil Short to Power	GEM	REFER to Section 308-07A .
P1824	4WD Electric Clutch Relay Circuit Failure	GEM	REFER to Section 308-07A .
P1826	4WD LOW Clutch Relay Short to Battery	GEM	REFER to Section 308-07A .
P1828	Transfer Case CW Shift Relay Circuit Failure	GEM	REFER to Section 308-07A .
P1830	Transfer Case CCW Shift Relay Coil Short to Battery	GEM	REFER to Section 308-07A .
P1836	Transfer Case Front Shaft Speed Sensor Circuit Failure	GEM	REFER to Section 308-07A .
P1837	Transfer Case Rear Shaft Speed Sensor Circuit Failure	GEM	REFER to Section 308-07A .
P1838	Transfer Case Shift Motor Circuit Failure	GEM	REFER to Section 308-07A .
P1846	Transfer Case CONTACT PLATE "A"	GEM	REFER to Section 308-07A .

	Circuit Failure		
P1850	Transfer Case CONTACT PLATE "B" Circuit Failure	GEM	REFER to Section 308-07A .
P1854	Transfer Case CONTACT PLATE "C" Circuit Failure	GEM	REFER to Section 308-07A .
P1858	Transfer Case CONTACT PLATE "D" Circuit Failure	GEM	REFER to Section 308-07A .
P1866	Transfer Case System Concern	GEM	REFER to Section 308-07A .
P1867	Transfer Case Contact Plate General Circuit Failure	GEM	REFER to Section 308-07A .
P1874	Automatic Hall Effect Sensor Power Circuit Failure	GEM	REFER to Section 308-07A .
P1875	Automatic Hall Effect Sensor Power Circuit Short to Battery	GEM	REFER to Section 308-07A .
P1891	Transfer Case Contact Plate Ground Return Open Circuit	GEM	REFER to Section 308-07A .

GEM/CTM Parameter Identification (PID) Index

GEM/CTM Parameter Identification (PID) Index

PID	Description	Expected Values
VSS_GEM	Vehicle Speed Input	0 - 255 KPH
PARK_SW	External Access Ajar Switch Status	OFF, ON
D_DR_SW	Driver Door Ajar Switch Status	CLOSED, AJAR
DR_DSRM	Door Disarm Switch Status	L_Door, R_Door, LIFT_G, OFF
DR_UNLK	All Doors Unlock Output State	ON---, OFF---, ON-B-, OFFO-G
P_DR_SW	Passenger Door Ajar Switch Status	CLOSED, AJAR
IGN_KEY	Key-In-Ignition Status	IN, OUT
IGN_GEM	Ignition Switch Status	START, RUN, OFF, ACCY
BATSAV	Battery Saver Relay Circuit	ON---, OFF---, ON-B-, OFFO-G
VBATGEM	Battery Voltage	0.0 VDC - 14.3 VDC
LGATESW	Liftgate Ajar Switch Status	CLOSED - AJAR
LRDR_SW	Left Rear Door Ajar Switch Status	CLOSED - AJAR
RRDR_SW	Right Rear Door Ajar Switch Status	CLOSED - AJAR
INTLMP	Illuminated Entry Relay Circuit	ON---, OFF---, ON-B-, OFFO-G

CLTCHSW	Transmission Clutch Interlock Switch (GEM Only)	ENGAGED, NOT ENGAGED
NTRL_SW	Neutral Safety Switch Input (GEM Only)	NTRL, not NTRL
MTR_CCW	Transmission Transfer CCW Motor Output (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
MTR_CW	CW Shift Relay Coil Status (GEM Only)	OFF---, ON---, OFFO-G, ON-B-
4WD_SW	4WD Switch Status (GEM Only)	AUTO, 4WDLOW, 4WDHIGH
4WDELCL	4WD Electric Clutch	ON---, OFF---, ON-B-, OFFO-G
TRANSGR	Transmission Gear Status	REV, notREV
4WDCLCH	4WD Electronic Clutch Output Status (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
4WDLOW	4WD Low Indicator Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
4WDHIGH	4WD High Indicator Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
PLATE_A	Transfer Case Contact Plate Switch A (GEM Only)	OPEN, CLOSED
PLATE_B	Transfer Case Contact Plate Switch B (GEM Only)	OPEN, CLOSED
PLATE_C	Transfer Case Contact Plate Switch C (GEM Only)	OPEN, CLOSED
PLATE_D	Transfer Case Contact Plate Switch D (GEM Only)	OPEN, CLOSED
BOO_GEM	Brake Pedal Position (BPP) Switch Input (GEM Only)	ON, OFF
HALLPWR	Hall Effect Speed Sensor Power (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
4WDCLST	4WD Clutch PWM Output Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
TRA_RSP	Rear Shaft Speed (GEM Only)	0-255 mph
TRA_FSP	Front Shaft Speed (GEM Only)	0-225 mph
PLATEPW	Contact Plate Ground Output (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
PWR_RLY	ABS Active Input	ON, OFF
NTF	Neutral Tow Function (GEM Only)	ON, OFF
NTF_LMP	Neutral Tow Light (GEM Only)	ON, OFF
D_SBELT	Driver Seat Belt Status	OUT, IN
IPCHIME	External Chime Request	ON, OFF
SBLTMP	Seat Belt Indicator Status	OFF, ON, OFFO-G, ON-B-
DRAJR_L	Door Ajar Warning Lamp Circuit	OFF, ON
D_PWRLY	One Touch Down Relay Coil Circuit Status (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
D_PWAMP	Driver Power Window Regulator Electric Drive Current (GEM Only)	0.25 amp increments
D_PWPK	Driver Power Window Regulator Electric Drive Peak Current (GEM Only)	0.25 amp increments
ACCDLY	Accessory Delay Relay Coil Circuit (GEM Only)	ON---, OFF---, ON-B-, OFFO-G
RDEF_SW	Rear Defrost Control Switch Status	ON, OFF
RDEFRLY	Rear Window Defrost Relay Coil Circuit	ON---, OFF---, ON-B-, OFFO-G
WASHRLY	Washer Relay Status	ON---, OFF---, ON-B-, OFFO-G
WPPK_PK	Wiper Park-to-Park Time	0 - 65 Seconds

WPMODE	Wiper Control Mode Status	WASH, OPEN, INVLD, OFF, INTVL 1-7, LOW, HIGH
WPPRKS	Wiper Motor Status	PARKED, notPRK
WPRUN	Wiper Mode Run Relay	ON---, OFF---, ON-B-, OFFO-G
WPHISP	Windshield Wiper HI/LO Relay Status	ON---, OFF---, ON-B-, OFFO-G
WASH_SW	Washer Pump Relay Switch Status	OFF, ON, ON-B-, OFFO-G
R_WP_UP	Rear Wiper Up Relay Status (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
R_WP_DN	Rear Wiper Down Relay Status (GEM Only)	ON---, OFF---, OFFO-G, ON-B-
R_WP_SW	Rear Wiper Input Switch Status (GEM Only)	WPLOW, OFF, WPHIGH
R_WP_MD	Rear Wiper Mode Switch Status (GEM Only)	OFF, INTVL 1-2, LOW WASH
R_WP_PK	Rear Wiper Park Status (GEM Only)	PARKED, notPRK

GEM/CTM Active Command Index

GEM/CTM Active Command Index

Active Command	Display	Action
PID LATCH	PID LATCH	ON, OFF
FRONT WIPER	WIPER RLY	ON, OFF
FRONT WIPER	SPEED RLY	ON, OFF
FRONT WIPER	WASH RLY	ON, OFF
WARNING LAMPS AND CHIME	SBLT LAMP	ON, OFF
WARNING LAMPS AND CHIME	CHIME	ON, OFF
WARNING LAMPS AND CHIME	AJAR LAMP	ON, OFF
BATTERY SAVER	BATT SAVR	ON, OFF
INTERIOR COURTESY LAMPS	INT LAMPS	ON, OFF
ONE TOUCH DOWN AND ACCY DELAY (GEM Only)	ACCY RLY	ON, OFF
ONE TOUCH DOWN AND ACCY DELAY (GEM Only)	ONE TOUCH	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	CW/CCW	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	HIGH LAMP	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	LOW LAMP	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	PLATE PWR	ON, OFF
4-WHEEL ELECTRONIC SHIFT (GEM Only)	SHFT CLCH	ON, OFF
SHIFT CLUTCH CONTROL	CLUTCH SOL	ANALOG %
NEUTRAL IN TOW LAMP	NTFLAMP	ON, OFF
REAR WIPER (GEM Only)	UP RELAY	ON, OFF
REAR WIPER (GEM Only)	DWN RELAY	ON, OFF
HEATED BACKLIGHT	RLY CNTRL	ON, OFF
DOOR LOCK CONTROL	DD UNLOCK	ON, OFF

GEM/CTM Wiggle Test Diagnostic Trouble Code (DTC) Index**GEM/CTM Wiggle Test Diagnostic Trouble Code (DTC) Index**

DTC	Description	DTC Caused By
B1317	Battery Voltage HIGH	GEM/CTM
B1318	Battery Voltage Low	GEM/CTM
B1322	Driver Door Ajar Circuit Short to Ground	GEM/CTM
B1330	Passenger Door Ajar Short to Ground	GEM/CTM
B1352	Ignition Key-In Circuit Failure	GEM/CTM
B1410	Driver Power Window Motor Circuit Failure	GEM
B1438	Wiper Mode Select Switch Circuit Failure	GEM/CTM
B1441	Wiper Mode Select Switch Short to Ground	GEM/CTM
B1446	Wiper Park Sense Circuit Failure	GEM/CTM
B1450	Wiper/Wash Interval Delay Switch Input Circuit Failure	GEM/CTM
B1453	Wiper/Wash Interval Delay Switch Input Short to Ground	GEM/CTM
B1462	Seat Belt Switch Circuit Failure	GEM/CTM
B1577	Park Lamp Input Circuit Short to Battery	GEM/CTM
B1610	Illuminated Entry Input (From RAP Module) Circuit Short to Ground	GEM/CTM

Symptom Chart**Symptom Chart**

Condition	Possible Sources	Action
The Wipers Are Inoperative	- CJB Fuse 16 (30A). - Circuitry. - GEM/CTM. - Multi-function switch (13K359). - Wiper run/park relay. - Wiper HI/LO relay. - Wiper motor. - DTC B1431. - DTC B1432. - DTC B1438. - DTC B1450. - DTC B1840.	GO to Pinpoint Test A.
The Wipers Stay On Continuously	- Circuitry. - GEM/CTM. - Multi-function	GO to Pinpoint Test B.

	- switch. - Wiper run/park relay. - Wiper HI/LO relay. - Wiper motor. - DTC B1431. - DTC B1441. - DTC B1453. - DTC B1473. - DTC B1476.	
The High/Low Wiper Speeds Do Not Operate Properly	- Circuitry. - GEM/CTM. - Multi-function switch. - Wiper HI/LO relay. - Wiper motor. - DTC B1434. - DTC B1436. - DTC B1438. - DTC B1441. - DTC B1450. - DTC B1466. - DTC B1473. - DTC B1476.	GO to Pinpoint Test C.
The Intermittent Wiper Mode Does Not Operate Properly	- Circuitry. - GEM/CTM. - Multi-function switch. - Wiper motor. - DTC B1438. - DTC B1446. - DTC B1450. - DTC B1453.	GO to Pinpoint Test D.
The Windshield Washer Pump Is Inoperative	- Circuitry. - GEM/CTM. - Multi-function switch. - Washer pump relay. - Washer pump. - DTC B1450. - DTC B1453. - DTC B1458. - DTC B1460.	GO to Pinpoint Test E.
The Speed Dependent Interval Mode Does Not Operate Properly	- Circuitry. - GEM. 4WABS control module. - DTC P0500.	GO to Pinpoint Test F.
The Wipers Do Not Operate Properly — High Speed Wipers Only Operate	- Circuitry. - Multi-function switch. - Wiper HI/LO relay.	GO to Pinpoint Test G.

	• Wiper motor. • GEM/CTM. • DTC B1473. • DTC B1434. • DTC B1436. • DTC B1466. • DTC B1467.	
• The Wipers Stay On Continuously — Rear Wiper	• Circuitry. • GEM. • Rear wiper/washer switch. • DTC B1614.	• GO to Pinpoint Test H.
• The Washer Pump Is Inoperative — Rear Washer Pump	• Circuitry. • GEM. • Rear wiper/washer switch. • Washer pump.	• GO to Pinpoint Test J.
• The Wipers Are Inoperative — Rear Wiper	• Circuitry. • GEM. • Rear wiper down relay. • Rear wiper up relay. • Rear wiper motor. • Liftgate door ajar switch(es). • Liftgate wiper disable switch. • DTC B1334. • DTC B1611. • DTC B1814. • DTC B1816. • DTC B1820. • DTC B1839. • DTC B1894.	• GO to Pinpoint Test K.
• The Wipers Do Not Operate Properly — Rear Wiper	• Circuitry. • GEM. • Rear wiper/washer switch. • DTC B1611. • DTC B1614.	• GO to Pinpoint Test L.
• No Communication With the Module — GENERIC ELECTRONIC MODULE/CENTRAL TIMER MODULE	• BJB Fuse 1 (50A) • CJB Fuse 25 (7.5A) • Circuitry. • GEM/CTM.	• GO to Pinpoint Test M.

Pinpoint Tests



CAUTION: Before removing and installing the GEM/CTM or its connectors, disconnect the

battery. Failure to follow this caution will result in GEM/CTM storing many erroneous DTCs and it may exhibit erratic operation after installation.



CAUTION: Be careful when probing the battery junction box (BJB), central junction box (CJB) or any connectors. Damage will result to the connector receptacle if the probe or terminal being used is too large.



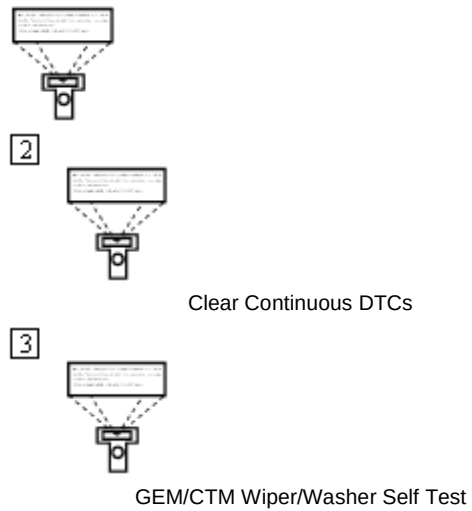
CAUTION: Electronic modules are sensitive to electrical charges. If exposed to these charges, damage may result.

NOTE: If continuous DTCs are recorded and the symptom is not present when performing the pinpoint tests, an intermittent concern may be the cause. Always check for loose connections and corroded terminals.

NOTE: Complete the entire pinpoint test related to the symptom before replacing the GEM/CTM.

PINPOINT TEST A: THE WIPERS ARE INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
A1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID IGN_GEM	
1  2  3  Scan Tool	3 NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start. Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions. • Do the PID values agree with the ignition switch positions? → Yes GO to A2. → No REFER to Section 417-02.
A2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)	
1	1 Retrieve and document continuous DTCs.



- Are any DTCs recorded?

→ Yes

If DTC B1431, GO to [A4](#).

If DTC B1432, GO to [A4](#).

If DTC B1438, GO to [A11](#).

If DTC B1450, GO to [A11](#).

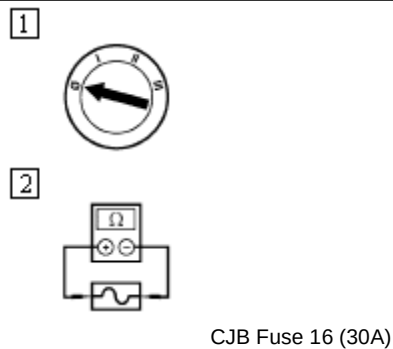
If DTC B1840, GO to [A11](#).

If DTC B1342, REPLACE the GEM/CTM;
REFER to [Section 419-10](#). CLEAR the DTCs.
TEST the system for normal operation.

→ No

GO to [A3](#).

A3 CHECK CJB FUSE 16 (30A)



- Is the fuse OK?

→ Yes

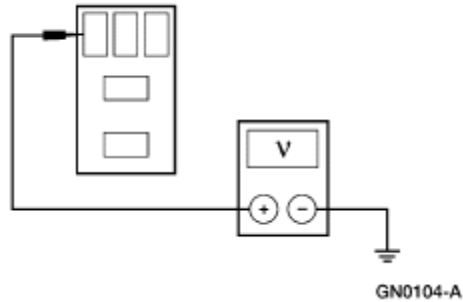
GO to [A4](#).

	→ No REPLACE the fuse. CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.
A4 CHECK THE WIPER RUN RELAY COIL CIRCUIT — MONITOR THE GEM/CTM PID WPRUN	
1  2 	2 Monitor the GEM/CTM PID WPRUN while triggering the GEM/CTM active command WIPER RLY. • Does the GEM/CTM PID WPRUN value agree with the command mode? → Yes If the GEM/CTM PID WPRUN displays ON--- and OFF---, GO to A11. → No If the GEM/CTM PID WPRUN displays OFFO-G, GO to A7. If the GEM/CTM PID WPRUN displays ON-B-, GO to A5.
A5 CHECK THE WIPER RUN RELAY	
1 	2 Check the wiper run relay; refer to Wiring Diagrams cell 149 . • Is the wiper run relay OK? → Yes GO to A6. → No REPLACE the wiper run relay. CLEAR the DTCs. TEST the system for normal operation.
A6 CHECK CIRCUIT 646 (Y/W) FOR SHORT TO POWER	
1	

GEM/CTM C280 2 Wiper Run Relay 3 4 GN0110-A	4 Measure the voltage between wiper run relay connector pin 1, circuit 646 (Y/W), and ground. • Is any voltage indicated? → Yes REPAIR circuit 646 (Y/W). CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the GEM/CTM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation.
A7 CHECK THE VOLTAGE TO THE WIPER RUN RELAY — CIRCUIT 63 (R)	
1 2 Wiper Run Relay 3	



4



4

Measure the voltage between wiper run relay connector pin 2, circuit 63 (R), and ground.

- Is the voltage greater than 10 volts?

→ Yes

RECONNECT the wiper run relay, GO to [A8](#).

→ No

REPAIR circuit 63 (R). CLEAR the DTCs. TEST the system for normal operation.

A8 CHECK CIRCUIT 646 (Y/W) FOR SHORT TO GROUND

1

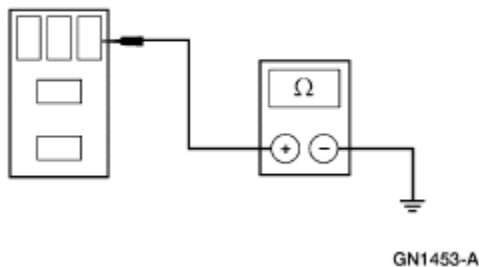


2



GEM C280

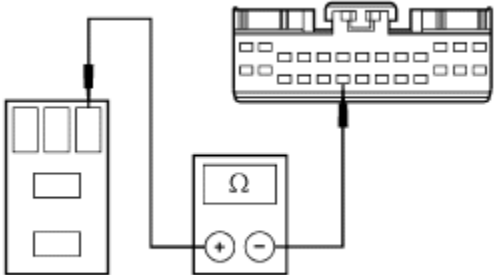
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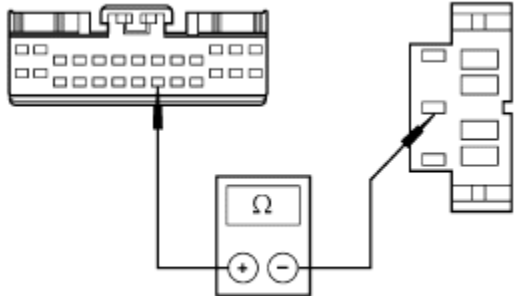


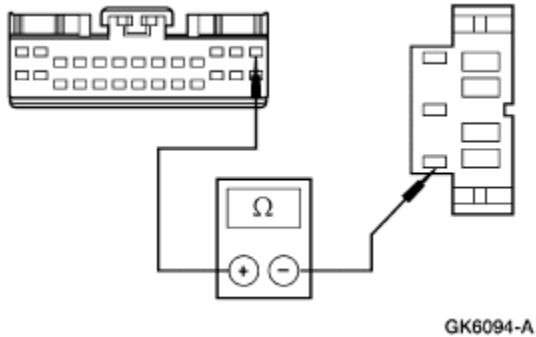
3

Measure the resistance between wiper run relay connector pin 1, circuit 646 (Y/W), and ground.

- Is the resistance greater than 10,000 ohms?

	→ Yes GO to A9. → No REPAIR circuit 646 (Y/W). CLEAR the DTCs. TEST the system for normal operation.
A9 CHECK THE WIPER RUN RELAY	
	1 Check the wiper run relay; refer to Wiring Diagrams cell 149. • Is the wiper run relay OK? → Yes GO to A10. → No REPLACE the wiper run relay. CLEAR the DTCs. TEST the system for normal operation.
A10 CHECK CIRCUIT 646 (Y/W) FOR OPEN	
1  GK9889-A	1 Measure the resistance between wiper run relay connector pin 1, circuit 646 (Y/W), and GEM/CTM C280-19, circuit 646 (Y/W). • Is the resistance less than 5 ohms? → Yes REPLACE the GEM/CTM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 646 (Y/W). CLEAR the DTCs. TEST the system for normal operation.
A11 CHECK THE WIPER SWITCH OUTPUTS — MONITOR THE GEM/CTM PID WPMODE	
1 	1 Monitor the GEM/CTM PID WPMODE while turning the wiper switch through all the switch positions. • Do the GEM/CTM PID WPMODE values agree with the wiper switch position?

	→ Yes GO to A16. → No GO to A12.
A12 CHECK THE MULTI-FUNCTION SWITCH	
1 	2 Check the multi-function switch; refer to Wiring Diagrams cell 149. • Is the multi-function switch OK? → Yes GO to A13. → No REPLACE the multi-function switch; REFER to Section 211-05. CLEAR the DTCs. TEST the system for normal operation.
A13 CHECK CIRCUIT 359 (GY/R) FOR OPEN	
1  GEM/CTM C280 2  GK6093-A	2 Measure the resistance between multi-function switch C210-993, circuit 359 (GY/R), and GEM/CTM C280-21, circuit 359 (GY/R). • Is the resistance less than 5 ohms? → Yes GO to A14. → No REPAIR circuit 359 (GY/R). CLEAR the DTCs. TEST the system for normal operation.

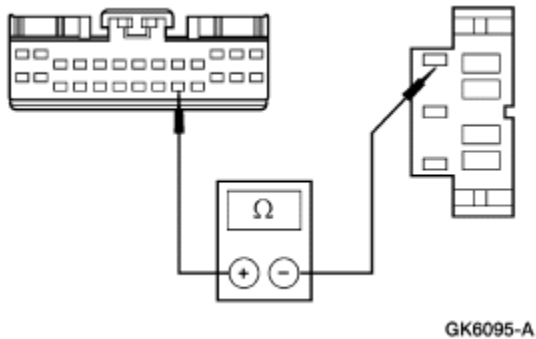
A14 CHECK CIRCUIT 680 (LB/O) FOR OPEN**1****1**

Measure the resistance between multi-function switch C210-590, circuit 680 (LB/O), and GEM/CTM C280-13, circuit 680 (LB/O).

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [A15](#).

→ **No**
REPAIR circuit 680 (LB/O). CLEAR the DTCs. TEST the system for normal operation.

A15 CHECK CIRCUIT 684 (PK/Y) FOR OPEN**1****1**

Measure the resistance between multi-function switch C210-685, circuit 684 (PK/Y), and GEM/CTM C280-22, circuit 684 (PK/Y).

- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 684 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

A16 CHECK THE VOLTAGE TO THE SWITCH SIDE OF THE WIPER RUN RELAY — CIRCUIT 63 (R)**1**



2

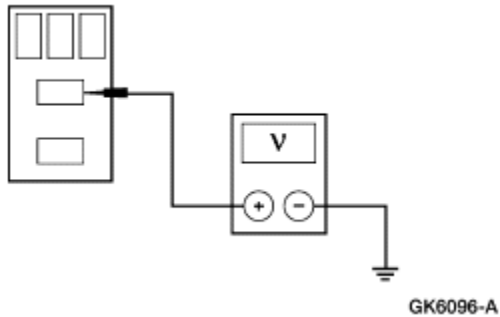


Wiper Run Relay

3



4



- 4 Measure the voltage between wiper run relay connector pin 5, circuit 63 (R), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
RECONNECT the wiper run relay; GO to [A17](#).

→ **No**
REPAIR circuit 63 (R). CLEAR the DTCs.
TEST the system for normal operation.

A17 CHECK THE WIPER HI/LO RELAY SWITCH

1



2

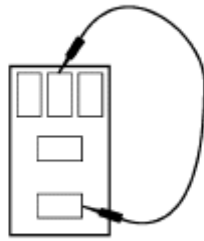


Wiper HI/LO Relay

3



4



GK4344-A

- 4 Connect a jumper wire between wiper HI/LO relay connector pin 3, circuit 28 (BK/PK), and wiper HI/LO relay connector pin 4, circuit 58 (W), while turning the wiper switch through all switch positions.

• Do the wipers operate?

→ **Yes**
REPLACE the wiper HI/LO relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**
GO to [A18](#).

A18 CHECK THE GROUND TO THE WIPER MOTOR — CIRCUIT 57 (BK)

1

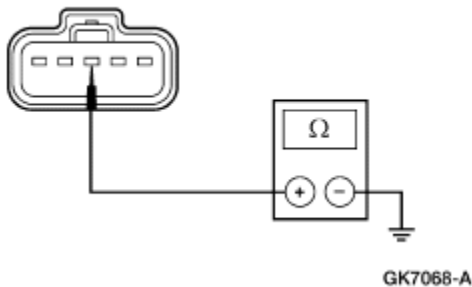


2



Wiper Motor C145

3



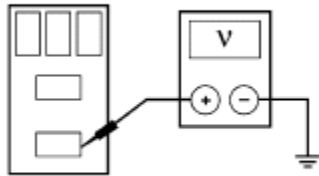
GK7068-A

- 3 Measure the resistance between wiper motor C145-3, circuit 57 (BK), and ground.

• Is the resistance less than 5 ohms?

→ **Yes**
GO to [A19](#).

→ **No**
REPAIR circuit 57 (BK). CLEAR the DTCs. TEST the system for normal operation.

A19 CHECK THE WIPER RUN RELAY SWITCH CIRCUIT**1****2****3****4**

GK0902-A

3

Trigger the GEM/CTM active command WIPER RLY to ON.

4

Measure the voltage between wiper HI/LO relay connector pin 3, circuit 28 (BK/PK), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

GO to [A20](#).

→ **No**

REPAIR circuit 28 (BK/PK). CLEAR the DTCs. TEST the system for normal operation.

A20 CHECK THE WIPER MECHANISM**1**

Remove the linkage from the wiper motor.

- Are the wipers free?

→ **Yes**

CHECK the wiper motor by performing the Wiper Motor Current Draw Test; REFER to Component Test. If the wiper motor does not pass the test, REPLACE the wiper motor; REFER to [Motor—Windshield Wiper](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR the wiper mechanism. CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST B: THE WIPERS STAY ON CONTINUOUSLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
B1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID IGN_GEM	
1  2  Scan Tool 3 	3 NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start. Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions. • Do the PID values agree with the ignition switch positions? → Yes GO to B2. → No REFER to Section 417-02.
B2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)	
1  2  Clear Continuous DTCs 3 	1 Retrieve and document continuous DTCs.

GEM/CTM Wiper/Washer Self Test

- Are any DTCs recorded?

→ **Yes**

If DTC B1431, GO to [B7](#).

If DTC B1441, GO to [B3](#).

If DTC B1453, GO to [B3](#).

If DTC B1473, GO to [B10](#).

If DTC B1476, GO to [B10](#).

If DTC B1342, REPLACE the GEM/CTM;
REFER to [Section 419-10](#). CLEAR the DTCs.
TEST the system for normal operation.

→ **No**

GO to [B3](#).

B3 CHECK THE WIPER SWITCH OUTPUTS — MONITOR THE GEM/CTM PID WPMODE

1



2



2

Monitor the GEM/CTM PID WPMODE while turning the wiper switch through all the switch positions.

- Does the GEM/CTM PID WPMODE agree with the wiper switch positions?

→ **Yes**

GO to [B7](#).

→ **No**

GO to [B4](#).

B4 CHECK THE WIPER SWITCH

1



2



Multi-Function Switch C210

3 Check the multi-function switch; refer to Wiring Diagrams cell 149.

- Is the wiper switch OK?

→ **Yes**
GO to [B5](#).

→ **No**
REPLACE the multi-function switch; REFER to [Section 211-05](#). CLEAR the DTCs. TEST the system for normal operation.

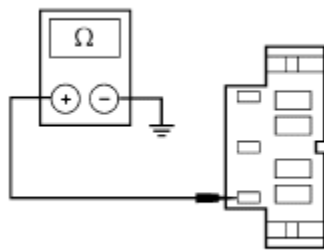
B5 CHECK CIRCUIT 680 (LB/O) FOR SHORT TO GROUND

1



GEM/CTM C280

2



GK0913-A

2 Measure the resistance between multi-function switch C210-590, circuit 680 (LB/O), and ground.

- Is the resistance greater than 10,000 ohms?

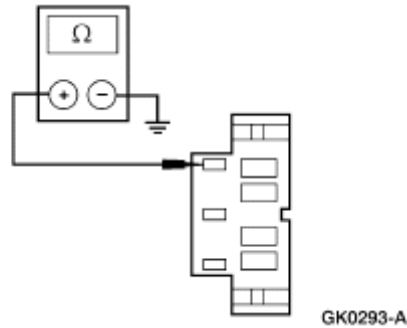
→ **Yes**
GO to [B6](#).

→ **No**
REPAIR circuit 680 (LB/O). CLEAR the DTCs. TEST the system for normal operation.

B6 CHECK CIRCUIT 684 (PK/Y) FOR SHORT TO GROUND

1

1 Measure the resistance between multi-function switch C210-685, circuit 684 (PK/Y), and ground.



- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 684 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

B7 CHECK THE WIPER RUN RELAY COIL CIRCUIT — MONITOR THE GEM/CTM PID WPRUN

1



2



2

Monitor the GEM/CTM PID WPRUN while triggering the GEM/CTM active command WIPER RLY.

- Does the GEM/CTM PID WPRUN agree with the active command mode?

→ **Yes**

If the GEM/CTM PID WPRUN displays ON--- and OFF---, GO to [B10](#).

→ **No**

If the GEM/CTM PID WPRUN displays OFFO-G, GO to [B8](#).

B8 CHECK THE WIPER RUN RELAY

1



2



Wiper Run Relay

3 Check the wiper run relay; refer to Wiring Diagrams cell 149.

- Is the wiper run relay OK?

→ **Yes**
GO to [B9](#).

→ **No**
REPLACE wiper run relay. CLEAR the DTCs. TEST the system for normal operation.

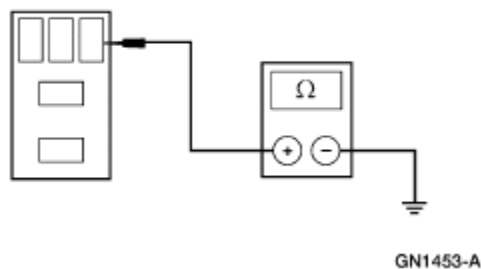
B9 CHECK CIRCUIT 646 (Y/W) FOR SHORT TO GROUND

1



GEM/CTM C280

2



2 Measure the resistance between wiper run relay connector pin 1, circuit 646 (Y/W), and ground.

- Is the resistance greater than 10,000 ohms?

→ **Yes**
REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 646 (Y/W). CLEAR the DTCs. TEST the system for normal operation.

B10 CHECK THE WINDSHIELD WIPER RUN RELAY SWITCH CIRCUIT

1



2



Wiper Run Relay

- Do the wipers stop operating?

→ **Yes**

REPLACE the wiper run relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [B11](#).

B11 CHECK CIRCUIT 56 (DB/O) FOR SHORT TO POWER

1



2



Wiper HI/LO Relay

3

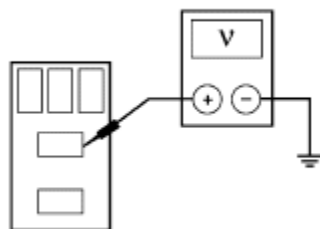


Wiper Motor C145

4



5



5

Measure the voltage between wiper HI/LO relay connector pin 5, circuit 56 (DB/O), and ground.

- Is any voltage indicated?

→ **Yes**

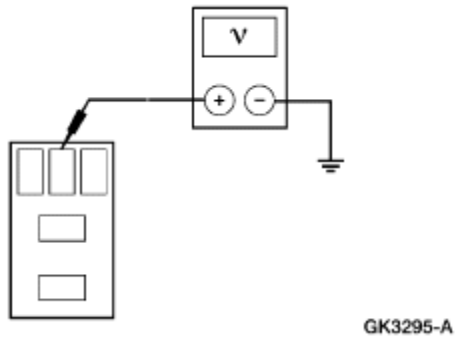
REPAIR circuit 56 (DB/O). CLEAR the DTCs.
TEST the system for normal operation.

→ **No**

GO to [B12](#).

B12 CHECK CIRCUIT 58 (W) FOR SHORT TO POWER

1



1

Measure the voltage between wiper HI/LO relay connector pin 4, circuit 58 (W), and ground.

- Is any voltage indicated?

→ **Yes**

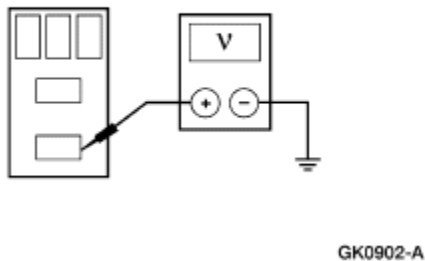
REPAIR circuit 58 (W). CLEAR the DTCs.
TEST the system for normal operation.

→ **No**

GO to [B13](#).

B13 CHECK CIRCUIT 28 (BK/PK) FOR SHORT TO POWER

1



1

Measure the voltage between wiper HI/LO relay connector pin 3, circuit 28 (BK/PK), and ground.

- Is any voltage indicated?

→ **Yes**

REPAIR circuit 28 (BK/PK). CLEAR the DTCs.
TEST the system for normal operation.

→ **No**

REPLACE the wiper motor; REFER to [Motor—Windshield Wiper](#). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST C: THE HIGH/LOW WIPER SPEEDS DO NOT OPERATE PROPERLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
C1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID IGN_GEM	
1  2  Scan Tool 3 	3 NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start. Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions. • Do the PID values agree with the ignition switch positions? → Yes GO to C2. → No REFER to Section 417-02.
C2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)	
1  2  Clear Continuous DTCs 3	1 Retrieve and document continuous DTCs.



GEM/CTM Wiper/Washer Self-Test

- Are any DTCs recorded?

→ Yes

If DTC B1434, GO to [C9](#).If DTC B1436, GO to [C9](#).If DTC B1438, GO to [C3](#).If DTC B1441, GO to [C3](#).If DTC B1450, GO to [C3](#).If DTC B1466, GO to [C3](#).If DTC B1473, GO to [C3](#).If DTC B1476, GO to [C3](#).

If DTC B1342, REPLACE the GEM/CTM;
REFER to [Section 419-10](#). CLEAR the DTCs.
TEST the system for normal operation.

→ No

GO to [C3](#).**C3 CHECK THE WIPER SWITCH OUTPUTS — MONITOR THE GEM/CTM PID WPMODE**

1



1

Monitor the GEM/CTM PID WPMODE while
turning the wiper switch through all switch
positions.

- Does the GEM/CTM PID WPMODE value agree with the wiper switch position?

→ Yes

GO to [C9](#).

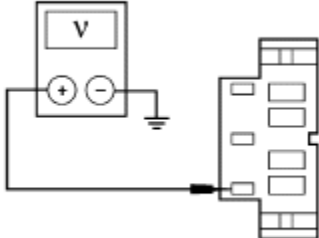
→ No

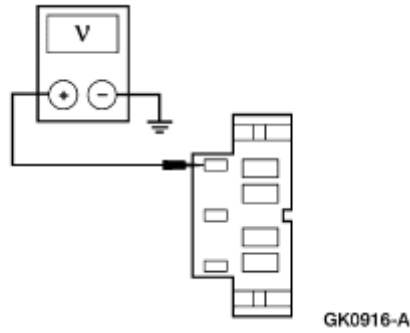
GO to [C4](#).**C4 CHECK THE WIPER SWITCH**

1



Multi-Function Switch

	2 Check the multi-function switch; refer to Wiring Diagrams cell 149. • Is the multi-function switch OK? → Yes GO to C5. → No REPLACE the multi-function switch; REFER to Section 211-05. CLEAR the DTCs. TEST the system for normal operation.
C5 CHECK CIRCUIT 680 (LB/O) FOR SHORT TO POWER	
1  GEM/CTM C280 2  3  GK0314-A	3 Measure the voltage between multi-function switch C210-590, circuit 680 (LB/O), and ground. • Is any voltage indicated? → Yes REPAIR circuit 680 (LB/O). CLEAR the DTCs. TEST the system for normal operation. → No GO to C6.
C6 CHECK CIRCUIT 684 (PK/Y) FOR SHORT TO POWER	
1	1 Measure the voltage between multi-function switch C210-685, circuit 684 (PK/Y), and ground.

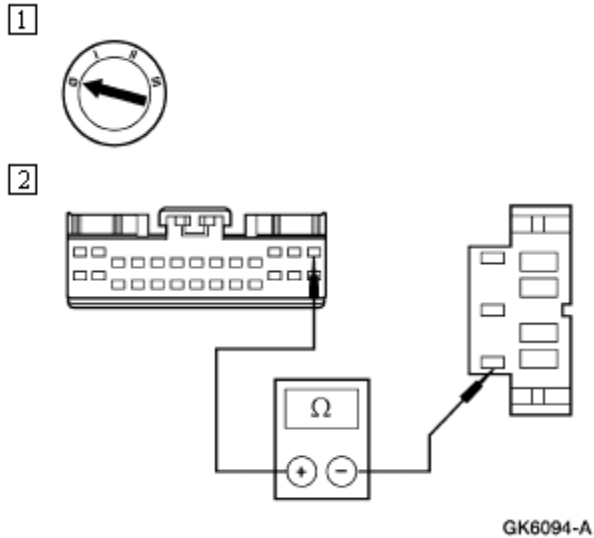


- Is any voltage indicated?

→ **Yes**
REPAIR circuit 684 (PK/Y). CLEAR the DTCs.
TEST the system for normal operation.

→ **No**
GO to [C7](#).

C7 CHECK CIRCUIT 680 (LB/O) FOR OPEN



- 2 Measure the resistance between multi-function switch C210-590, circuit 680 (LB/O), and GEM C280-13, circuit 680 (LB/O).

- Is the resistance less than 5 ohms?

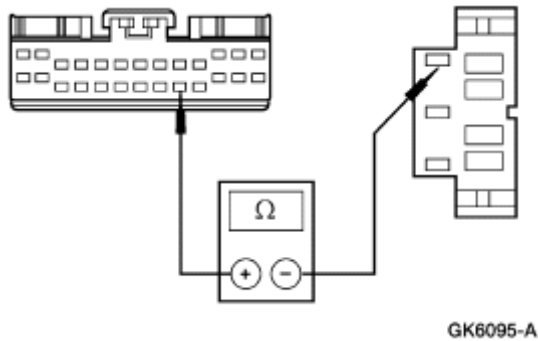
→ **Yes**
GO to [C8](#).

→ **No**
REPAIR circuit 680 (LB/O). CLEAR the DTCs.
TEST the system for normal operation.

C8 CHECK CIRCUIT 684 (PK/Y) FOR OPEN



- 1 Measure the resistance between multi-function switch C210-685, circuit 684 (PK/Y), and GEM C280-22, circuit 684 (PK/Y).



- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 684 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

C9 CHECK THE WIPER HI/LO RELAY COIL CIRCUIT — MONITOR THE GEM/CTM PID WPHISP



- 1 Monitor the GEM/CTM PID WPHISP while triggering the GEM/CTM active command SPEED RLY.

- Does the GEM/CTM PID WPHISP value agree with the active command?

→ **Yes**

If the GEM/CTM PID WPHISP displays ON--- and OFF---, GO to [C16](#).

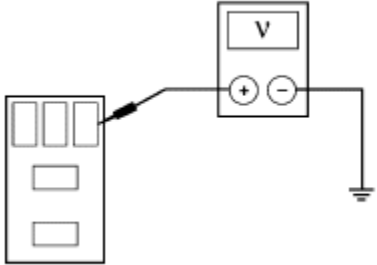
→ **No**

If the GEM/CTM PID WPHISP displays OFFO-G, GO to [C12](#).

If the GEM/CTM PID WPHISP displays ON-B-, GO to [C10](#).

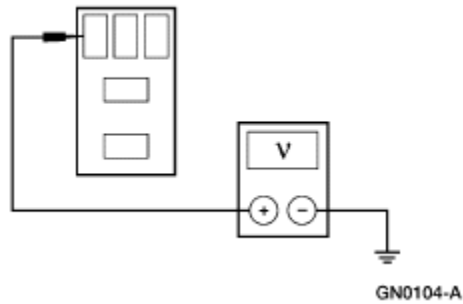
C10 CHECK CIRCUIT 647 (GY/LB) FOR SHORT TO POWER



Wiper HI/LO Relay 3  GEM/CTM C280 4  5  GN0110-A	5 Measure the voltage between wiper HI/LO relay connector pin 1, circuit 647 (GY/LB), and ground. • Is any voltage indicated? → Yes REPAIR circuit 647 (GY/LB). CLEAR the DTCs. TEST the system for normal operation. → No GO to C11.
C11 CHECK THE WIPER HI/LO RELAY	
1 	2 Check the wiper HI/LO relay; refer to Wiring Diagrams cell 149. • Is the wiper HI/LO relay OK? → Yes REPLACE the GEM/CTM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the wiper HI/LO relay. CLEAR the DTCs. TEST the system for normal operation.

C12 CHECK THE VOLTAGE TO THE WIPER HI/LO RELAY — CIRCUIT 63 (R)**1****2**

Wiper HI/LO Relay

3**4****4**

Measure the voltage between wiper HI/LO relay connector pin 2, circuit 63 (R), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**GO to [C13](#).→ **No**

REPAIR circuit 63 (R). CLEAR the DTCs. TEST the system for normal operation.

C13 CHECK THE WIPER HI/LO RELAY**1****2**

Check the wiper HI/LO relay; refer to Wiring Diagrams cell 149.

- Is the wiper HI/LO relay OK?

→ **Yes**GO to [C14](#).

→ **No**
REPLACE the wiper HI/LO relay. CLEAR the DTCs. TEST the system for normal operation.

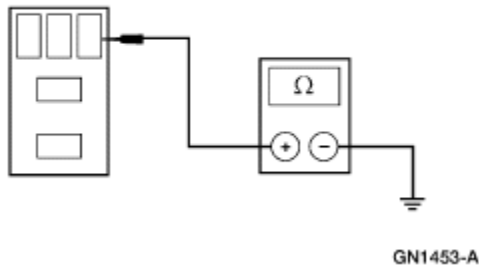
C14 CHECK CIRCUIT 647 (GY/LB) FOR SHORT TO GROUND

1



GEM/CTM C280

2



2 Measure the resistance between wiper HI/LO relay connector pin 1, circuit 647 (GY/LB), and ground.

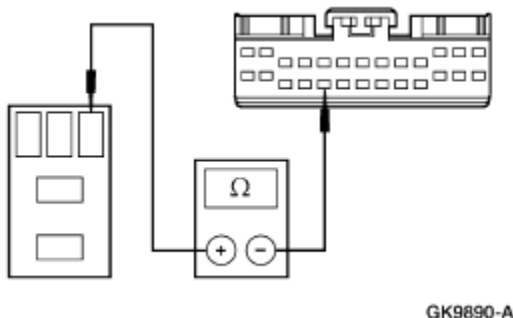
- Is the resistance greater than 10,000 ohms?

→ **Yes**
GO to [C15](#).

→ **No**
REPAIR circuit 647 (GY/LB). CLEAR the DTCs. TEST the system for normal operation.

C15 CHECK CIRCUIT 647 (GY/LB) FOR OPEN

1



1 Measure the resistance between GEM/CTM C280-18, circuit 647 (GY/LB), and wiper HI/LO relay connector pin 1, circuit 647 (GY/LB).

- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 647 (GY/LB). CLEAR the
DTCs. TEST the system for normal operation.

C16 CHECK THE WIPER HI/LO RELAY SWITCH CIRCUIT

1



2

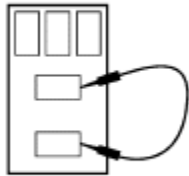


Wiper HI/LO Relay

3



4



GK0919-A

5



GK0918-A

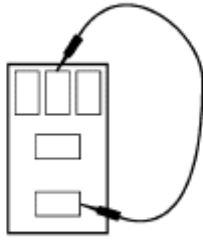
7

4 Connect a jumper wire between wiper HI/LO relay connector pin 3, circuit 28 (BK/PK), and wiper HI/LO relay connector pin 5, circuit 56 (DB/O).

5 Turn the wiper switch to the high position.

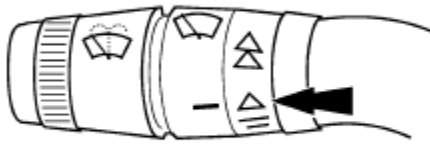
6 Remove the jumper wire.

7 Connect a jumper wire between wiper HI/LO relay connector pin 3, circuit 28 (BK/PK), and wiper HI/LO relay connector pin 4, circuit 58 (W).



GK4344-A

8



GK0920-A

8

Turn the wiper switch to the low position.

- Do the wipers operate at the correct speeds?

→ **Yes**

REPLACE the wiper HI/LO relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REMOVE the jumper wire, GO to [C17](#).

If the wipers do not operate at high speed and DTC B1476 is indicated, GO to [C17](#).

C17 CHECK CIRCUIT 56 (DB/O) FOR OPEN

1



2

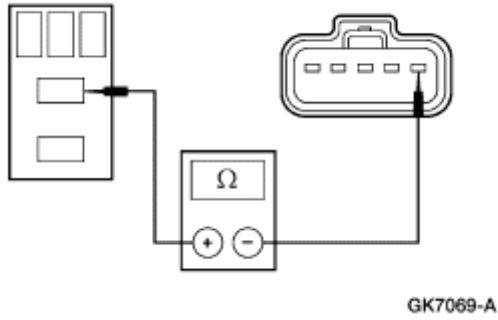


Wiper Motor C145

3

3

Measure the resistance between wiper HI/LO relay connector pin 5, circuit 56 (DB/O), and wiper motor C145-5, circuit 56 (DB/O).



- Is the resistance less than 5 ohms?

→ **Yes**

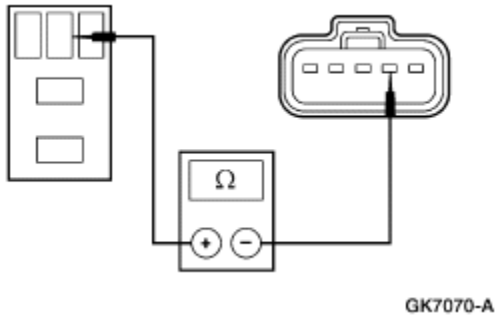
GO to [C18](#).

→ **No**

REPAIR circuit 56 (DB/O). CLEAR the DTCs. TEST the system for normal operation.

C18 CHECK CIRCUIT 58 (W) FOR OPEN

1



1

Measure the resistance between wiper HI/LO relay connector pin 4, circuit 58 (W), and wiper motor C145-4, circuit 58 (W).

- Is the resistance less than 5 ohms?

→ **Yes**

CHECK the wiper motor. REFER to Component Test. REPLACE the wiper motor if it does not pass the test; REFER to [Motor—Windshield Wiper](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 58 (W). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST D: THE INTERMITTENT WIPER SPEED DOES NOT OPERATE PROPERLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
D1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID IGN_GEM	

1



2



Scan Tool

3



3

NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start.

Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions.

- Do the PID values agree with the ignition switch positions?

→ Yes

GO to [D2](#).

→ No

REFER to [Section 417-02](#).

D2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)

1



2



Clear Continuous DTCs

3



GEM/CTM Wiper/Washer Self-Test

1

Retrieve and document continuous DTCs.

- Are any DTCs recorded?

→ Yes

If DTC B1438, GO to [D3](#).If DTC B1446, GO to [D9](#).

	If DTC B1450, GO to D3. If DTC B1453, GO to D3. If DTC B1342, REPLACE the GEM/CTM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No GO to D3.
D3 CHECK THE WIPER SWITCH OUTPUTS — MONITOR THE GEM/CTM PID WPMODE	
1  2 	2 Monitor the GEM/CTM PID WPMODE while turning the wiper switch through all the switch positions. • Does the GEM/CTM PID WPMODE agree with all the wiper switch positions? → Yes GO to D9. → No GO to D4.
D4 CHECK THE WIPER SWITCH	
1  2  Multi-Function Switch	3 Check the multi-function switch; REFER to Section 211-05. • Is the multi-function switch OK? → Yes GO to D5. → No REPLACE the multi-function switch; REFER to

[Section 211-05](#). CLEAR the DTCs. TEST the system for normal operation.

D5 CHECK CIRCUIT 680 (LB/O) FOR SHORT TO POWER

1

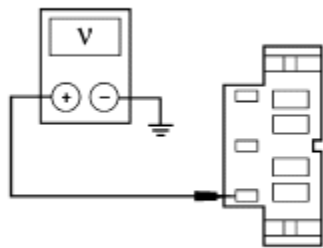


GEM C280

2



3



GK0314-A

3 Measure the voltage between multi-function switch C210-590, circuit 680 (LB/O), and ground.

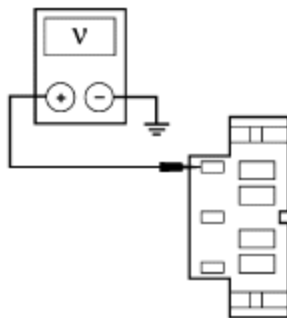
• Is any voltage indicated?

→ **Yes**
REPAIR circuit 680 (LB/O). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
GO to [D6](#).

D6 CHECK CIRCUIT 684 (PK/Y) FOR SHORT TO POWER

1



GK0916-A

1 Measure the voltage between multi-function switch C210-685, circuit 684 (PK/Y), and ground.

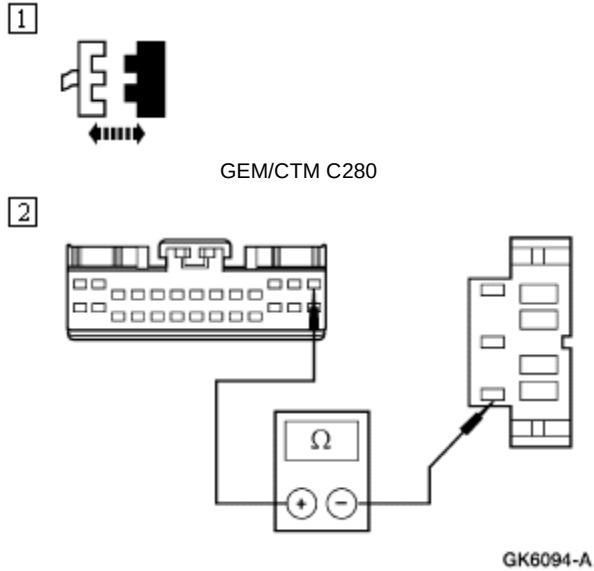
• Is any voltage indicated?

→ **Yes**

REPAIR circuit 684 (PK/Y). CLEAR the DTCs.
TEST the system for normal operation.

→ **No**
GO to [D7](#).

D7 CHECK CIRCUIT 680 (LB/O) FOR OPEN



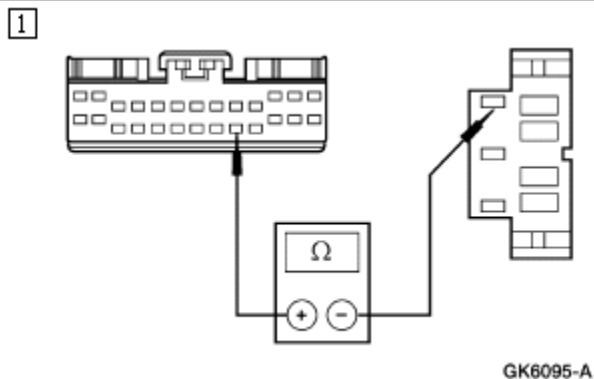
2 Measure the resistance between multi-function switch C210-590, circuit 680 (LB/O), and GEM/CTM C280-13, circuit 680 (LB/O).

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [D8](#).

→ **No**
REPAIR circuit 680 (LB/O). CLEAR the DTCs.
TEST the system for normal operation.

D8 CHECK CIRCUIT 684 (PK/Y) FOR OPEN



1 Measure the resistance between multi-function switch C210-685, circuit 684 (PK/Y), and GEM/CTM C280-22, circuit 684 (PK/Y).

- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system

for normal operation.

→ **No**

REPAIR circuit 684 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

D9 CHECK THE WIPER MOTOR PARK SWITCH STATUS — MONITOR THE GEM/CTM PID WPPRKSX

1



2



2

Monitor the GEM/CTM PID WPPRKSX while the wipers are operating.

- Does the GEM/CTM PID WPPRKSX agree with the status of the wipers?

→ **Yes**

REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [D10](#).

D10 CHECK THE VOLTAGE TO THE WIPER MOTOR PARK SENSE SWITCH — CIRCUIT 63 (R)

1



2



Wiper Motor C145

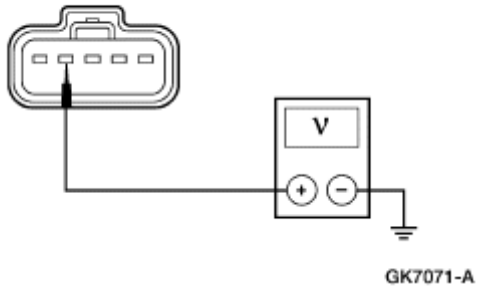
3



4

4

Measure the voltage between wiper motor C145-2, circuit 63 (R), and ground.



- Is the voltage greater than 10 volts?

→ **Yes**

GO to [D11](#).

→ **No**

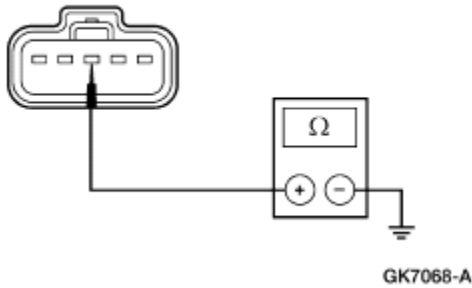
REPAIR circuit 63 (R). CLEAR the DTCs.
TEST the system for normal operation.

D11 CHECK THE GROUNDS TO THE WIPER MOTOR — CIRCUITS 57 (BK)

1



2



2

Measure the resistance between wiper motor C145-3, circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [D12](#).

→ **No**

REPAIR circuit 57 (BK). CLEAR the DTCs.
TEST the system for normal operation.

D12 CHECK CIRCUIT 671 (BK) FOR OPEN BETWEEN THE WIPER MOTOR AND THE GEM/CTM

1



2



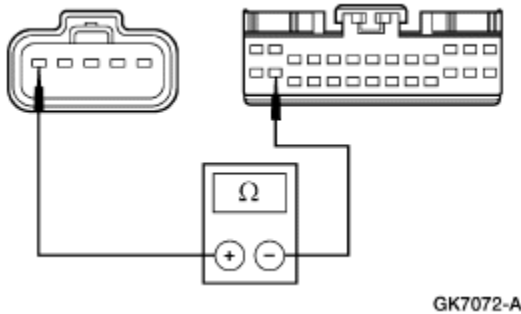
GEM/CTM C280

3



Wiper Run Relay

4



GK7072-A

4

Measure the resistance between GEM/CTM C280-15, circuit 671 (BK), and wiper motor C145-1, circuit 671 (BK).

- Is the resistance less than 5 ohms?

→ Yes

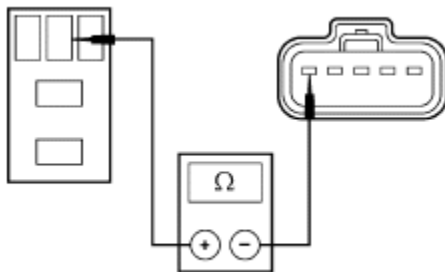
GO to [D13](#).

→ No

REPAIR circuit 671 (BK). CLEAR the DTCs. TEST the system for normal operation.

D13 CHECK CIRCUIT 671 (BK) FOR OPEN BETWEEN THE WIPER RUN RELAY AND THE WIPER MOTOR

1



GK7073-A

1

Measure the resistance between wiper run relay connector pin 4, circuit 671 (BK), and wiper motor C145-1, circuit 671 (BK).

- Is the resistance less than 5 ohms?

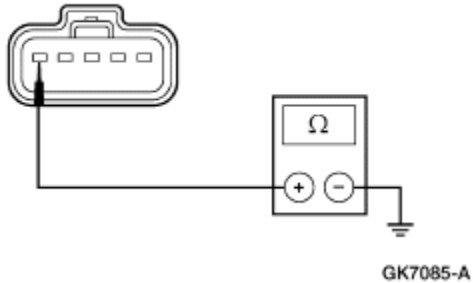
→ Yes

GO to [D14](#).

→ **No**
REPAIR circuit 671 (BK). CLEAR the DTCs.
TEST the system for normal operation.

D14 CHECK CIRCUIT 671 (BK) FOR SHORT TO GROUND

1



1 Measure the resistance between wiper motor C145-1, circuit 671 (BK), and ground.

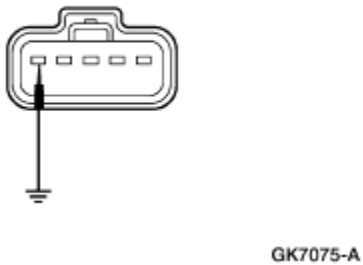
- Is the resistance greater than 10,000 ohms?

→ **Yes**
RECONNECT GEM/CTM C280; GO to [D15](#).

→ **No**
REPAIR circuit 671 (BK). CLEAR the DTCs.
TEST the system for normal operation.

D15 CHECK THE PARKED FUNCTION OF THE WIPER MOTOR — MONITOR THE GEM/CTM PID WPPRKS

1



1 Connect a jumper wire between wiper motor C145-1 circuit 671 (BK), and ground.

2

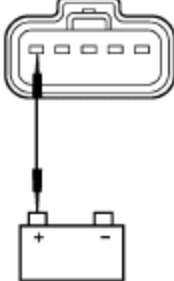


3



3 Monitor the GEM/CTM PID WPPRKS.

- Does the GEM/CTM PID WPPRKS indicate PARKED?

	→ Yes REMOVE the jumper wire; GO to D16. → No REPLACE the GEM/CTM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation.
D16 CHECK THE NOT PARKED FUNCTION OF THE WIPER MOTOR — MONITOR THE GEM/CTM PID WPPRKSX	
1  2  3  4  GK7076-A	2 Monitor the GEM/CTM PID WPPRKSX. 3 Connect a jumper wire between wiper motor C145-1, circuit 671 (BK), and the positive battery terminal. • Does the GEM/CTM PID WPPRKSX indicate notPRK? → Yes REPLACE the wiper motor; REFER to Motor—Windshield Wiper. CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the GEM/CTM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST E: THE WASHER PUMP IS INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
E1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID IGN_GEM	
1  2  Scan Tool 3 	3 NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start. Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions. • Do the PID values agree with the ignition switch positions? → Yes GO to E2. → No REFER to Section 417-02.
E2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)	
1  2  Clear Continuous DTCs 3  GEM/CTM Wiper/Washer Self-Test	1 Retrieve and document continuous DTCs. • Are any DTCs recorded? → Yes If DTC B1450, GO to E3.

If DTC B1453, GO to [E3](#).

If DTC B1458, GO to [E9](#).

If DTC B1460, GO to [E9](#).

If DTC B1342, REPLACE the GEM/CTM;
REFER to [Section 419-10](#). CLEAR the DTCs.
TEST the system for normal operation.

→ **No**
GO to [E3](#).

E3 CHECK THE WASHER SWITCH OUTPUTS — MONITOR THE GEM/CTM PID WPMODE

1



2



2 Monitor the GEM/CTM PID WPMODE while turning the wiper switch through all the switch positions.

- Does the GEM/CTM PID WPMODE agree with all the wiper switch positions?

→ **Yes**
GO to [E4](#).

→ **No**
GO to [E6](#).

E4 CHECK THE WASHER SWITCH — MONITOR THE GEM/CTM PID WASH_SW

1



2



GK4346-A

1 Monitor the GEM/CTM PID WASH_SW.

2 Press the washer switch.

- Does the GEM/CTM PID WASH_SW

indicate ON when depressed and OFF when released?

→ **Yes**
GO to [E9](#).

→ **No**
GO to [E5](#).

E5 CHECK THE MULTI-FUNCTION WASHER SWITCH

1

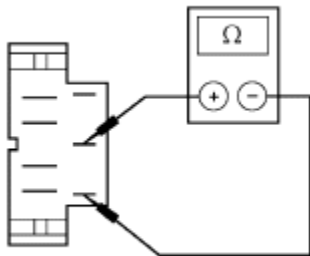


2



Multi-Function Switch C210

3



GK0935-A

3 Measure the resistance between multi-function switch terminals 590 and 993 while depressing and releasing the washer switch.

- Is the resistance less than 5 ohms with the washer switch depressed and approximately 2670 ohms with the washer switch released?

→ **Yes**
GO to [E6](#).

→ **No**
REPLACE the multi-function switch; REFER to [Section 211-05](#). CLEAR the DTCs. TEST the system for normal operation.

E6 CHECK CIRCUIT 680 (LB/O) FOR SHORT TO POWER

1

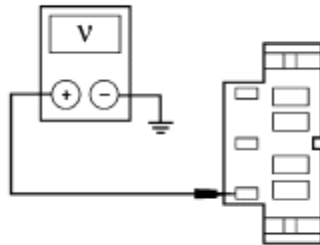


GEM C280

2



3



GK0314-A

3

Measure the voltage between multi-function switch C210-590, circuit 680 (LB/O), and ground.

• Is any voltage indicated?

→ **Yes**

REPAIR circuit 680 (LB/O). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

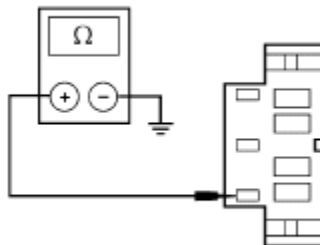
GO to [E7](#).

E7 CHECK CIRCUIT 680 (LB/O) FOR SHORT TO GROUND

1



2



GK0913-A

2

Measure the resistance between multi-function switch C210-590, circuit 680 (LB/O), and ground.

• Is the resistance greater than 10,000 ohms?

→ **Yes**

GO to [E8](#).

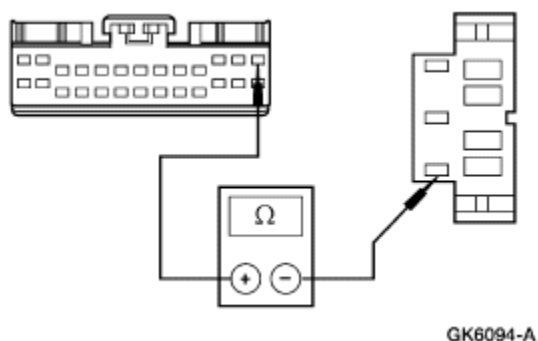
→ **No**

REPAIR circuit 680 (LB/O). CLEAR the DTCs.

TEST the system for normal operation.

E8 CHECK CIRCUIT 680 (LB/O) FOR OPEN

1



1

Measure the resistance between multi-function switch C210-590, circuit 680 (LB/O), and GEM/CTM C280-13, circuit 680 (LB/O).

- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 680 (LB/O). CLEAR the DTCs. TEST the system for normal operation.

E9 CHECK THE FRONT WASHER PUMP RELAY COIL CIRCUIT — MONITOR THE GEM/CTM PID WASHRLY

1



1

Monitor the GEM/CTM PID WASHRLY while triggering the active command WASH RLY ON and OFF.

- Does the GEM/CTM PID WASHRLY agree with the active command WASH RLY?

→ **Yes**

If the GEM/CTM PID WASHRLY displays ON-- and OFF---, GO to [E17](#).

→ **No**

If the GEM/CTM PID WASHRLY displays OFFO-G, GO to [E10](#).

If the GEM/CTM PID WASHRLY displays ON-B-, GO to [E15](#).

E10 CHECK CJB FUSE 12 (7.5A)

1



2



CJB Fuse 12 (7.5A)

- **Is the fuse OK?**

→ **Yes**GO to [E11](#).→ **No**

REPLACE the fuse. CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.

E11 CHECK THE VOLTAGE TO THE WASHER PUMP RELAY — CIRCUIT 950 (W/BK)

1

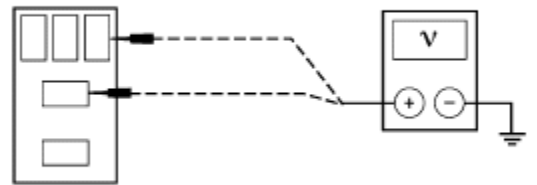


2



Front Washer Pump Relay

3



GK3291-A

3 Measure the voltage between front washer pump relay connector pin 1, circuit 950 (W/BK), and ground; and between washer pump relay connector pin 5, circuit 950 (W/BK), and ground.

- **Are the voltages greater than 10 volts?**

→ **Yes**GO to [E12](#).→ **No**

REPAIR circuit 950 (W/BK). CLEAR the DTCs. TEST the system for normal operation.

E12 CHECK THE FRONT WASHER PUMP RELAY

1



- 2 Check the front washer pump relay; refer to Wiring Diagrams cell 149.

- Is the washer pump relay OK?

→ **Yes**

GO to [E13](#).

→ **No**

REPLACE the front washer pump relay.
CLEAR the DTCs. TEST the system for normal operation.

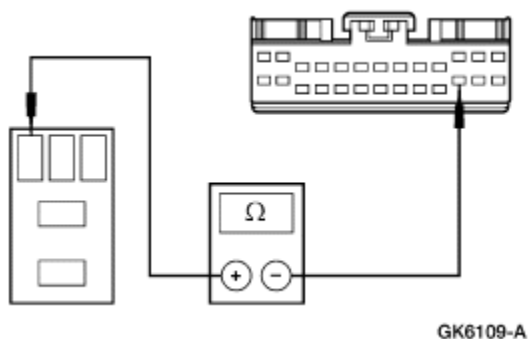
E13 CHECK CIRCUIT 686 (T/R) FOR OPEN

1



GEM/CTM C280

2



GK6109-A

- 2 Measure the resistance between front washer pump relay connector pin 2, circuit 686 (T/R), and GEM/CTM C280-24, circuit 686 (T/R).

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [E14](#).

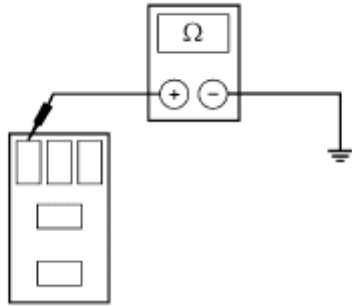
→ **No**

REPAIR circuit 686 (T/R). CLEAR the DTCs.
TEST the system for normal operation.

E14 CHECK CIRCUIT 686 (T/R) FOR SHORT TO GROUND

1

- 1 Measure the resistance between front washer pump relay connector pin 2, circuit 686 (T/R), and ground.



GK0914-A

- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 686 (T/R). CLEAR the DTCs. TEST the system for normal operation.

E15 CHECK THE FRONT WASHER PUMP RELAY

1



2

Check the front washer pump relay; refer to Wiring Diagrams cell 149.

- Is the washer pump relay OK?

→ **Yes**

GO to [E16](#).

→ **No**

REPLACE the front washer pump relay. CLEAR the DTCs. TEST the system for normal operation.

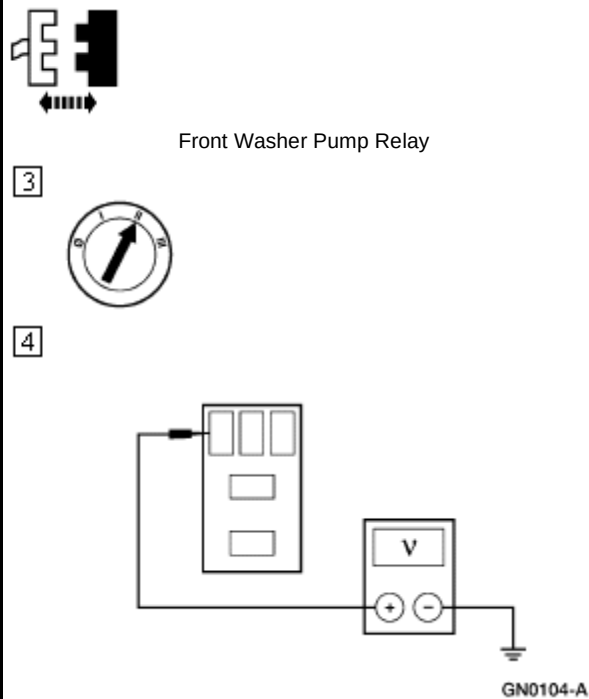
E16 CHECK CIRCUIT 686 (T/R) FOR SHORT TO POWER

1



GEM/CTM C280

2

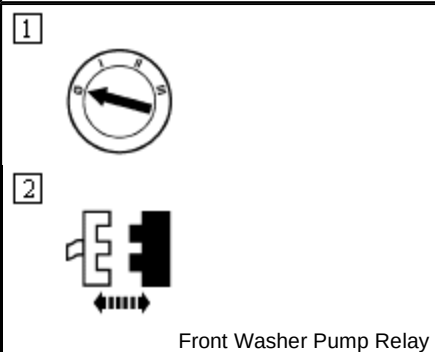


- 4 Measure the voltage between front washer pump relay connector pin 2, circuit 686 (T/R), and ground.

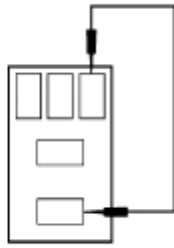
• Is any voltage indicated?

- **Yes**
REPAIR circuit 686 (T/R). CLEAR the DTCs. TEST the system for normal operation.
- **No**
REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

E17 CHECK THE WASHER PUMP RELAY SWITCH



- 3 Connect a jumper wire between front washer pump relay connector pin 1, circuit 950 (W/BK), and front washer pump relay connector pin 3, circuit 941 (BK/W).



GK3296-A

4



- Does the washer pump motor operate?

→ **Yes**

REPLACE the front washer pump relay.
CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [E18](#).

E18 CHECK CIRCUIT 941 (BK/W) FOR OPEN

1

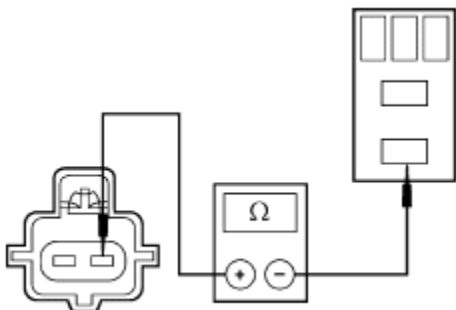


2



Washer Pump Motor C139

3

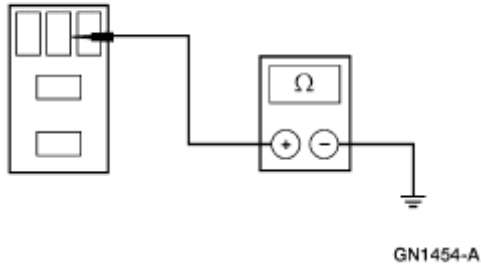


GK6110-B

- 3 Measure the resistance between washer pump relay connector pin 3, circuit 941 (BK/W), and washer pump motor C139, circuit 941 (BK/W).

- Is the resistance less than 5 ohms?

	→ Yes GO to E19. → No REPAIR circuit 941 (BK/W). CLEAR the DTCs. TEST the system for normal operation.
E19 CHECK CIRCUIT 488 (DG) FOR OPEN	
1 GK6111-B	1 Measure the resistance between washer pump motor C139, circuit 488 (DG), and ground. • Is the resistance less than 5 ohms? → Yes REPLACE the washer pump motor; REFER to Washer Pump and Reservoir—Front. CLEAR the DTCs. TEST the system for normal operation. → No GO to E20.
E20 CHECK THE REAR WASHER RELAY CONTROL	
1 Rear Washer Relay	2 Check the rear washer relay; refer to Wiring Diagrams cell 149. • Is the rear washer relay OK? → Yes GO to E21. → No REPLACE the rear washer relay. CLEAR the DTCs. TEST the system for normal operation.
E21 CHECK THE FRONT WASHER MOTOR GROUND — CIRCUIT 57 (BK)	
1	1 Measure the resistance between rear washer pump relay connector pin 4, circuit 57 (BK),



and ground.

- Is the resistance less than 5 ohms?

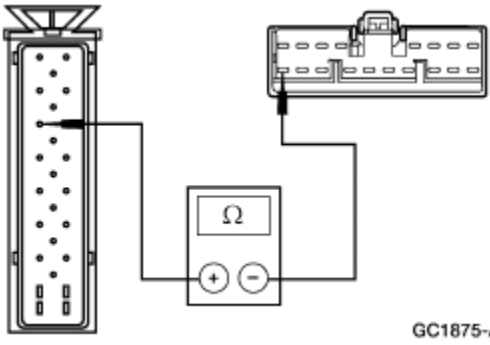
→ **Yes**
REPAIR circuit 488 (DG). CLEAR the DTCs.
TEST the system for normal operation.

→ **No**
REPAIR circuit 57 (BK). CLEAR the DTCs.
TEST the system for normal operation.

PINPOINT TEST F: THE SPEED DEPENDENT INTERVAL MODE DOES NOT OPERATE PROPERLY

CONDITIONS	DETAILS/RESULTS/ACTIONS
F1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID IGN_GEM	
1 2 Scan Tool 3	3 NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start. Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions. • Do the PID values agree with the ignition switch positions? → Yes GO to F2.

	→ No REFER to Section 417-02.
F2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)	
1  2  Clear Continuous DTCs 3  GEM Wiper/Washer Self-Test	1 Retrieve and document continuous DTCs. • Are any DTCs recorded? → Yes If DTC P0500, GO to F3. If DTC B1342, REPLACE the GEM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No GO to F3.
F3 CHECK THE VEHICLE SPEED SIGNAL — MONITOR THE GEM PID VSS_GEM	
1  2 	1 Trigger the GEM active command SPEED RLY to ON. 2 Monitor the GEM PID VSS_GEM while driving the vehicle 0 to 55 mph. • Is the GEM PID VSS_GEM value and speedometer reading greater than 0.0 mph (k/ph)? → Yes REPLACE the GEM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation.

	→ No GO to F4.
F4 CHECK CIRCUIT 679 (GY/BK) FOR OPEN	
1  2  GEM C283 3  4WABS Control Module C186 4  GC1875-A	4 Measure the resistance between 4WABS control module C186-19. circuit 679 (GY/BK), and GEM C283-9, circuit 679 (GY/BK). • Is the resistance less than 5 ohms? → Yes REFER to Section 206-09. → No REPAIR circuit 679 (GY/BK). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST G: THE WIPERS DO NOT OPERATE PROPERLY — HIGH SPEED WIPERS ONLY OPERATE

CONDITIONS	DETAILS/RESULTS/ACTIONS
G1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID IGN_GEM	
1	



2



Scan Tool

3



3

NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start.

Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions.

- **Do the PID values agree with the ignition switch positions?**

→ **Yes**
GO to [G2](#).

→ **No**
REFER to [Section 417-02](#).

G2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)

1



2



Clear Continuous DTCs

3



GEM/CTM Wiper/Washer Self-Test

1

Retrieve and document continuous DTCs.

- **Are any DTCs recorded?**

→ **Yes**
If DTC B1434, GO to [G11](#).

If DTC B1436, GO to [G11](#).

If DTC B1466, GO to [G11](#).

	If DTC B1467, GO to G11. If DTC B1473, GO to G3. If DTC B1342, REPLACE the GEM/CTM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No GO to G3.
G3 CHECK THE WIPER SWITCH OUTPUTS — MONITOR THE GEM/CTM PID WPMODE	
1 	1 Monitor the GEM/CTM PID WPMODE while turning the wiper switch through all the switch positions. Does the GEM/CTM PID WPMODE agree with all of the wiper switch positions? → Yes GO to G11. → No GO to G4.
G4 CHECK THE WIPER SWITCH	
1  2  Multi-Function Switch	3 Check the multi-function switch; refer to Wiring Diagrams cell 149. Is the multi-function switch OK? → Yes GO to G5. → No REPLACE the multi-function switch; REFER to Section 211-05. CLEAR the DTCs. TEST the system for normal operation.
G5 CHECK CIRCUIT 680 (LB/O) FOR SHORT TO POWER	

1

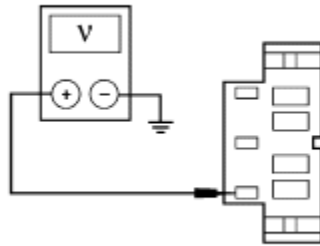


GEM/CTM C280

2



3



GK0314-A

3

Measure the voltage between multi-function switch C210-590, circuit 680 (LB/O), and ground.

• Is any voltage indicated?

→ **Yes**

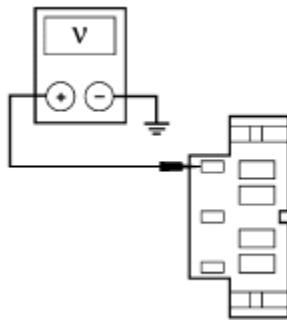
REPAIR circuit 680 (LB/O). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [G6](#).

G6 CHECK CIRCUIT 684 (PK/Y) FOR SHORT TO POWER

1



GK0916-A

1

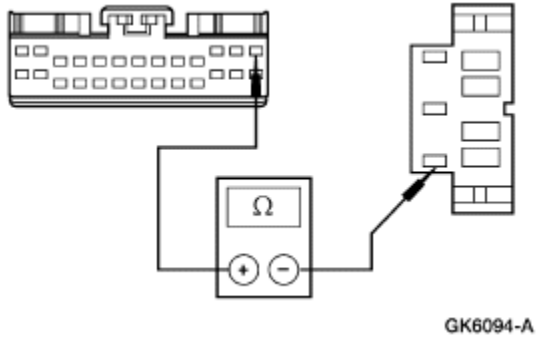
Measure the voltage between multi-function switch C210-685, circuit 684 (PK/Y), and ground.

• Is any voltage indicated?

→ **Yes**

REPAIR circuit 684 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

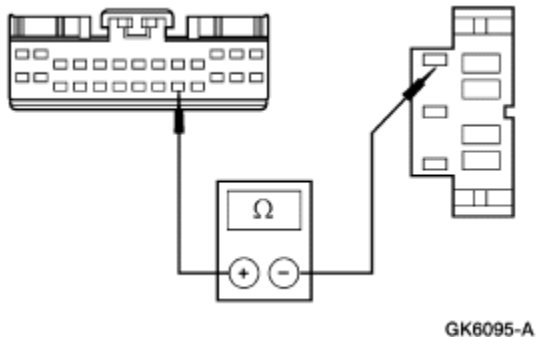
GO to [G7](#).**G7 CHECK CIRCUIT 680 (LB/O) FOR OPEN****1****2****2**

Measure the resistance between multi-function switch C210-590, circuit 680 (LB/O), and GEM/CTM C280-13, circuit 680 (LB/O).

- Is the resistance less than 5 ohms?

→ **Yes**GO to [G8](#).→ **No**

REPAIR circuit 680 (LB/O). CLEAR the DTCs. TEST the system for normal operation.

G8 CHECK CIRCUIT 684 (PK/Y) FOR OPEN**1****1**

Measure the resistance between multi-function switch C210-685, circuit 684 (PK/Y), and GEM/CTM C280-22, circuit 684 (PK/Y).

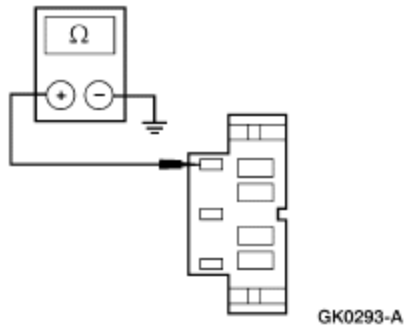
- Is the resistance less than 5 ohms?

→ **Yes**GO to [G9](#).→ **No**

REPAIR circuit 684 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

G9 CHECK CIRCUIT 684 (PK/Y) FOR SHORT TO GROUND

1



1

Measure the resistance between multi-function switch C210-685, circuit 684 (PK/Y), and ground.

- Is the resistance greater than 10,000 ohms?

→ Yes

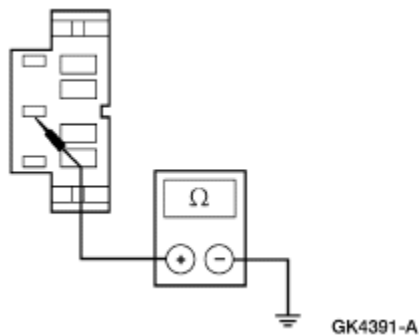
GO to [G10](#).

→ No

REPAIR circuit 684 (PK/Y). CLEAR the DTCs. TEST the system for normal operation.

G10 CHECK CIRCUIT 359 (GY/R) FOR SHORT TO GROUND

1



1

Measure the resistance between multi-function switch C210-993, circuit 359 (GY/R), and ground.

- Is the resistance greater than 10,000 ohms?

→ Yes

REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ No

REPAIR circuit 359 (GY/R). CLEAR the DTCs. TEST the system for normal operation.

G11 CHECK THE WIPER HI/LO RELAY COIL CIRCUIT — MONITOR THE GEM/CTM PID WPHISP

1



1

Monitor the GEM/CTM PID WPHISP while toggling the active command SPEED RLY ON and OFF.

- Does the GEM/CTM PID WPHISP value agree with the active command SPEED RLY?

→ **Yes**

If the GEM/CTM PID WPHISP indicates ON--- and OFF---, GO to [G17](#).

→ **No**

If the GEM/CTM PID WPHISP indicates OFFO-G, GO to [G14](#).

If the GEM/CTM PID WPHISP indicates ON-B-, GO to [G12](#).

G12 CHECK CIRCUIT 647 (GY/LB) FOR SHORT TO POWER

1



2



Wiper HI/LO Relay

3

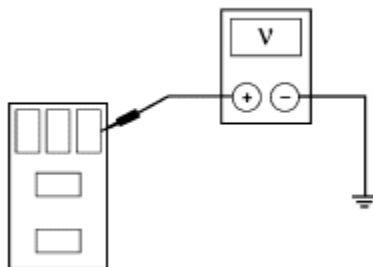


GEM/CTM C280

4



5



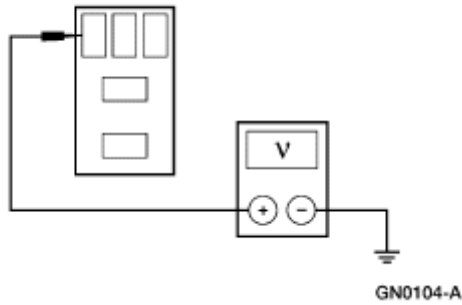
GN0110-A

5

Measure the voltage between wiper HI/LO relay connector pin 1, circuit 647 (GY/LB), and ground.

- Is any voltage indicated?

	→ Yes REPAIR circuit 647 (GY/LB). CLEAR the DTCs. TEST the system for normal operation. → No GO to G13.
G13 CHECK THE WIPER HI/LO RELAY	
1 	2 Check the wiper HI/LO relay; refer to Wiring Diagrams cell 149. • Is the wiper HI/LO relay OK? → Yes REPLACE the GEM/CTM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the wiper HI/LO relay. CLEAR the DTCs. TEST the system for normal operation.
G14 CHECK CIRCUIT 63 (R) FOR VOLTAGE	
1  2  Wiper HI/LO Relay 3  4	4 Measure the voltage between wiper HI/LO relay connector pin 2, circuit 63 (R), and ground.



- Is the voltage greater than 10 volts?

→ **Yes**

GO to [G15](#).

→ **No**

REPAIR circuit 63 (R). CLEAR the DTCs. TEST the system for normal operation.

G15 CHECK THE WIPER HI/LO RELAY

1



2

Check the wiper HI/LO relay; refer to Wiring Diagrams cell 149.

- Is the wiper HI/LO relay OK?

→ **Yes**

GO to [G16](#).

→ **No**

REPLACE the wiper HI/LO relay. CLEAR the DTCs. TEST the system for normal operation.

G16 CHECK CIRCUIT 647 (GY/LB) FOR SHORT TO GROUND

1

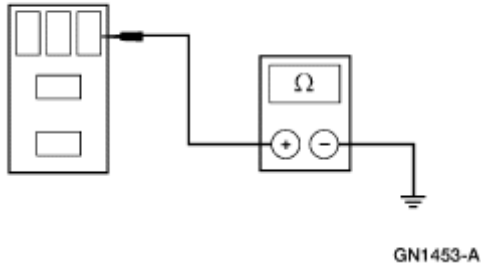


GEM/CTM C280

2

2

Measure the resistance between wiper HI/LO relay connector pin 1, circuit 647 (GY/LB), and ground.



- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 647 (GY/LB). CLEAR the DTCs. TEST the system for normal operation.

G17 CHECK THE WIPER HI/LO RELAY SWITCH CIRCUIT

1

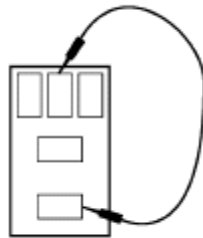


2



Wiper HI/LO Relay

3



GK4344-A

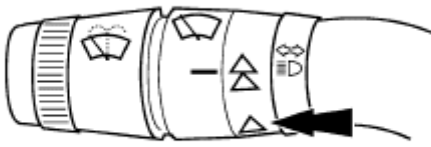
4

3

Connect a jumper wire between wiper HI/LO relay connector pin 3, circuit 28 (BK/PK), and wiper HI/LO relay connector pin 4, circuit 58 (W).

4

Turn the wiper switch to the LO position.



GK4347-A

5



- Do the wipers operate at LO speed?

→ **Yes**
REPLACE the wiper HI/LO relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REMOVE the jumper wire; GO to [G18](#).

G18 CHECK CIRCUIT 58 (W) FOR OPEN

1

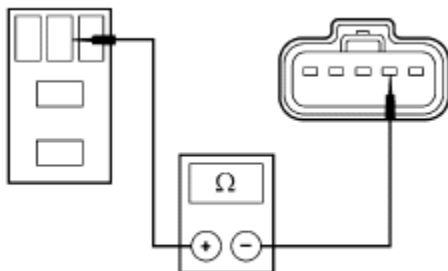


2



Wiper Motor C145

3



GK7070-A

- 3 Measure the resistance between wiper motor C145-4, circuit 58 (W), and wiper HI/LO relay connector pin 4, circuit 58 (W).

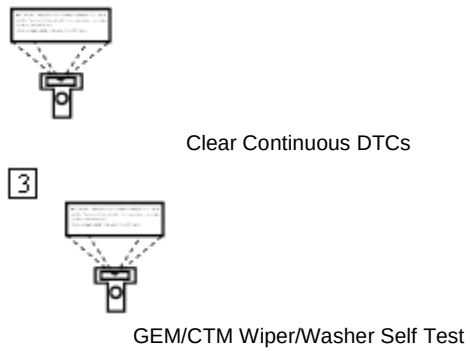
- Is the resistance less than 5 ohms?

→ **Yes**

	CHECK the wiper motor; REFER to Component Test. REPLACE the wiper motor if it does not pass the test; REFER to Motor—Windshield Wiper. CLEAR the DTC. TEST the system for normal operation. → No REPAIR circuit 58 (W). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST H: THE WIPERS STAY ON CONTINUOUSLY — REAR WIPER

CONDITIONS	DETAILS/RESULTS/ACTIONS
H1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID_GEM	
1  2  3  Scan Tool	3 NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start. Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions. Do the PID values agree with the ignition switch positions? → Yes GO to H2. → No REFER to Section 417-02.
H2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)	
1  2 	1 Retrieve and document continuous DTCs.



- Are any DTCs recorded?

→ **Yes**

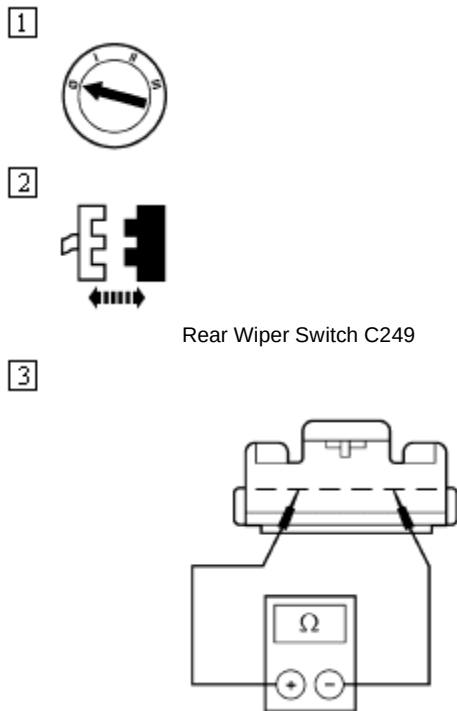
If DTC B1614, GO to [H3](#).

If DTC B1342, REPLACE the GEM/CTM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

GO to [H3](#).

H3 CHECK THE REAR WIPER SWITCH



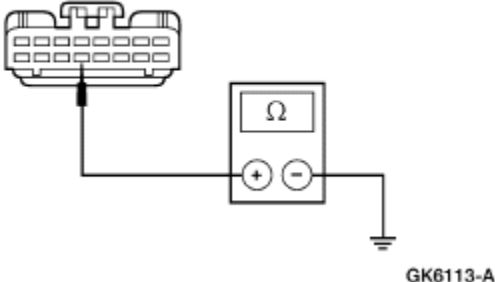
3 Measure the resistance between the following rear wiper switch terminals 2 and 5.

Switch Position	Resistance (Ohms)
OFF	4200-9100
First Interval Delay	1000-2420
Second Interval Delay	220-900
HI	50-230

- Are the resistances as indicated?

→ **Yes**

GO to [H4](#).

	→ No REPLACE the rear wiper switch; REFER to Switch—Rear Wiper/Washer. CLEAR the DTCs. TEST the system for normal operation.
H4 CHECK CIRCUIT 485 (PK/LB) FOR SHORT TO GROUND	
1  GEM C281 2 	2 Measure the resistance between GEM C281-12, circuit 485 (PK/LB), and ground. • Is the resistance greater than 10,000 ohms? → Yes REPLACE the GEM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 485 (PK/LB). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST J: THE WASHER PUMP IS INOPERATIVE — REAR WASHER PUMP

CONDITIONS	DETAILS/RESULTS/ACTIONS
J1 CHECK THE FRONT WASHER OPERATION	
1 	2 Verify the front washer operates properly by pressing the front washer switch. • Does the front washer operate properly?

→ **Yes**
GO to [J2](#).

→ **No**
GO to [E18](#).

J2 CHECK THE REAR WASHER SWITCH OUTPUT — MONITOR THE GEM/CTM PID R_WP_MD**1****2**

Scan Tool

3

3 Monitor the GEM/CTM PID R_WP_MD while pressing the rear washer switch.

- Does the GEM/CTM PID R_WP_MD indicate WASH?

→ **Yes**
GO to [J4](#).

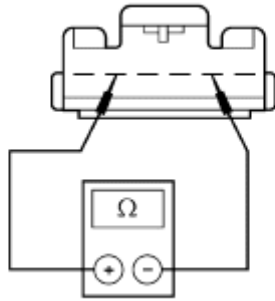
→ **No**
GO to [J3](#).

J3 CHECK THE REAR WIPER/WASHER SWITCH — INPUT TO THE GEM**1****2**

Rear Wiper/Washer Switch C249

3

3 Measure the resistance between rear wiper/washer switch terminals 2 and 5 while pressing the rear washer switch.



GK0944-A

- Is the resistance less than 5 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPLACE the rear wiper/washer switch; REFER to [Switch—Rear Wiper/Washer](#). CLEAR the DTCs. TEST the system for normal operation.

J4 CHECK THE REAR WASHER PUMP MOTOR GROUND — CIRCUIT 57 (BK)

1

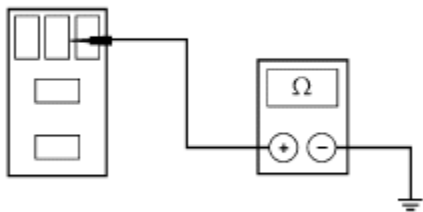


2



Front Washer Pump Relay

3



GN1454-A

3

Measure the resistance between front washer pump relay connector pin 4, circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [J5](#).

→ **No**
REPAIR circuit 57 (BK). CLEAR the DTCs.
TEST the system for normal operation.

J5 CHECK THE VOLTAGE TO THE REAR WASHER RELAY — CIRCUIT 946 (P/LG)

1

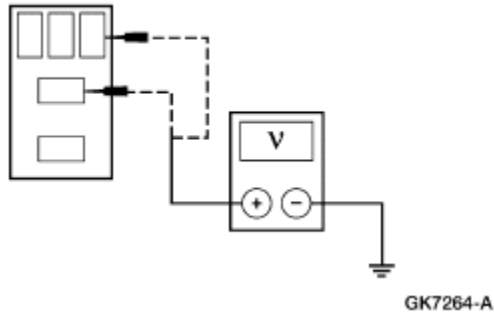


Rear Washer Relay

2



3



3 Measure the voltage between rear washer relay connector pin 5, circuit 946 (P/LG), and ground, while pressing the rear washer switch; and between rear washer relay connector pin 1, circuit 946 (P/LG), and ground while pressing the rear washer switch.

- Are the voltages greater than 10 volts?

→ **Yes**
GO to [J8](#).

→ **No**
GO to [J6](#).

J6 CHECK THE VOLTAGE TO THE REAR WIPER/WASHER SWITCH — CIRCUIT 950 (W/BK)

1



2

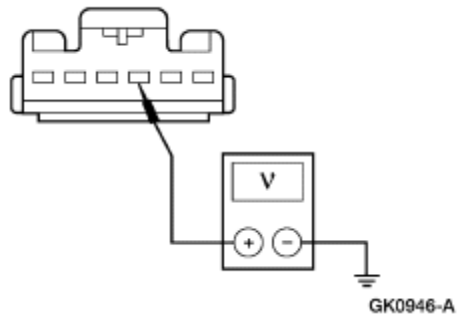


Wiper/Washer Switch C249

3



4



4

Measure the voltage between rear wiper/washer switch C249-4, circuit 950 (W/BK), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [J7](#).

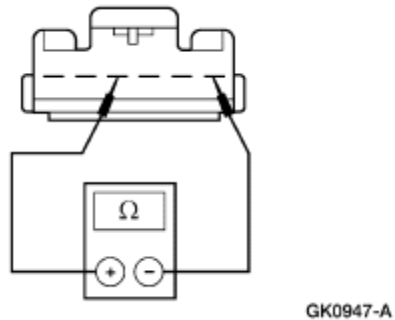
→ **No**
REPAIR circuit 950 (W/BK). CLEAR the DTCs. TEST the system for normal operation.

J7 CHECK THE REAR WIPER/WASHER SWITCH FOR OPEN TO THE WASHER PUMP

1



2



2

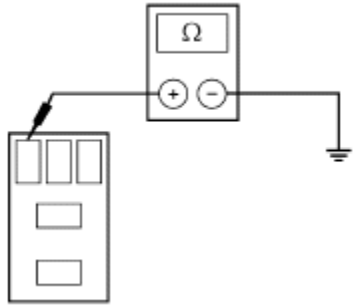
Measure the resistance between rear wiper/washer switch terminals 1 and 4 while pressing the rear washer switch.

- Is the resistance less than 5 ohms?

→ **Yes**
REPAIR circuit 946 (P/LG). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPLACE the rear wiper/washer switch;
REFER to [Switch—Rear Wiper/Washer](#).
CLEAR the DTCs. TEST the system for normal operation.

J8 CHECK THE REAR WASHER RELAY SOLENOID GROUND — CIRCUIT 57 (BK)

1  2  GK0914-A	2 Measure the resistance between rear washer relay connector pin 2, circuit 57 (BK), and ground. Is the resistance less than 5 ohms? → Yes REPLACE the rear washer relay. CLEAR the DTCs. TEST the system for normal operation. → No REPAIR circuit 57 (BK). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST K: THE WIPERS ARE INOPERATIVE — REAR WIPER

CONDITIONS	DETAILS/RESULTS/ACTIONS
K1 CHECK THE IGNITION STATES — MONITOR THE GEM/CTM PID IGN_GEM	
1  2  Scan Tool 3 	3 NOTE: If the vehicle is equipped with a manual transmission, depress the clutch while turning the ignition switch to start. Monitor the GEM/CTM PID IGN_GEM while turning the ignition switch through the START, RUN, OFF and ACC positions.

- Do the PID values agree with the ignition switch positions?

→ **Yes**
GO to [K2](#).

→ **No**
REFER to [Section 417-02](#).

K2 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)

1



2



Clear Continuous DTCs

3



GEM/CTM Wiper/Washer Self Test

4



GEM Rear Wiper Self-Test

1 Retrieve and document continuous DTCs.

- Are any DTCs recorded?

→ **Yes**
If DTC B1334, GO to [K3](#).

If DTC B1611, GO to [K9](#).

If DTC B1814, GO to [K24](#).

If DTC B1816, GO to [K27](#).

If DTC B1818, GO to [K16](#).

If DTC B1820, GO to [K13](#).

If DTC B1839, GO to [K8](#).

If DTC B1894, GO to [K9](#).

If DTC B1342, REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

	→ No GO to K9.
K3 CHECK THE LIFTGATE AJAR GEM PID LGATESW	
2 	1 Verify that the liftgate and liftgate glass are closed. 2 Monitor the GEM PID LGATESW. • Does the GEM PID LGATESW indicate AJAR? → Yes GO to K4. → No GO to K8.
K4 CHECK THE WIPER DISABLE SWITCH — MONITOR THE GEM PID LGATESW	
1  2  Liftgate Wiper Disable Switch C419 4  5 	3 Close the liftgate and liftgate glass. 5 Monitor the GEM PID LGATESW. • Does the GEM PID LGATESW indicate AJAR? → Yes GO to K5. → No

	REPLACE the liftgate wiper disable switch. CLEAR the DTCs. TEST the system for normal operation.
K5 CHECK THE RH LIFTGATE AJAR SWITCH — MONITOR THE GEM PID LGATESW	
1  2  RH Liftgate Ajar Switch C439 4  5 	3 Close the liftgate and liftgate glass. 5 Monitor the GEM PID LGATESW. • Does the GEM PID LGATESW indicate AJAR? → Yes GO to K6. → No REPLACE the RH liftgate ajar switch. CLEAR the DTCs. TEST the system for normal operation.
K6 CHECK THE LH LIFTGATE AJAR SWITCH — MONITOR THE GEM PID LGATESW	
1  2  LH Liftgate Ajar Switch C438 4	3 Close the liftgate and liftgate glass.



5



5

Monitor the GEM PID LGATESW.

- Does the GEM PID LGATESW indicate AJAR?

→ Yes

GO to [K7](#).

→ No

REPLACE the LH liftgate ajar switch. CLEAR the DTCs. TEST the system for normal operation.

K7 CHECK CIRCUIT 700 (W/P) FOR SHORT TO GROUND

1

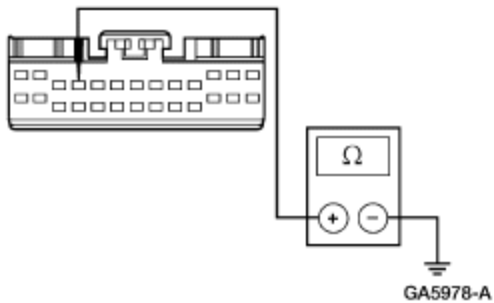


2



GEM C280

3



3

Measure the resistance between GEM C280-4, circuit 700 (W/P), and ground.

- Is the resistance greater than 10,000 ohms?

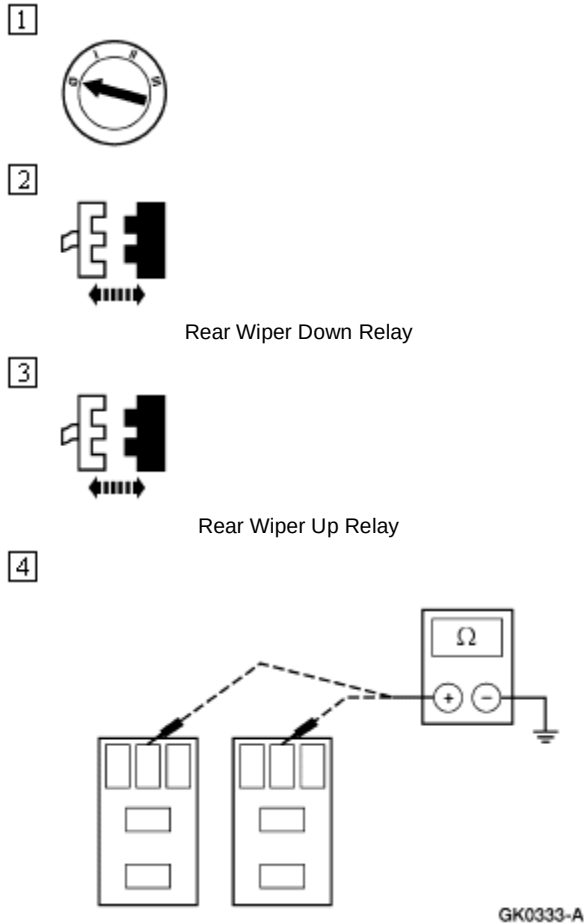
→ Yes

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ No

REPAIR circuit 700 (W/P). CLEAR the DTCs.
TEST the system for normal operation.

K8 CHECK THE GROUND TO THE REAR WIPER SYSTEM RELAYS — CIRCUIT 57 (BK)



- 4 Measure the resistance between rear wiper up relay connector pin 4, circuit 57 (BK) and ground; and between rear wiper down relay connector pin 4, circuit 57 (BK), and ground.

• Are the resistances less than 5 ohms?

→ **Yes**

RECONNECT the rear wiper up and rear wiper down relays; GO to [K26](#).

→ **No**

REPAIR circuit 57 (BK). CLEAR the DTCs.
TEST the system for normal operation.

K9 CHECK THE REAR WIPER SWITCH OUTPUTS — MONITOR THE GEM PID R_WP_MD



- 2 **NOTE:** The GEM PID R_WP_MD should indicate LO when the rear wiper/washer switch is in the HI position.

Monitor the GEM PID R_WP_MD while turning the rear wiper/washer switch through all the positions.

- Does the GEM PID R_WP_MD value agree with the switch position?

→ **Yes**
GO to [K13](#).

→ **No**
GO to [K10](#).

K10 CHECK THE REAR WIPER/WASHER SWITCH

1

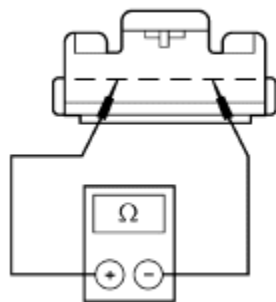


2



Rear Wiper/Washer Switch C249

3



GK0944-A

- 3 Measure the resistance between the following rear wiper/washer switch terminals 2 and 5.

Switch Position	Resistance (Ohms)
OFF	4200-9100
First Interval Delay	1000-2420
Second Interval Delay	220-950
HI	50-230

- Are the resistances as indicated?

→ **Yes**
GO to [K11](#).

→ **No**
REPLACE the rear wiper/washer switch;
REFER to [Switch—Rear Wiper/Washer](#).
CLEAR the DTCs. TEST the system for normal operation.

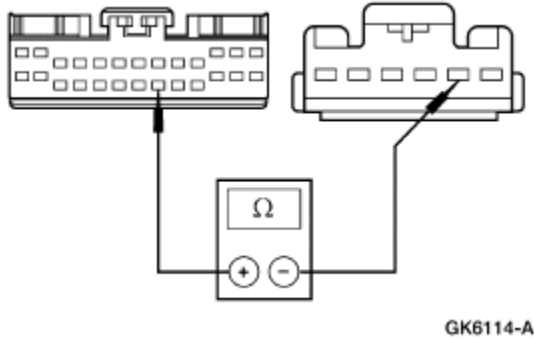
K11 CHECK CIRCUIT 359 (GY/R) FOR OPEN

1



GEM C280

2



2

Measure the resistance between GEM C280-21, circuit 359 (GY/R), and rear wiper/washer switch C249-5, circuit 359 (GY/R).

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [K12](#).

→ **No**
REPAIR circuit 359 (GY/R). CLEAR the DTCs. TEST the system for normal operation.

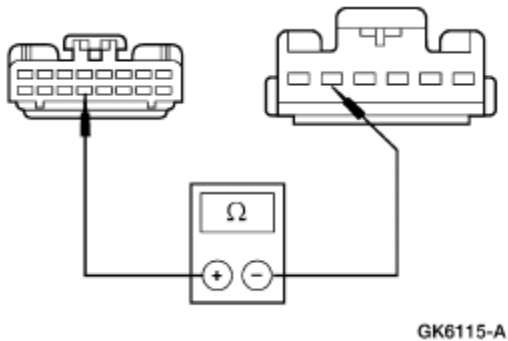
K12 CHECK CIRCUIT 485 (PK/BK) FOR OPEN

1



GEM C281

2



2

Measure the resistance between GEM C281-12, circuit 485 (PK/BK), and rear wiper/washer switch C249-2, circuit 485 (PK/BK).

- Is the resistance less than 5 ohms?

→ **Yes**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPAIR circuit 485 (PK/BK). CLEAR the DTCs. TEST the system for normal operation.

K13 CHECK THE REAR WIPER UP RELAY COIL CIRCUIT — MONITOR THE GEM PID UP RELAY



1 Trigger the GEM rear wiper active command UP RELAY ON and OFF.

2 Monitor the GEM PID R_WP_UP.

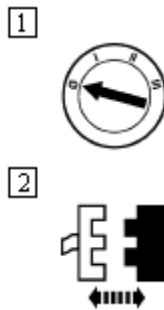
- Does the GEM PID R_WP_UP agree with the active command?

→ **Yes**
If the GEM PID R_WP_UP indicates ON--- and OFF---, GO to [K20](#).

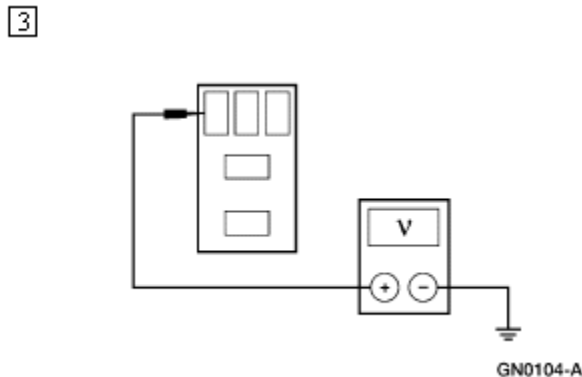
→ **No**
If the GEM PID R_WP_UP indicates OFFO-G, GO to [K14](#).

If the GEM PID R_WP_UP indicates ON-B-, GO to [K18](#).

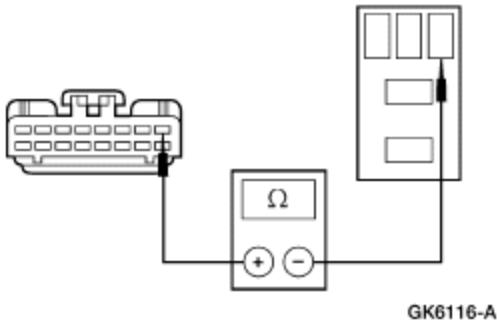
K14 CHECK THE VOLTAGE TO THE REAR WIPER UP RELAY COIL — CIRCUIT 326 (W/P)

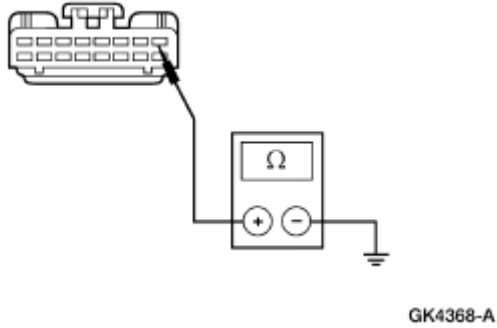


Rear Wiper Up Relay



3 Measure the voltage between rear wiper up relay connector pin 2, circuit 326 (W/P), and ground.

	• Is the voltage greater than 10 volts? → Yes GO to K15. → No REPAIR circuit 326 (W/P). CLEAR the DTCs. TEST the system for normal operation.
K15 CHECK THE REAR WIPER UP RELAY	
	1 Check the rear wiper up relay; refer to Wiring Diagrams cell 149. • Is the rear wiper up relay OK? → Yes GO to K16. → No REPLACE the rear wiper up relay. CLEAR the DTCs. TEST the system for normal operation.
K16 CHECK CIRCUIT 591 (LG) FOR OPEN	
1  GEM C281 2  GK6116-A	2 Measure the resistance between GEM C281-8, circuit 591 (LG), and rear wiper up relay connector pin 1, circuit 591 (LG). • Is the resistance less than 5 ohms? → Yes GO to K17. → No REPAIR circuit 591 (LG). CLEAR the DTCs. TEST the system for normal operation.
K17 CHECK CIRCUIT 591 (LG) FOR A SHORT TO GROUND	
1	



- 1 Measure the resistance between GEM C281-8, circuit 591 (LG), and ground.

- Is the resistance greater than 10,000 ohms?

- **Yes**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.
- **No**
REPAIR circuit 591 (LG). CLEAR the DTCs. TEST the system for normal operation.

K18 CHECK CIRCUIT 591 (LG) FOR SHORT TO POWER

1



2



GEM C281

3



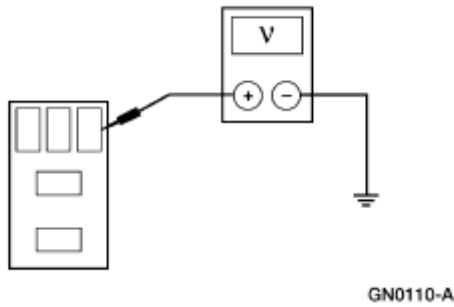
Rear Wiper Up Relay

4



5

- 5 Measure the voltage between rear wiper up relay connector pin 1, circuit 591 (LG), and ground.



- Is any voltage indicated?

→ **Yes**
REPAIR circuit 591 (LG). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
GO to [K19](#).

K19 CHECK THE REAR WIPER UP RELAY

1 Check the rear wiper up relay; refer to Wiring Diagrams cell 149.

- Is the rear wiper up relay OK?

→ **Yes**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**
REPLACE the rear wiper up relay. CLEAR the DTCs. TEST the system for normal operation.

K20 CHECK BJB FUSE 8 (15A)

1



BJB Fuse 8 (15A)

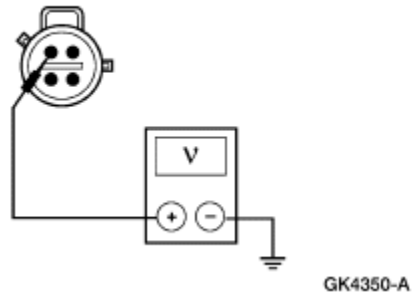
- Is the fuse OK?

→ **Yes**
GO to [K21](#).

→ **No**
REPLACE BJB Fuse 8 (15A). CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.

K21 CHECK THE VOLTAGE TO THE REAR WIPER MOTOR CIRCUIT 410 (W/O)**1****2**

Rear Wiper Motor C417

3**4****5****4**

Trigger the GEM active command UP RELAY to ON.

5

Measure the voltage between rear wiper motor C417-1, circuit 410 (W/O), and ground.

• Is the voltage greater than 10 volts?

→ **Yes**

GO to [K24](#).

→ **No**

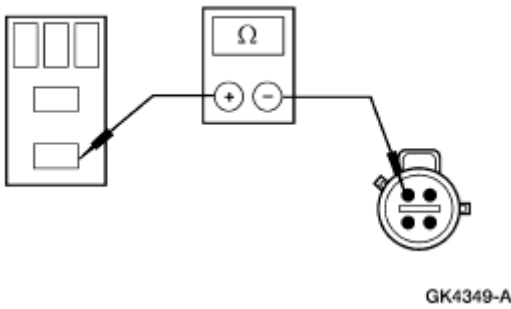
GO to [K22](#).

K22 CHECK CIRCUIT 410 (W/O) FOR OPEN**1**

Rear Wiper Up Relay

2**2**

Measure the resistance between rear wiper motor C417-1, circuit 410 (W/O), and rear up relay connector pin 3, circuit 410 (W/O).



- Is the resistance less than 5 ohms?

→ **Yes**

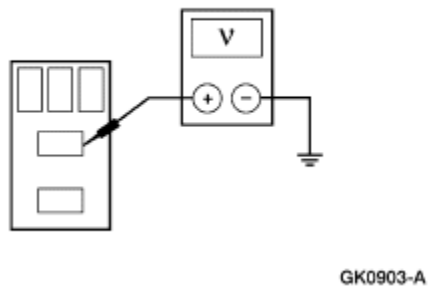
GO to [K23](#).

→ **No**

REPAIR circuit 410 (W/O). CLEAR the DTCs. TEST the system for normal operation.

K23 CHECK THE VOLTAGE TO THE REAR WIPER UP RELAY — CIRCUIT 326 (W/P)

1



1

Measure the voltage between rear wiper up relay connector pin 5, circuit 326 (W/P), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

REPLACE the rear wiper up relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 326 (W/P). CLEAR the DTCs. TEST the system for normal operation.

K24 CHECK THE REAR WIPER DOWN RELAY COIL CIRCUIT — MONITOR THE GEM PID R_WP_DN

1



1

Monitor the GEM PID R_WP_DN while toggling the rear wiper active command DWN RELAY ON and OFF.

- Does the GEM PID R_WP_DN agree with

the active command?

→ **Yes**

If the GEM PID R_WP_DN indicates ON--- and OFF---, GO to [K30](#).

→ **No**

If the GEM PID R_WP_DN indicates OFFO-G, GO to [K25](#).

If the GEM PID R_WP_DN indicates ON-B-, GO to [K28](#).

K25 CHECK THE VOLTAGE TO THE REAR WIPER DOWN RELAY COIL

1



2

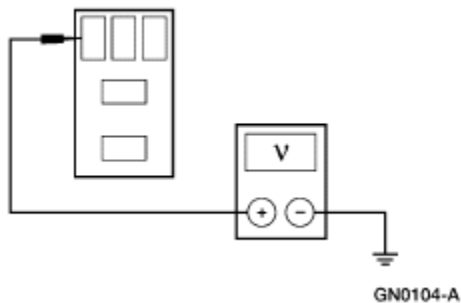


Rear Wiper Down Relay

3



4



4

Measure the voltage between rear wiper down relay connector pin 2, circuit 326 (W/P) and ground.

• Is the voltage greater than 10 volts?

→ **Yes**

GO to [K26](#).

→ **No**

REPAIR circuit 326 (W/P). CLEAR the DTCs. TEST the system for normal operation.

K26 CHECK THE REAR WIPER DOWN RELAY

1

Check the rear wiper down relay; refer to

Wiring Diagrams cell 149.

- Is the rear wiper down relay OK?

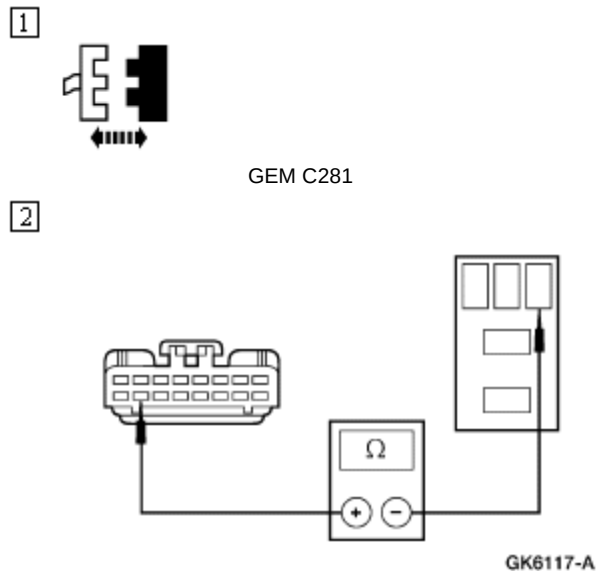
→ **Yes**

GO to [K27](#).

→ **No**

REPLACE the rear wiper down relay. CLEAR the DTCs. TEST the system for normal operation.

K27 CHECK CIRCUIT 592 (T) FOR OPEN



- 2 Measure the resistance between GEM C281-10, circuit 592 (T), and rear wiper down relay connector pin 1, circuit 592 (T).

- Is the resistance less than 5 ohms?

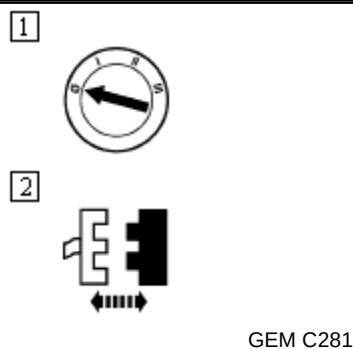
→ **Yes**

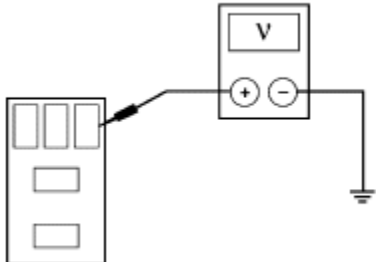
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 592 (T). CLEAR the DTCs. TEST the system for normal operation.

K28 CHECK CIRCUIT 592 (T) FOR SHORT TO POWER



3  Rear Wiper Down Relay 4  5  GN0110-A	5 Measure the voltage between rear wiper down relay connector pin 1, circuit 592 (T), and ground. • Is any voltage indicated? → Yes REPAIR circuit 592 (T). CLEAR the DTCs. TEST the system for normal operation. → No GO to K29.

K29 CHECK THE REAR WIPER DOWN RELAY

	1 Check the rear wiper down relay; refer to Wiring Diagrams cell 149. • Is the rear wiper down relay OK? → Yes REPLACE the GEM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation. → No REPLACE the rear wiper down relay. CLEAR the DTCs. TEST the system for normal operation.

K30 CHECK BJB FUSE 8 (15A)

1	



BJB Fuse 8 (15A)

- Is the fuse OK?

→ **Yes**

GO to [K31](#).

→ **No**

REPLACE BJB Fuse 8 (15A). CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK for a short to ground. REPAIR as necessary.

K31 CHECK CIRCUIT 411 (BK/LB) FOR VOLTAGE

1



2



Rear Wiper Motor C417

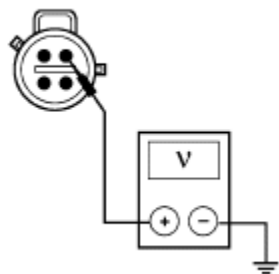
3



4



5



GK4351-A

4

Trigger the GEM rear wiper active command DWN RELAY to ON.

5

Measure the voltage between rear wiper motor C417-2, circuit 411 (BK/LB), and ground.

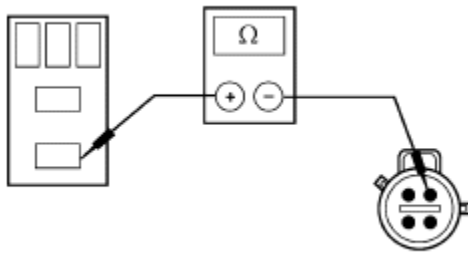
- Is the voltage greater than 10 volts?

→ **Yes**
GO to [K34](#).

→ **No**
GO to [K32](#).

K32 CHECK CIRCUIT 411 (BK/LB) FOR OPEN**1****2**

Rear Wiper Down Relay

3

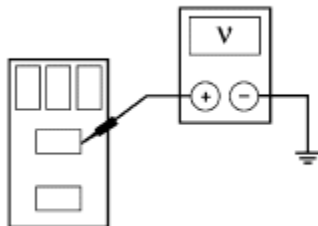
GK4352-A

3 Measure the resistance between rear wiper motor C417-2, circuit 411 (BK/LB), and rear wiper down relay connector pin 3, circuit 411 (BK/LB).

- Is the resistance less than 5 ohms?

→ **Yes**
GO to [K33](#).

→ **No**
REPAIR circuit 411 (BK/LB). CLEAR the DTCs.
TEST the system for normal operation.

K33 CHECK THE VOLTAGE TO THE REAR WIPER DOWN RELAY — CIRCUIT 326 (W/P)**1**

GK0903-A

1 Measure the voltage between rear wiper down relay connector pin 5, circuit 326 (W/P), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

REPLACE the rear wiper down relay. CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 326 (W/P). CLEAR the DTCs. TEST the system for normal operation.

K34 CHECK THE GROUND TO THE REAR WIPER SYSTEM RELAYS — CIRCUIT 57 (BK)

1



2



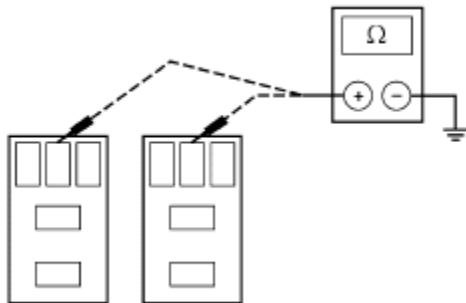
Rear Wiper Up Relay

3



Rear Wiper Down Relay

4



GK0333-A

4

Measure the resistance between rear wiper down relay connector pin 4, circuit 57 (BK), and ground; and between rear wiper up relay connector pin 4, circuit 57 (BK), and ground.

- Are the resistances less than 5 ohms?

→ **Yes**

REPLACE the rear wiper motor; REFER to [Motor—Rear Wiper](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR circuit 57 (BK). CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST L: THE REAR WIPERS DO NOT OPERATE PROPERLY — REAR WIPER

CONDITIONS	DETAILS/RESULTS/ACTIONS
L1 RETRIEVE THE DIAGNOSTIC TROUBLE CODES (DTCs)	
1  2  Scan Tool 3  4  Clear Continuous DTCs 5  GEM Wiper/Washer Self Test 6  GEM Rear Wiper Self-Test	3 Retrieve and document continuous DTCs. • Are any DTCs recorded? → Yes If DTC B1611, GO to L2. If DTC B1614, GO to L2. If DTC B1839, GO to L6. If DTC B1894, GO to L6. If DTC B1342, REPLACE the GEM; REFER to Section 419-10. CLEAR the DTCs. TEST the system for normal operation.

→ **No**
GO to [L2](#).

L2 CHECK THE REAR WIPER/WASHER SWITCH — MONITOR THE GEM PID R_WP_MD

1



1 Monitor the GEM PID R_WP_MD.

2 Turn the rear wiper/washer switch through all positions.

- Does the GEM PID R_WP_MD agree with the positions of the rear wiper/washer switch?

→ **Yes**
GO to [L6](#).

→ **No**
GO to [L3](#).

L3 CHECK THE REAR WIPER/WASHER SWITCH

1

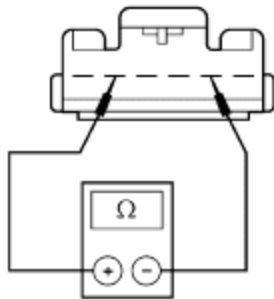


2



Rear Wiper/Washer Switch C249

3



GK0944-A

3 Measure the resistance between the following rear wiper/washer switch terminals 2 and 5.

Switch Position	Resistance (Ohms)
OFF	4200-9100
First Interval Delay	1000-2420
Second Interval Delay	220-950
HI	50-230

- Are the resistances as indicated?

→ **Yes**
GO to [L4](#).

→ **No**

REPLACE the rear wiper/washer switch;
REFER to [Switch—Rear Wiper/Washer](#).
CLEAR the DTCs. TEST the system for normal operation.

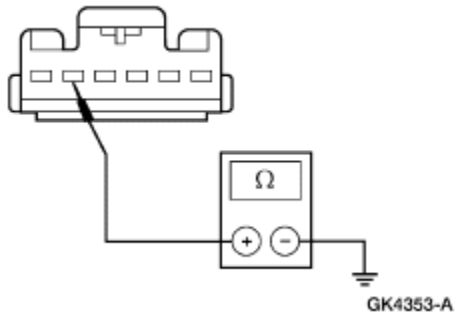
L4 CHECK CIRCUIT 485 (PK/BK) FOR SHORT TO GROUND

1



GEM C281

2



2

Measure the resistance between rear wiper/washer switch C249-2, circuit 485 (PK/BK), and ground.

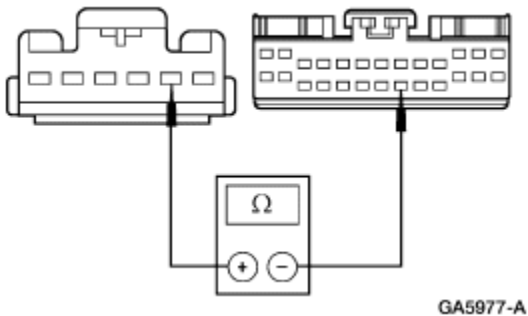
- Is the resistance greater than 10,000 ohms?

→ **Yes**
GO to [L5](#).

→ **No**
REPAIR circuit 485 (PK/BK). CLEAR the DTCs. TEST the system for normal operation.

L5 CHECK CIRCUIT 359 (GY/R) FOR OPEN

1



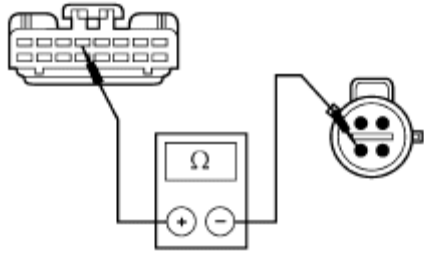
1

Measure the resistance between rear wiper/washer switch C249-5, circuit 359 (GY/R), and GEM C280-21, circuit 359 (GY/R).

- Is the resistance greater than 5 ohms?

→ **Yes**
REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

	→ No REPAIR circuit 359 (GY/R). CLEAR the DTCs. TEST the system for normal operation.
L6 CHECK THE REAR WIPER MOTOR STATUS — MONITOR THE GEM PID R_WP_PK	
1 	1 Monitor the GEM PID R_WP_PK. 2 Move the rear wiper arm to the center of the glass by triggering the GEM active commands REAR WIPER UP RELAY and REAR WIPER DOWN RELAY ON and OFF. Does the GEM PID R_WP_PK indicate PARKED when the rear wiper is parked and notPRK when the rear wiper is in the center of the glass? → Yes GO to L12. → No GO to L7.
L7 CHECK CIRCUIT 587 (P/Y) FOR OPEN	
1  2  Rear Wiper Motor C417 3  GEM C281 4	4 Measure the resistance between GEM C281-4, circuit 587 (P/Y), and rear wiper motor C417-3, circuit 587 (P/Y).



GK4367-A

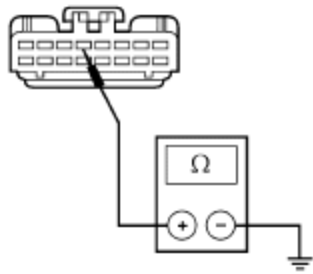
- Is the resistance less than 5 ohms?

→ **Yes**
GO to [L8](#).

→ **No**
REPAIR circuit 587 (P/Y). CLEAR the DTCs.
TEST the system for normal operation.

L8 CHECK CIRCUIT 587 (P/Y) FOR SHORT TO GROUND

1



GK4369-A

1 Measure the resistance between GEM C281-4, circuit 587 (P/Y), and ground.

- Is the resistance greater than 10,000 ohms?

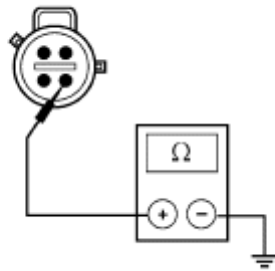
→ **Yes**
GO to [L9](#).

→ **No**
REPAIR circuit 587 (P/Y). CLEAR the DTCs.
TEST the system for normal operation.

L9 CHECK THE GROUND TO THE REAR WIPER MOTOR STATUS — CIRCUIT 57 (BK)

1

1 Measure the resistance between rear wiper motor C417-4, circuit 57 (BK), and ground.



GK4371-A

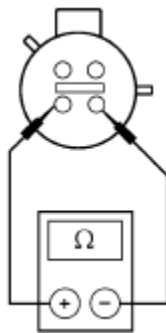
- Is the resistance less than 5 ohms?

→ **Yes**
GO to [L10](#).

→ **No**
REPAIR circuit 57 (BK). CLEAR the DTCs. TEST the system for normal operation.

L10 CHECK THE WIPER PARK INDICATOR SWITCH — PARKED POSITION

2



GK6120-A

- 1 Place the rear wiper arm in the PARKED position.
- 2 Measure the resistance between rear wiper motor terminals 3 and 4.

- Is the resistance less than 5 ohms?

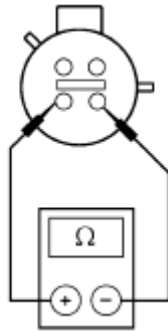
→ **Yes**
GO to [L11](#).

→ **No**
REPLACE the rear wiper motor; REFER to [Motor—Rear Wiper](#). CLEAR the DTCs. TEST the system for normal operation.

L11 CHECK THE WIPER PARK INDICATOR SWITCH — NOT-PARKED POSITION

2

- 1 Place the rear wiper arm in the middle of the glass.
- 2 Measure the resistance between rear wiper motor terminals 3 and 4.



GK6120-A

- Is the resistance greater than 10,000 ohms?

→ **Yes**

REPLACE the GEM; REFER to [Section 419-10](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPLACE the rear wiper motor; REFER to [Motor—Rear Wiper](#). CLEAR the DTCs. TEST the system for normal operation.

L12 CHECK THE WIPER MECHANISM

- 1 Remove the linkage from the wiper motor.

- Are the wipers free?

→ **Yes**

CHECK the wiper motor by performing the Wiper Motor Current Draw Test; REFER to Component Testing. If the wiper motor does not pass the test, REPLACE the rear wiper motor; REFER to [Motor—Rear Wiper](#). CLEAR the DTCs. TEST the system for normal operation.

→ **No**

REPAIR the wiper mechanism. CLEAR the DTCs. TEST the system for normal operation.

PINPOINT TEST M: NO COMMUNICATION WITH THE MODULE — GENERIC ELECTRONIC MODULE/CENTRAL TIMER MODULE

CONDITIONS	DETAILS/RESULTS/ACTIONS
M1 CHECK BJB FUSE 1 (60A)	
1	



BJB Fuse 1 (60A)

- Is the fuse OK?

→ **Yes**
GO to [M2](#).

→ **No**
REPLACE the fuse. CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK circuit 1052 (T/BK) for a short to ground. REPAIR as necessary.

M2 CHECK CJB FUSE 25 (7.5A)

1



CJB Fuse 25 (7.5A)

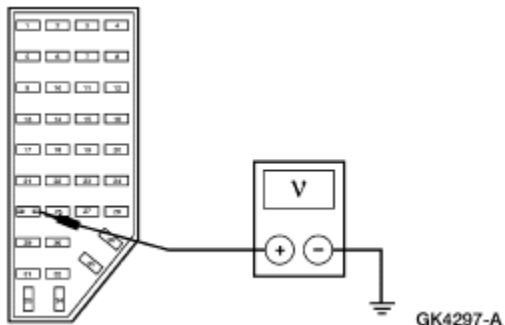
- Is the fuse OK?

→ **Yes**
GO to [M3](#).

→ **No**
REPLACE the fuse. CLEAR the DTCs. TEST the system for normal operation. If the fuse fails again, CHECK circuit 1001 (W/Y) for a short to ground. REPAIR as necessary.

M3 CHECK CIRCUIT 1052 (T/BK) FOR VOLTAGE

1



- 1 Measure the voltage between CJB Fuse 25 (7.5A) pin 2, circuit 1052 (T/BK), and ground.

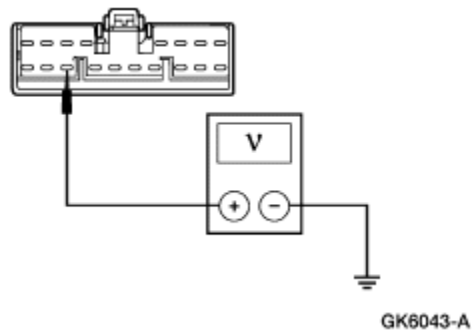
- Is voltage greater than 10 volts?

→ **Yes**
GO to [M4](#).

→ **No**
REPAIR circuit 1052 (T/BK). CLEAR the DTCs.
TEST the system for normal operation.

M4 CHECK THE VOLTAGE TO THE GEM/CTM — CIRCUIT 1001 (W/Y)**1****2**

GEM/CTM C283

3

3 Measure the voltage between GEM/CTM C283-11, circuit 1001 (W/Y), and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
GO to [M5](#).

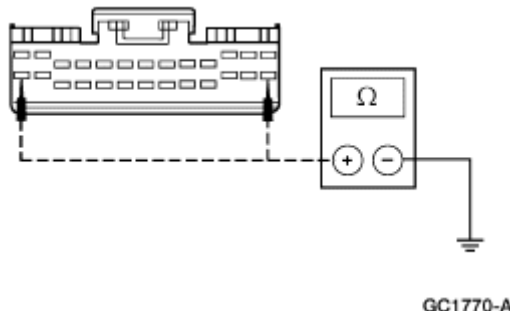
→ **No**
REPAIR circuit 1001 (W/Y). CLEAR the DTCs.
TEST the system for normal operation.

M5 CHECK CIRCUIT 570 (BK/W) FOR OPEN**1**

GEM/CTM C280

2

2 Measure the resistance between GEM/CTM C280-14 circuit 570 (BK/W), and ground; and between GEM/CTM C280-26 circuit 570 (BK/W), and ground.



GC1770-A

- Are the resistances less than 5 ohms?

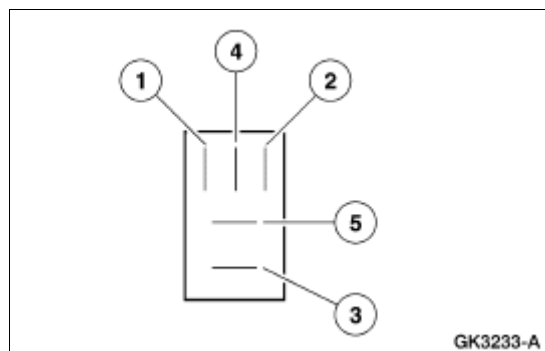
→ **Yes**
REFER to [Section 418-00](#).

→ **No**
REPAIR circuit 570 (BK/W). CLEAR the DTCs.
TEST the system for normal operation.

Component Test

Relay — Micro ISO

Use the multimeter to check for the continuity between terminal 2 and all other terminals. If the resistance is 5 ohms or less between terminal 2 and any other terminal, replace the relay. If resistance is greater than 5 ohms, continue with the test. Use two jumper wires to connect relay terminals 1 and 3 directly to the positive battery terminal. Use the multimeter set in the volts position to check for voltage at terminal 4. If battery voltage is not indicated, replace the relay. If battery voltage is indicated, connect a third jumper wire to terminal 2 and ground the jumper wire to a known good ground. Check for voltage at terminal 5. If battery voltage is not indicated, replace the relay.



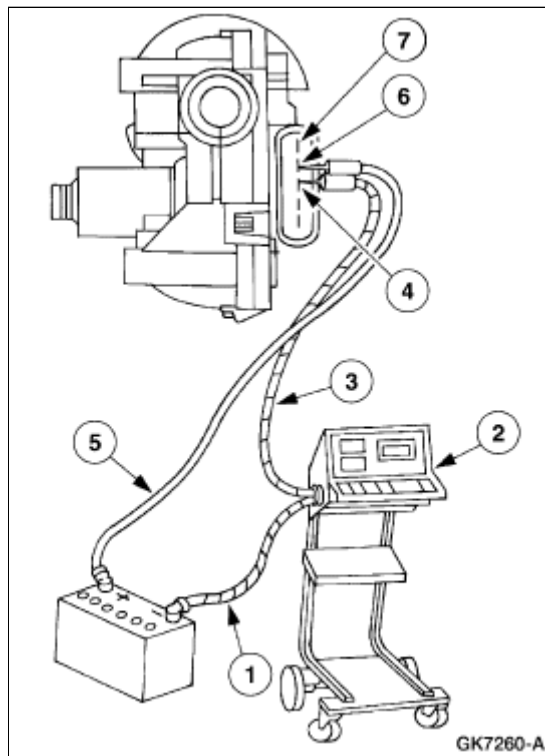
Windshield Wiper Motor



CAUTION: Do not handle the wiper motor abusively when diagnosing the wiper operations. Failure to follow this caution may result in damage to the motor magnets and will make the wiper motor inoperative. Rough handling of new replacement wiper motors may also damage the motor

magnets.

Use Alternator, Regulator, Battery and Starter Tester (ARBST) to test the wiper motor on the vehicle.



To test the wiper motor, disconnect the windshield wiper mounting arm and pivot shaft from the windshield wiper motor; refer to [Pivot Arm—Front](#) or refer to [Pivot Arm—Rear](#).

Disconnect the wiper motor. Connect the (1) green lead from (2) Alternator, Regulator, Battery and Starter Tester (ARBST) to the battery negative (-) post. Connect the (3) red lead from ARBST to the wiper motor (4) common brush terminal (terminal 3).

Test the low speed mode by connecting a (5) cable from the battery positive (+) post to the (6) low speed brush terminal (terminal 4) and measure the current draw. If the current draw is greater than 3.5 amperes, replace the windshield wiper motor.

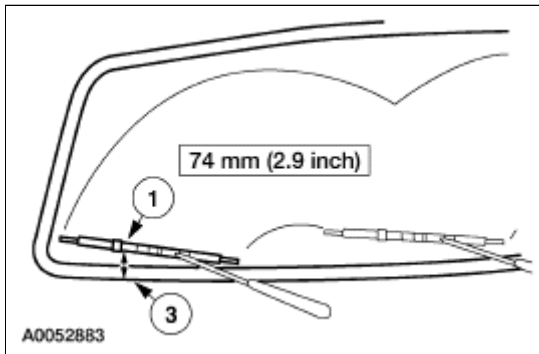
Test the high speed mode by connecting a cable from the battery positive (+) post to the (7) high speed brush terminal (terminal 5) and measure the current draw. If the current draw is greater than 5.5 amperes, replace the wiper motor.

SECTION 501-16: Wipers and Washers
GENERAL PROCEDURES

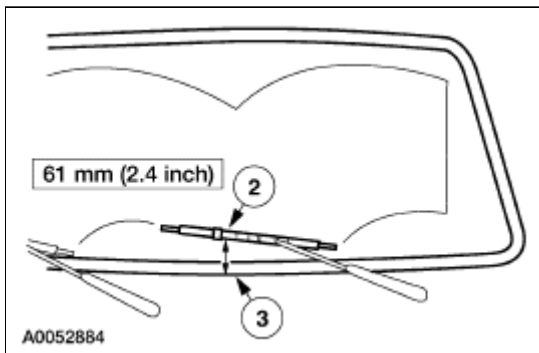
2000 Explorer/Mountaineer Workshop Manual

Windshield Wiper Blade and Pivot Arm Adjustment

1. Cycle and park the windshield wipers.
2. Verify the distance between the center of the (1) RH windshield wiper blade and the (3) bottom of the windshield glass is within specification.



3. Verify the distance between the center of the (2) LH windshield wiper blade and the (3) bottom of the windshield glass is within specification.



4. If the distance is not within specification, remove the windshield wiper pivot arm and reposition to specification. For additional information, refer to [Pivot Arm—Front](#).

SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

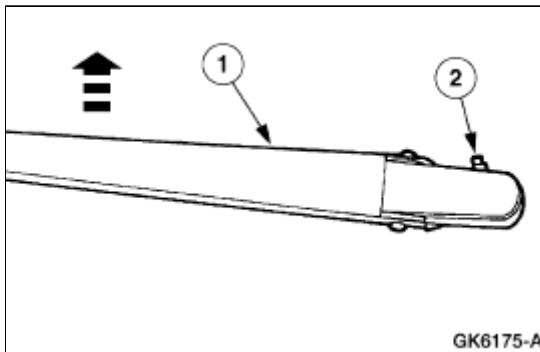
Pivot Arm —Front

Removal

1. **NOTE:** The windshield wiper pivot arms are replaced as an assembly.

Remove the pivot arm.

1. Pull up on the pivot arm.
2. Pull out on the retainer tab and remove the pivot arm.



Installation

1. **NOTE:** The wiper motor must be cycled to make sure that it is in the park position. If necessary, adjust the wiper pivot arms. For additional information, refer to Windshield Wiper Blade and Pivot Arm Adjustment in this section.

To install, reverse the removal procedure.

SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

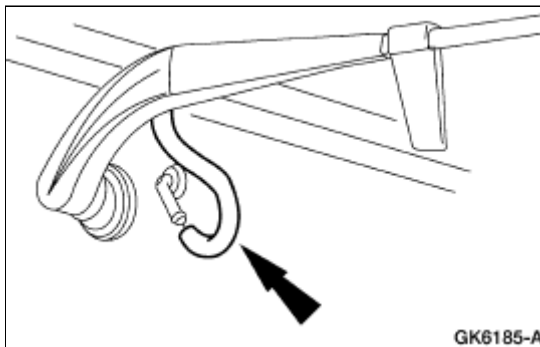
Pivot Arm —Rear

Removal

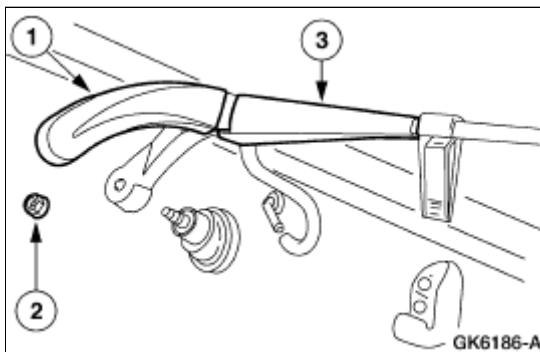


CAUTION: Use a shop towel or similar device to protect the vehicle finish when performing the procedure.

1. Disconnect the rear washer hose.

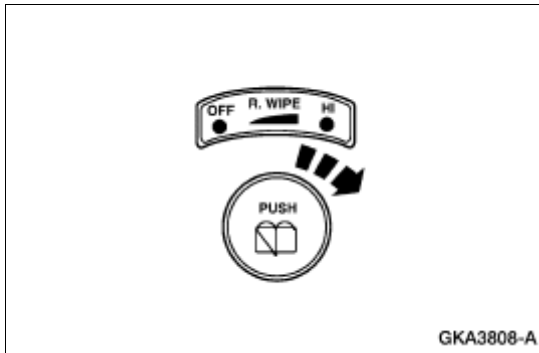


2. Remove rear pivot arm.
 1. Lift the pivot arm nut cover.
 2. Remove the nut.
 3. Remove the pivot arm.



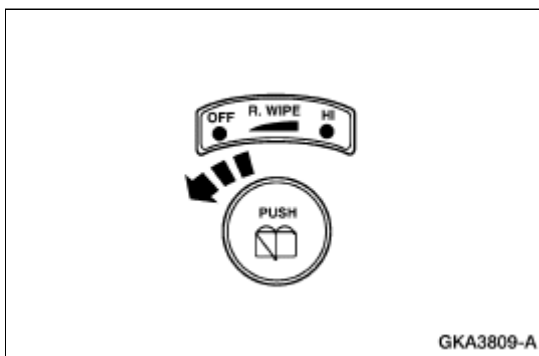
Installation

1. Turn the rear wiper switch on and allow the motor to operate for at least one cycle.

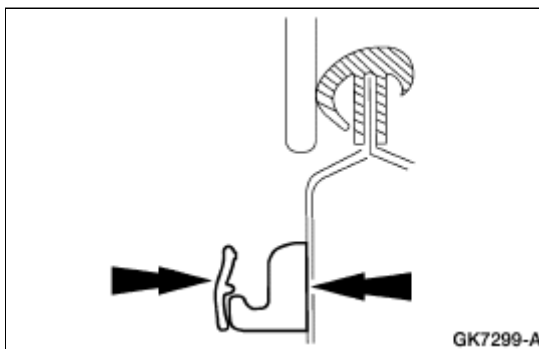


2. **NOTE:** This step ensures that the wiper motor is in the park position.

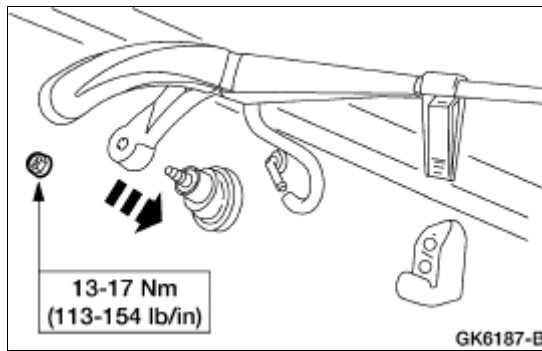
Turn the rear wiper switch OFF.



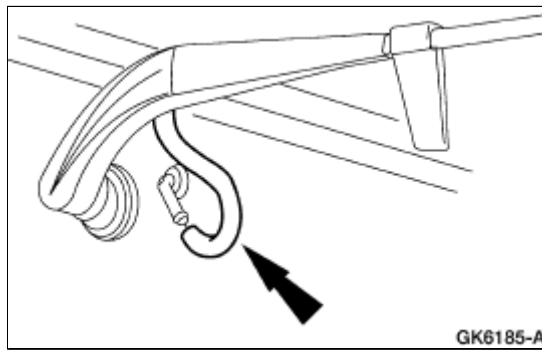
3. Position the wiper blade outside the wiper arm stop.



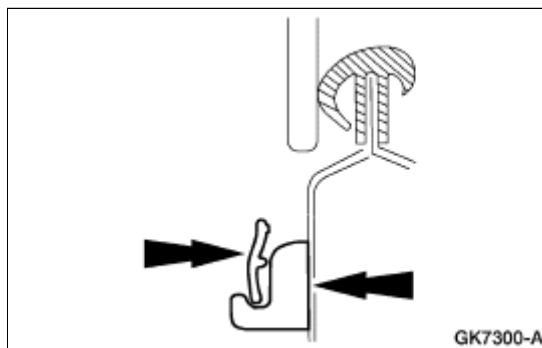
4. Install the wiper pivot arm onto the wiper motor.
- Tighten retaining nut.



5. Connect the washer hose.



6. Cycle the wiper motor one time to allow the wiper arm to park on the wiper arm stop.



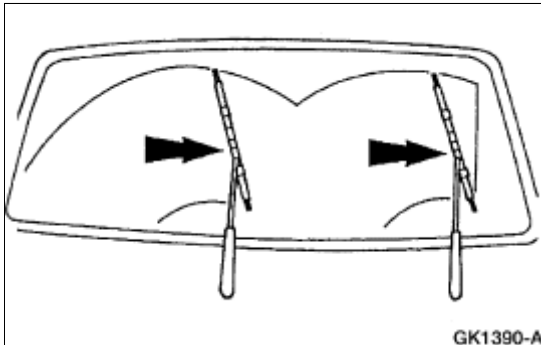
SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

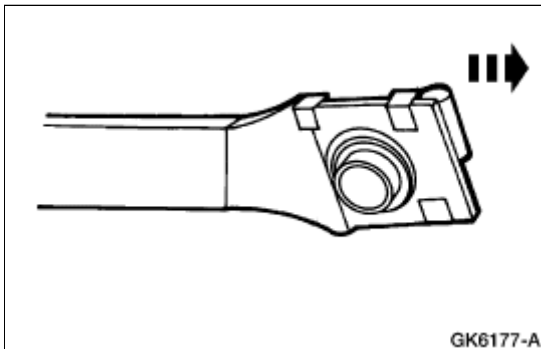
Mounting Arm and Pivot Shaft

Removal

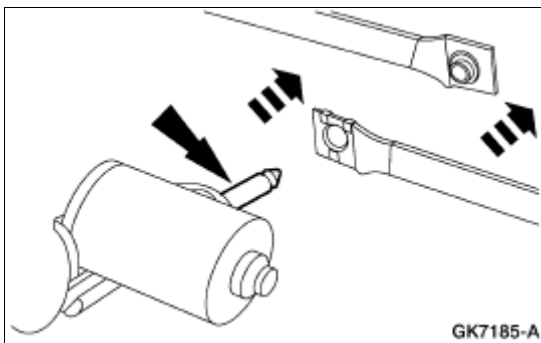
1. Cycle the windshield wiper blades (17528) to the vertical position.



2. Remove the cowl top vent panels; refer to [Section 501-02](#).
3. Unsnap the wiper motor clip from the RH mounting arm and pivot shaft.

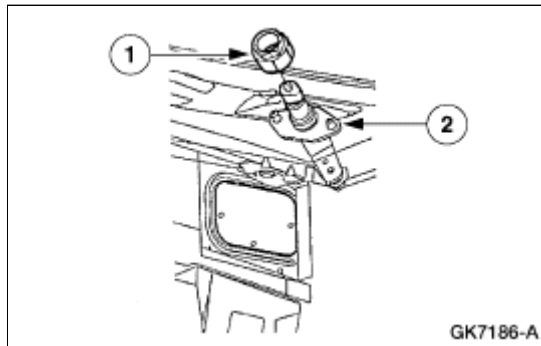


4. Disconnect the RH windshield wiper mounting arm and pivot shaft (17566) from the LH windshield wiper mounting arm and pivot shaft (17567) and move both away from the windshield wiper motor (17504).



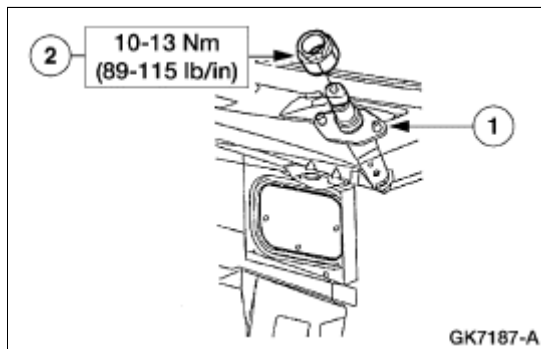
5. Remove the RH and LH mounting arm and pivot shafts.

1. Remove the two nuts.
2. Remove the mounting arm and pivot shafts.



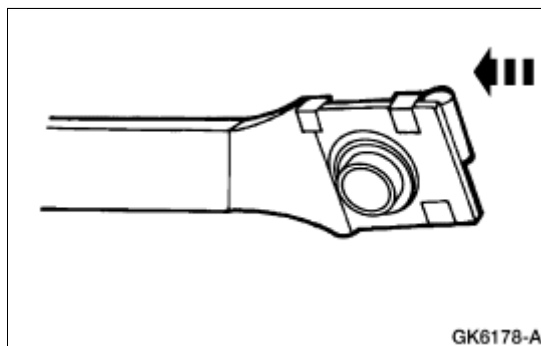
Installation

1. Install the RH and LH mounting arms and pivot shafts.
 1. Position the mounting arm and pivot shafts into place.
 2. Install the two nuts.

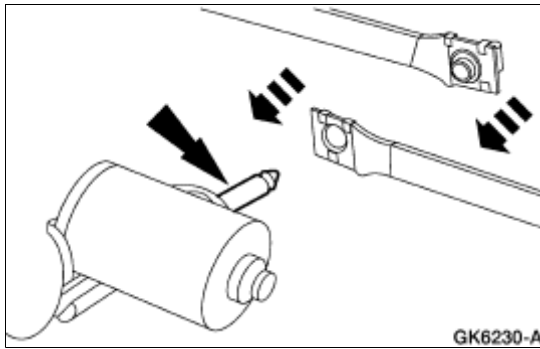


2. **CAUTION:** To avoid possible damage to the windshield wiper adapter and connecting arm clip (17531), be sure the clip is fully seated before installing the adapter and connecting arm clip on the windshield wiper motor crank pin.

Install the clip onto the RH mounting arm and pivot shaft.



3. Install the LH windshield wiper mounting arm and pivot shaft onto the windshield wiper motor crank pin, and install the RH windshield wiper mounting arm and pivot shaft onto the wiper motor crank pin.



4. Install the cowl top vent panels; refer to [Section 501-02](#).
-

SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Motor —Windshield Wiper

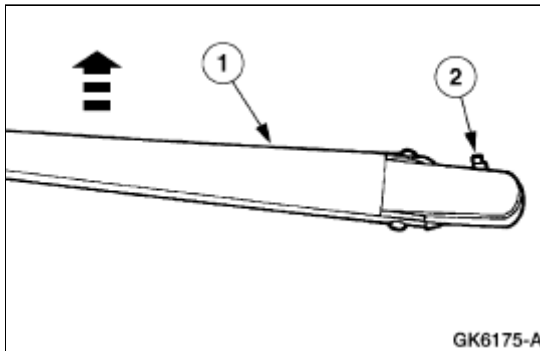
Removal



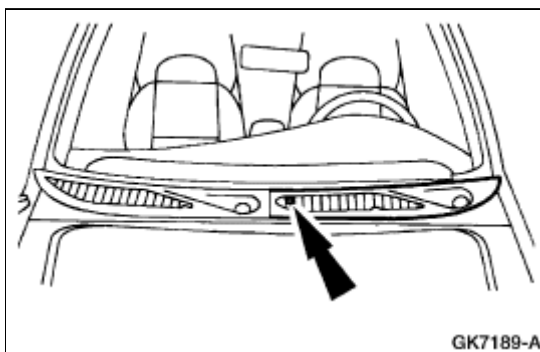
CAUTION: The internal permanent magnets used in the windshield wiper motor (17504) are made of a glass-like material. To avoid damaging the magnets, do not strike the motor with a hammer or any other object.

NOTE: The windshield wiper motor is not a repairable item. If worn or damaged, the motor must be replaced.

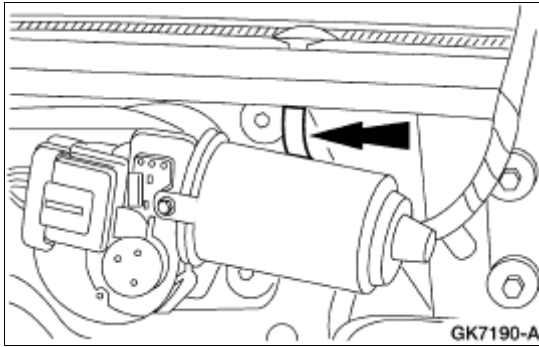
1. Remove the LH pivot arm.
 1. Pull up on the pivot arm.
 2. Pull out on the retainer tab and remove the pivot arm.



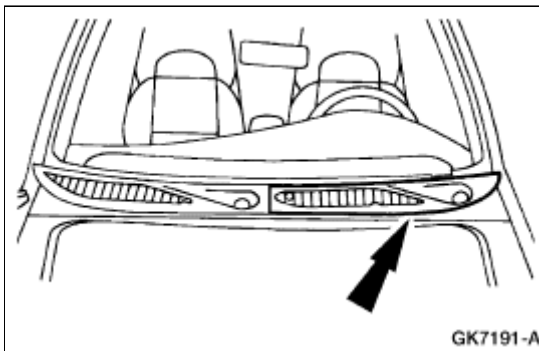
2. Remove the LH cowl top vent panel screw.



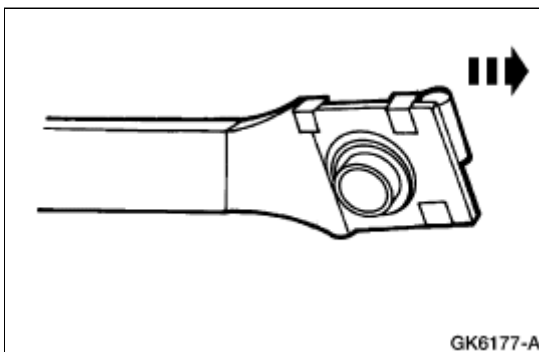
3. Disconnect the washer hose from the LH washer jet nozzle.



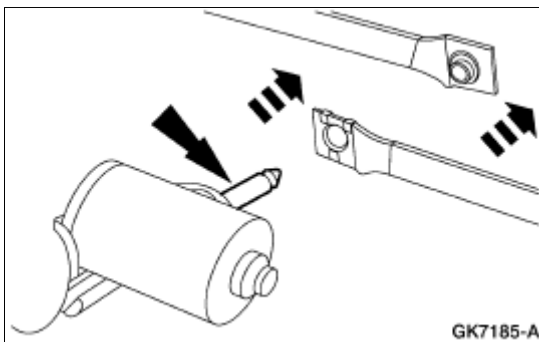
4. Remove the LH cowl top vent panel.
 - Release the seven spring retainers.



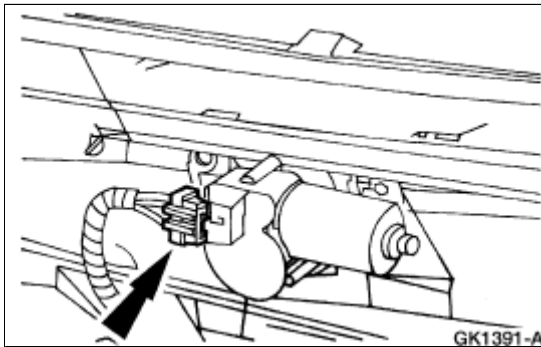
5. Unsnap the wiper motor clip from the RH mounting arm and pivot shaft.



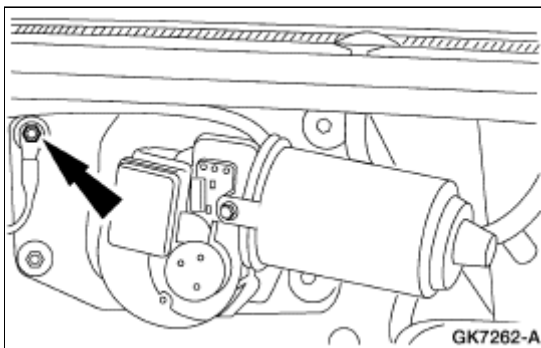
6. Disconnect the RH windshield wiper mounting arm and pivot shaft (17566) from the LH windshield wiper mounting arm and pivot shaft (17567) and move both away from the windshield wiper motor.



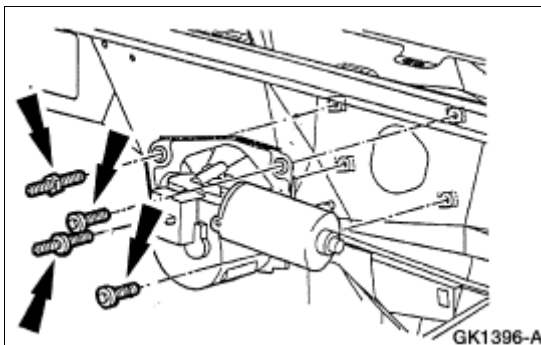
7. Disconnect the electrical connector.



8. Remove the ground strap nut and position the strap aside.



9. Remove the windshield wiper motor.
 - Remove the stud bolts.
 - Remove the bolts.



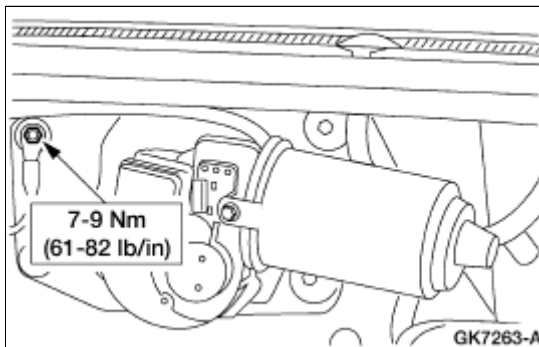
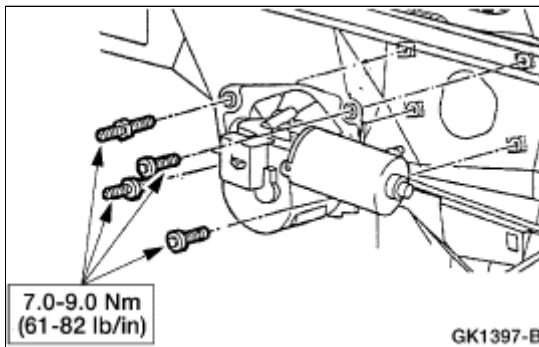
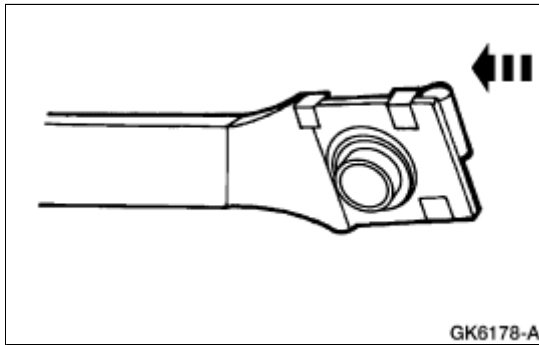
Installation

1.  **CAUTION:** To avoid possible damage to the mounting arm and pivot shaft retainer clip, be sure the clip is fully seated before installing on the motor crank pin.

NOTE: Install the LH mounting arm and pivot shaft to the motor before installing the RH mounting arm and pivot shaft.

NOTE: Install the retainer clip on the RH mounting arm and pivot shaft prior to installing the motor.

To install, reverse the removal procedure.



SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

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Module —Generic Electronic Module (GEM)

For additional information, refer to [Section 419-10](#).

SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

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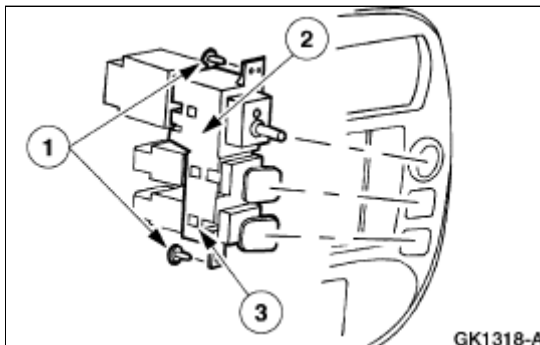
Switch —Rear Wiper/Washer

Removal

1. Remove the instrument panel finish panel.
 1. Remove the two screws.
 2. Remove the center instrument panel finish panel.
 - Disconnect the electrical connectors.

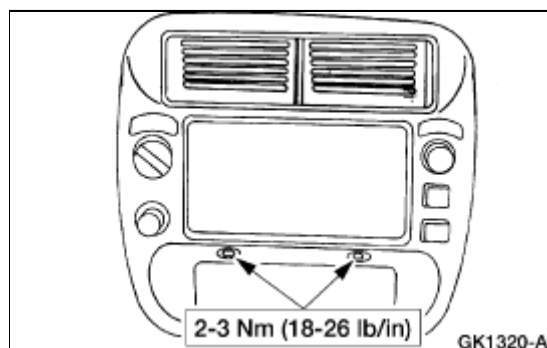
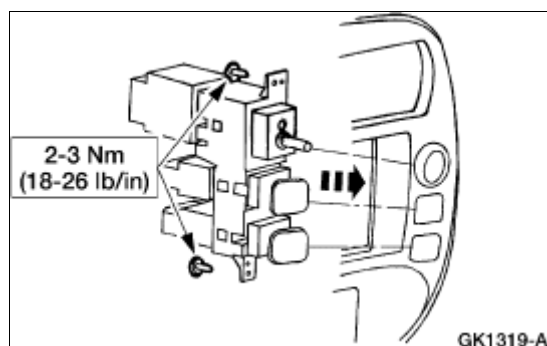


2. Remove the rear wiper/washer switch.
 1. Remove the screws.
 2. Remove the mounting bezel.
 3. Release the two tabs and remove the rear wiper/washer switch.



Installation

1. To install, reverse the removal procedure.



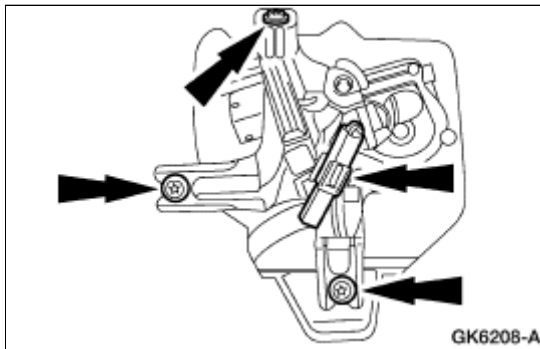
SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Motor —Rear Wiper

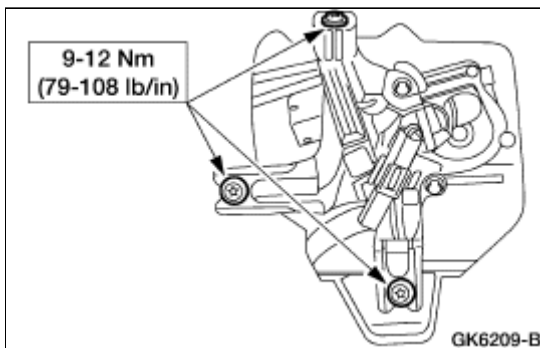
Removal

1. Remove the rear pivot arm; refer to [Pivot Arm—Rear](#).
2. Remove the liftgate door trim panel; refer to [Section 501-05](#).
3. Position the watershield aside to gain access to the rear wiper motor.
4. Remove rear wiper motor.
 - Disconnect electrical connector.
 - Remove three retaining bolts.
 - Remove rear wiper motor.



Installation

1. To install, reverse the removal procedure.



SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

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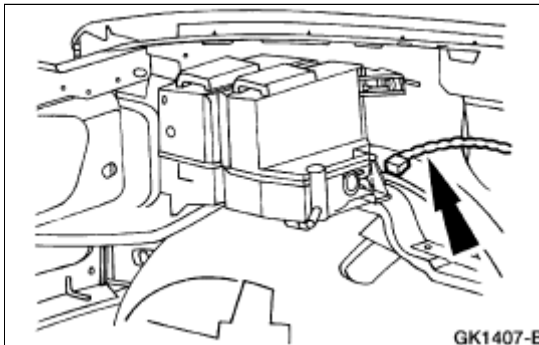
Washer Pump and Reservoir —Front

Removal

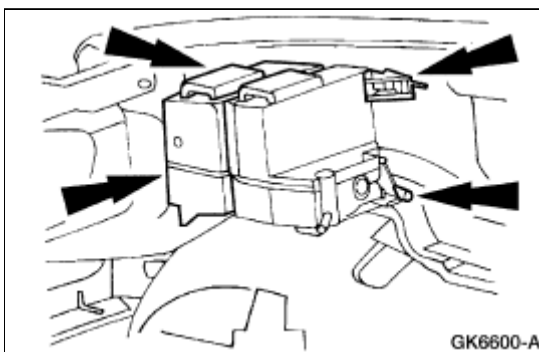
1. **NOTE:** To prevent spilling windshield washer fluid, drain the windshield washer reservoir (17618) before removal.

Disconnect the windshield washer hose from the windshield washer pump.

2. Disconnect the coolant overflow hose from the engine coolant overflow reservoir and plug the outlet of the reservoir.
3. Disconnect the windshield washer reservoir pump electrical connector and low level washer fluid electronic sensor connector, if equipped.

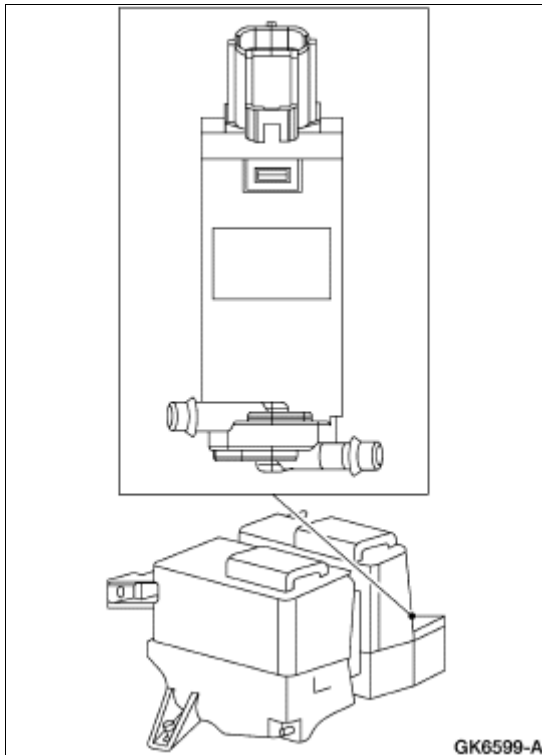


4. Remove the engine air cleaner; refer to [Section 303-12](#).
5. Remove the two screws and two nuts and remove the windshield washer reservoir.



6. **NOTE:** Make sure not to tear the rubber grommet during disassembly.

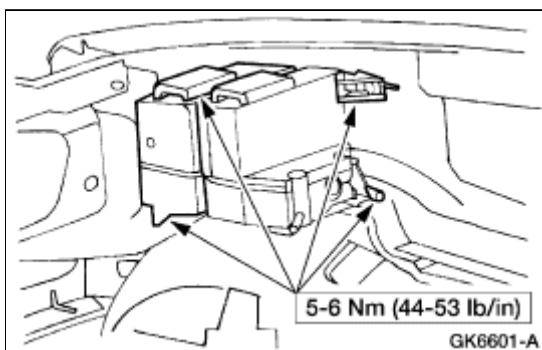
Remove the windshield washer pump.



Installation

1. **NOTE:** The windshield washer reservoir, windshield washer pump (17664) and the windshield washer reservoir fluid level sensor (17B649) are replaced separately.

To install, reverse the removal procedure.

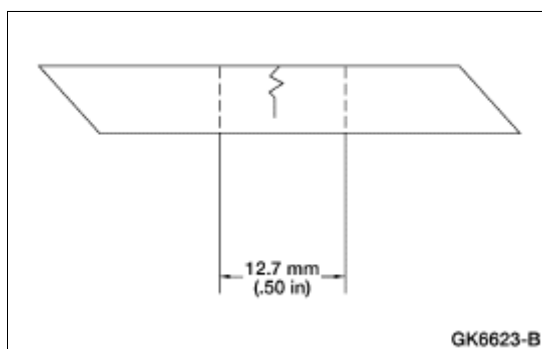


SECTION 501-16: Wipers and Washers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Washer Pump and Reservoir —Washer Hose Repair

1. Locate and verify the leaking washer hose.
2. Cut the hose cleanly and remove the damaged portion of the washer hose.



3. Install a windshield washer hose adapter (17A612) between the cut ends of the hose.
4. **NOTE:** In difficult cases, clamping may be required.

Install a segment of 6.4 mm (0.25 in) i.d. black rubber hose N809610-S or equivalent over the ends of the washer hose, and clamp both ends of the rubber hose using spring clamps 389252-S101 or equivalent.

SECTION 501-17: Roof Opening Panel
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

General Specifications

Item	Specification
Roof Opening Panel	
Rear edge of roof panel to roof opening panel	0 - 1.5 mm (0.059)
Front edge of roof panel to roof opening panel	0 - 1.5 mm (0.059)

Torque Specifications

Description	Nm	lb-in
Roof opening panel assembly screws	10	89
Roof opening panel lifter arm bolts	4	35
Roof opening panel motor bolts	5	50

SECTION 501-17: Roof Opening Panel
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Roof Opening Panel

The roof opening panel consists of the following:

- air deflector
- overhead console
- roof opening panel motor
- roof opening panel module located above the headliner
- roof opening panel
- roof opening panel shield
- roof opening panel switch
- roof opening panel drain hose

The roof opening panel is an electronically operated panel that can be opened or closed by depressing a switch located inside the vehicle on the overhead console. It also has a one-touch open feature.

When the roof opening panel switch is rocked rearward, the roof opening panel moves back into the storage space between the headliner and the roof panel (50202).

The roof opening panel can be moved to the fully closed position by rocking the switch forward and holding it until the roof opening panel is fully closed.

When the roof opening panel is in the fully closed position, the rear portion can be raised to the vent position to provide ventilation by rocking the switch forward. The roof opening panel can be closed by rocking the switch rearward.

SECTION 501-17: Roof Opening Panel
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop Manual

Roof Opening Panel

Special Tool(s)

 ST1137-A	73III Automotive Meter 105-R0057 or equivalent

Inspection and Verification

1. Verify the customer concern by operating the roof opening panel.
2. Visually inspect for obvious signs of mechanical and electrical damage.

Visual Inspection Chart

Mechanical	Electrical
• Roof opening panel • Opening shield • Roof panel frame • Opening shield guide feet	• Central junction box Fuse 26 (10A) • Battery junction box Fuse 4 (30A) maxi-fuse • Relays • Roof opening panel switch • Wiring harness • Roof opening panel motor

3. If the concern is not visually evident, determine the symptom and proceed to the Symptom Chart.

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
• The roof opening panel has excessive wind noise	• Incorrect adjustment. • Roof opening panel seals.	• GO to Pinpoint Test A.
• The roof opening panel leaks	• Improper adjustment. • Roof opening panel frame drain hose. • Roof opening panel seals. • Roof opening panel frame.	• GO to Pinpoint Test B.
• The roof opening panel rattles	• Roof opening panel.	• GO to Pinpoint

	• Roof opening panel rail or guide. • Rear lifter assemblies. • Front guides. • Roof opening panel headlining.	Test C .
• The roof opening panel is noisy during operation	• Sliding roof outer glass panel. • Roof opening panel rail and guide or troughs. • Rear guide pin. • Rear lifter assemblies. • Roof opening panel motor.	• GO to Pinpoint Test D .
• The roof opening panel does not open or close	• Central junction box Fuse 26 (10A). • Battery junction box Fuse 4 (30A). • Circuitry. • Switch. • Roof opening panel motor.	• GO to Pinpoint Test E .
• The roof opening panel does not seat in flush position from any position	• Incorrect adjustment.	• REFER to General Procedures.

Pinpoint Tests

PINPOINT TEST A: THE ROOF OPENING PANEL HAS EXCESSIVE WIND NOISE

CONDITIONS	DETAILS/RESULTS/ACTIONS
A1 CHECK THE ROOF OPENING PANEL SEALS	
	1 NOTE: Make sure the seals are not loose, cracked, pinched, or obstructed. Check the roof opening panel seals. • Are the seals OK? → Yes GO to A2 . → No REPAIR as necessary. TEST the system for normal operation.
A2 CHECK THE ROOF OPENING PANEL ADJUSTMENT	
1 	

	② Open and close the roof opening panel. ③ Check the adjustment when the roof opening panel closes. • Is the adjustment OK? → Yes Check for correct installation of the roof opening panel motor. Refer to Motor—Roof Opening Panel. TEST the system for normal operation. → No ADJUST the roof opening panel. REFER to Roof Opening Panel Alignment or Roof Opening Panel Horizontal Adjustment. TEST the system for normal operation.

PINPOINT TEST B: THE ROOF OPENING PANEL LEAKS

CONDITIONS	DETAILS/RESULTS/ACTIONS
B1 CHECK THE ADJUSTMENT OF THE ROOF OPENING PANEL	
	① NOTE: Make sure the roof opening panel seals are not cracked or loose. Check the roof opening panel seals. • Does the roof opening panel seal correctly? → Yes GO to B2. → No ADJUST the roof opening panel. REFER to Roof Opening Panel Alignment or Roof Opening Panel Horizontal Adjustment. TEST the system for normal operation.
B2 CHECK THE DRAIN HOSES	
	① NOTE: Make sure the drain hoses are not cracked, slit, pinched, or obstructed. Check the four drain hoses for correct operation. • Are the drain hoses OK? → Yes GO to B3. → No REPAIR or INSTALL a new drain hose(s). Refer to Roof Opening Panel Drain Hose. TEST the system for normal operation.
B3 CHECK THE DRAIN HOSE ATTACHMENT POINTS	
	① NOTE: Make sure the drain hose attachment points are not damaged or obstructed. Check the drainage points for proper attachment.

	• Are the attachment points OK? → Yes GO to B4. → No REPAIR the roof opening panel as necessary. TEST the system for normal operation.
B4 CHECK THE WATER TROUGH CONDITION	
	1 Check the water trough for damage. • Is the water trough OK? → Yes GO to B5. → No REPAIR the water trough. TEST the system for normal operation.
B5 CHECK THE CONDITION OF THE ROOF OPENING PANEL	
	1 Check the roof opening panel frame for damage that may cause the roof opening panel seal to seat incorrectly. • Is the roof opening panel frame OK? → Yes INSTALL a new roof opening panel; REFER to Roof Opening Panel. TEST the system for normal operation. → No REPAIR roof opening panel frame as necessary. TEST the system for normal operation.

PINPOINT TEST C: THE ROOF OPENING PANEL RATTLES

CONDITIONS	DETAILS/RESULTS/ACTIONS
C1 CHECK THE ROOF OPENING PANEL OPERATION	
	1 Check the roof opening panel during operation. • Is the roof opening panel loose? → Yes ADJUST the roof opening panel. REFER to Roof Opening Panel Alignment or Roof Opening Panel Horizontal Adjustment. TEST the system for normal operation. → No GO to C2.

C2 CHECK THE ROOF OPENING PANEL TRACKS	
	1 Open the roof opening panel. 2 Check the tracks for obstructions and damage. • Are the tracks OK? → Yes GO to C3. → No REMOVE all the track obstructions and REPAIR the roof opening panel tracks. TEST the system for normal operation.
C3 CHECK THE WATER TROUGH AND TROUGH GUIDES	
	1 Check the water trough and trough guides for any loose fasteners or obstructions. • Are the trough and trough guides installed securely and free from foreign material? → Yes GO to C4. → No REMOVE all foreign material from the trough and install securely. SECURE the trough guides or REPAIR as necessary. TEST the system for normal operation.
C4 CHECK THE OPENING SHIELD	
	1 Check the opening shield for correct installation. • Is the opening shield installed correctly? → Yes GO to C5. → No INSTALL the opening shield correctly. Refer to Roof Opening Panel Shield. TEST the system for normal operation.
C5 CHECK THE AIR DEFLECTOR ASSEMBLY	
	1 Check the air deflector for obstructions and damage. • Is the air deflector OK? → Yes GO to C6. → No REMOVE all obstructions and REPAIR or INSTALL a new the air deflector assembly. REFER to Air Deflector. TEST the system for normal operation.
C6 CHECK ROOF OPENING PANEL	

	1 Verify the roof opening panel is free from obstruction, damage, and is securely fastened. • Is the roof opening panel OK? → Yes INSTALL a new roof opening panel frame. REFER to Roof Opening Panel Frame . → No REPAIR the roof opening panel as necessary. REFER to Roof Opening Panel . TEST the system for normal operation.

PINPOINT TEST D: THE ROOF OPENING PANEL IS NOISY DURING OPERATION

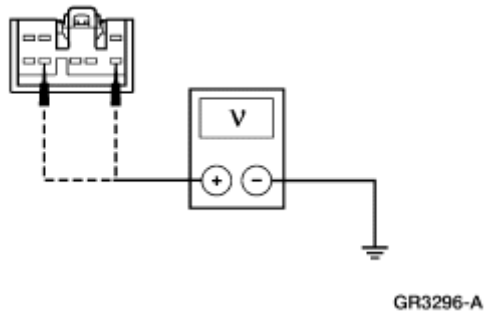
CONDITIONS	DETAILS/RESULTS/ACTIONS
D1 CHECK THE ROOF OPENING PANEL FOR OBSTRUCTIONS OR DAMAGE	
	1 Check the roof opening panel for any obstructions and damage. • Are there any obstructions and damage? → Yes REMOVE all obstructions. REPAIR the roof opening panel as necessary. TEST the system for normal operation. → No GO to D2 .
D2 CHECK THE ROOF OPENING PANEL OPERATION	
	1 Check the roof opening panel during operation. • Is the roof opening panel loose or not correctly adjusted? → Yes ADJUST the roof opening panel. REFER to Roof Opening Panel Alignment or Roof Opening Panel Horizontal Adjustment . It may be necessary to adjust the roof opening panel forward. TEST the system for normal operation. → No GO to D3 .
D3 CHECK THE ROOF OPENING PANEL TRACKS	
	1 Open the roof. 2 Check the tracks for obstructions and damage. • Are the tracks OK? → Yes GO to D4 .

	→ No REMOVE all obstructions and REPAIR any damage. TEST the system for normal operation.
D4 CHECK THE OPENING SHIELD	
	1 Check the opening shield for proper movement. • Is the opening shield moving correctly? → Yes GO to D5. → No REMOVE and REINSTALL the opening shield. REFER to Roof Opening Panel Shield. TEST the system for normal operation.
D5 CHECK THE LIFTER ARMS	
	1 Check the lifter arms for obstructions and damage. • Are the lifter assemblies OK? → Yes GO to D6. → No REMOVE all obstructions and REPAIR any damage. TEST the system for normal operation.
D6 CHECK THE ROOF OPENING PANEL MOTOR	
	1 Gain access to the roof opening panel motor. 2 Open the roof opening panel. • Does the motor make excessive noise? → Yes INSTALL a new roof opening panel motor. REFER to Motor—Roof Opening Panel. TEST the system for normal operation. → No ADJUST the roof opening panel. REFER to Roof Opening Panel Alignment or Roof Opening Panel Horizontal Adjustment. TEST the system for normal operation.

PINPOINT TEST E: THE ROOF OPENING PANEL DOES NOT OPEN OR CLOSE

CONDITIONS	DETAILS/RESULTS/ACTIONS
E1 CHECK THE POWER DOOR LOCKS	
	1 Verify the power door locks operate.

	• Do the power door locks operate? → Yes GO to E2. → No REFER to Section 501-14A.
E2 CHECK THE POWER WINDOWS	
1 	2 Verify the power windows operate. • Do the power windows operate? → Yes GO to E3. → No REFER to Section 501-11.
E3 CHECK VOLTAGE TO THE ROOF OPENING PANEL MOTOR — CIRCUITS 400 (LB/BK) AND 170 (RD/LB)	
1  2  Roof Opening Panel Motor C901 3  4	4 NOTE: The battery saver must be activated for this check. Measure the voltage between roof opening panel motor C901 pin 8, circuit 400 (LB/BK), and ground; and between roof opening panel motor C901 pin 5, circuit 170 (RD/LB), and ground.



- Are the voltages greater than 10 volts?

→ **Yes**

GO to [E4](#).

→ **No**

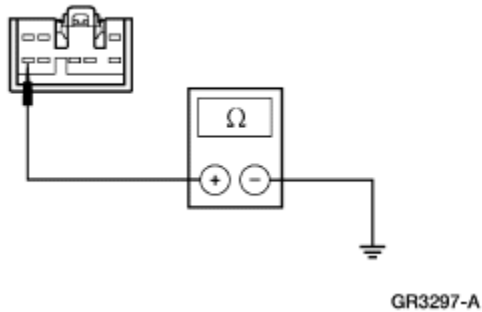
REPAIR circuit 400 (LB/BK) or circuit 170 (RD/LB). TEST the system for normal operation.

E4 CHECK THE ROOF OPENING PANEL GROUND — CIRCUIT 57 (BK)

1



2



2

Measure the resistance between roof opening panel motor C901 pin 4, circuit 57 (BK), and ground.

- Is the resistance less than 5 ohms?

→ **Yes**

GO to [E5](#).

→ **No**

REPAIR the circuit. TEST the system for normal operation.

E5 CHECK THE VOLTAGE TO ROOF OPENING PANEL SWITCH

1

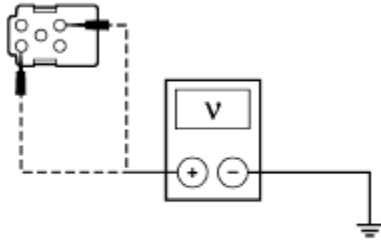


Roof Opening Panel Switch C900

2



3



GR3298-A

3

Measure the voltage between roof opening panel switch C900 pin 2, circuit 691 (DB), and ground; and between roof opening panel switch C900 pin 4, circuit 692 (RD), and ground.

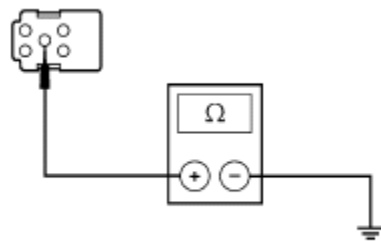
- Are the voltages greater than 10 volts?

→ **Yes**
GO to [E6](#).

→ **No**
GO to [E7](#).

E6 CHECK ROOF OPENING PANEL SWITCH GROUNDS — CIRCUIT 57 (BK)

1



GR3299-A

1

Measure the resistance between roof opening panel switch C900 pin 3, circuit 57 (BK), and ground.

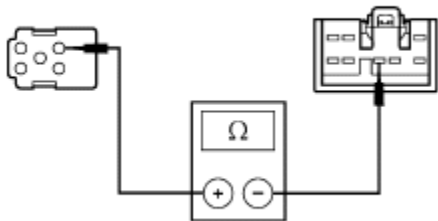
- Is the resistance less than 5 ohms?

→ **Yes**
INSTALL a new roof opening panel switch.
TEST the system for normal operation.

→ **No**
REPAIR the circuit. TEST the system for normal operation.

E7 CHECK CIRCUIT 691 (DB) FOR OPEN**1****2**

Roof Opening Panel Motor C901

3

GR3300-A

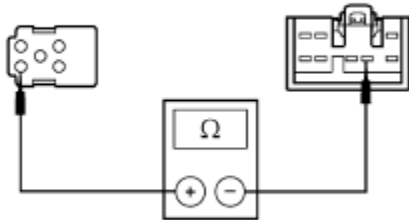
3

Measure the resistance between the roof opening panel switch C900 pin 2, circuit 691 (DB), and roof opening panel motor C901 pin 6, circuit 691 (DB).

- Is the resistance less than 5 ohms?

→ **Yes**GO to [E8](#).→ **No**

REPAIR the circuit. TEST the system for normal operation.

E8 CHECK CIRCUIT 692 (RD) FOR OPEN**1**

GR3301-A

1

Measure the resistance between the roof opening panel switch C900 pin 4, circuit 692 (RD), and roof opening panel motor C901 pin 7, circuit 692 (RD).

- Is the resistance less than 5 ohms?

→ **Yes**

INSTALL a new roof opening panel motor. REFER to [Motor—Roof Opening Panel](#). TEST the system for normal operation.

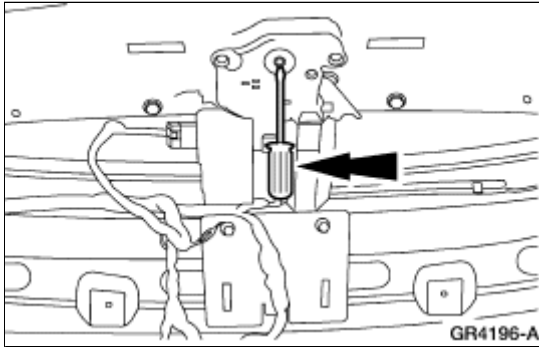
	→ No REPAIR the circuit. TEST the system for normal operation.

SECTION 501-17: Roof Opening Panel
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop Manual

Manual Operation

1. Remove the overhead console. For additional information, refer to [Section 501-12](#).
2. Insert a flat head screwdriver in the center of the manual drive slot to depress the release pin. Rotate the screwdriver clockwise until the roof opening panel is closed.

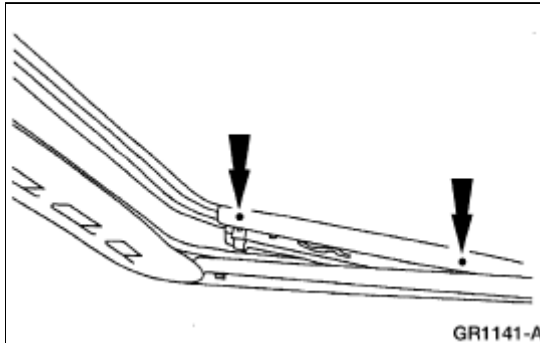


SECTION 501-17: Roof Opening Panel
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop Manual

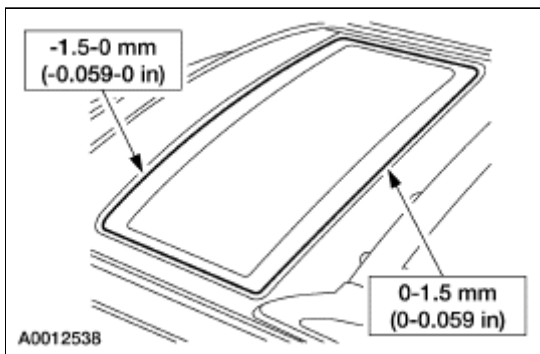
Roof Opening Panel Alignment

1. Loosen the four roof opening panel bolts.

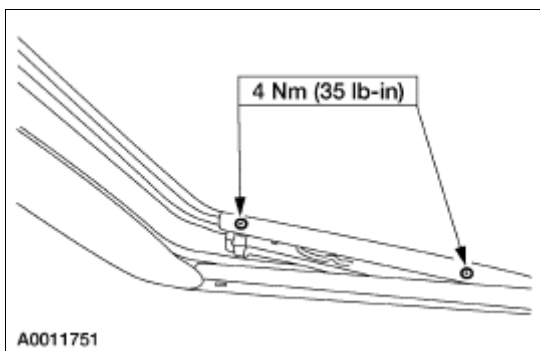


2. Close the roof opening panel.
3. **NOTE:** The correct position of the roof opening panel to the roof panel should be 0 to 1.5 mm (0.059 in) above the roof panel at the rear edge and 0 to 1.5 mm (0.059 in) below the roof panel at the front edge of the panel.

Adjust the roof opening panel.



4. Tighten the roof opening panel bolts.



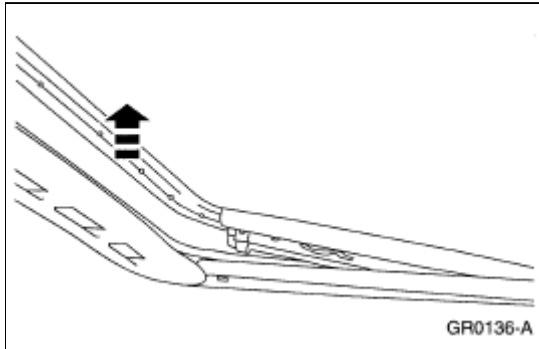


SECTION 501-17: Roof Opening Panel
GENERAL PROCEDURES

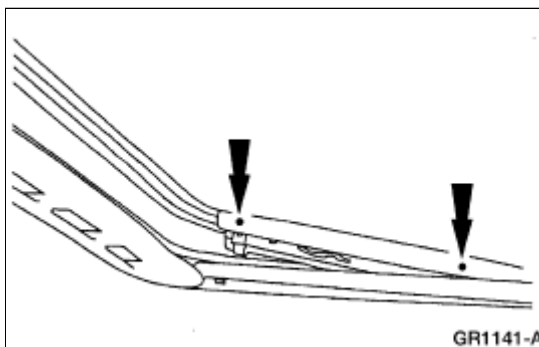
2000 Explorer/Mountaineer Workshop Manual

Roof Opening Panel Horizontal Adjustment

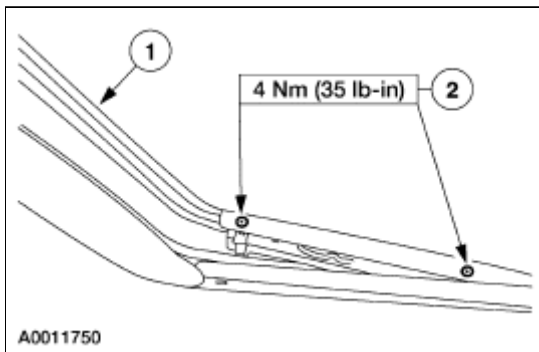
1. Open the roof opening panel to the vent position.



2. Loosen the roof opening panel.
 - Loosen the four lifter arm bolts.



3. Adjust the roof opening panel.
 1. Reposition the roof opening panel.
 2. Tighten the four lifter arm bolts.



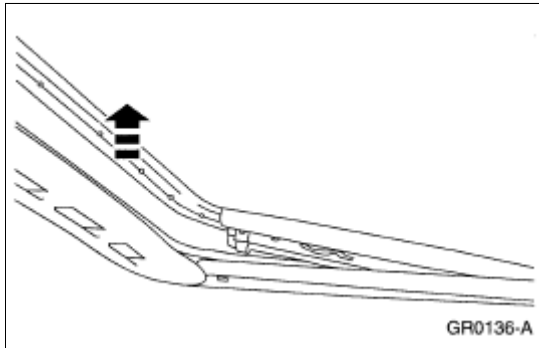
SECTION 501-17: Roof Opening Panel
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

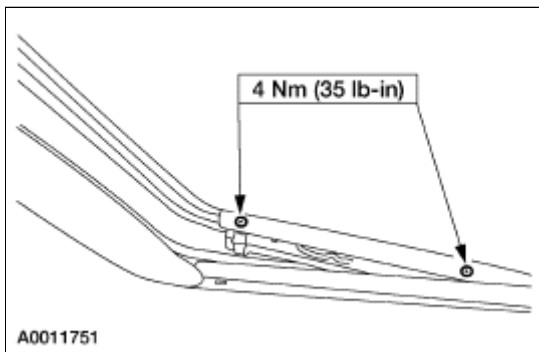
Roof Opening Panel

Removal and Installation

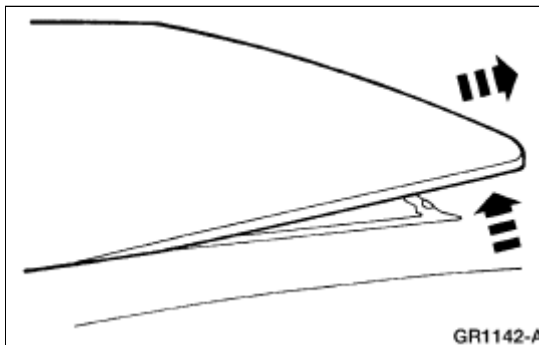
1. Open the roof opening panel to the vent position.



2. Remove the four lifter arm bolts.



3. From outside the vehicle, remove the roof opening panel.



4. To install, reverse the removal procedure.
 - Check for correct alignment of the panel. For additional information, refer to [Roof Opening Panel Alignment](#) and [Roof Opening Panel Horizontal Adjustment](#) in this section.



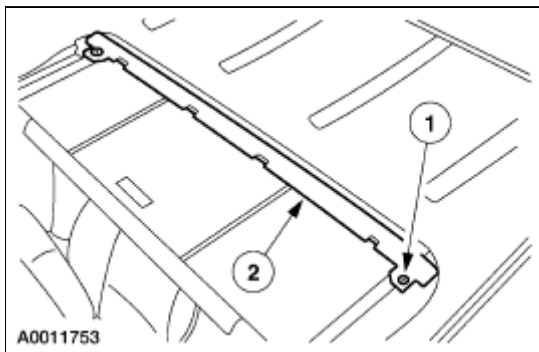
SECTION 501-17: Roof Opening Panel
REMOVAL AND INSTALLATION

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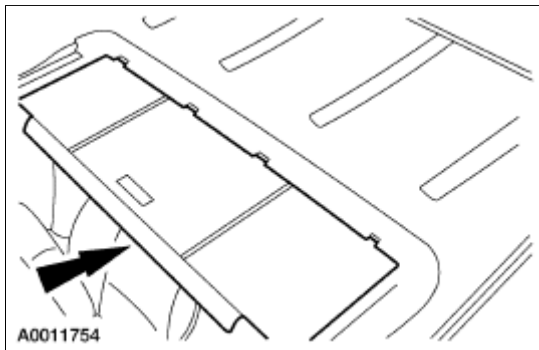
Roof Opening Panel Shield

Removal and Installation

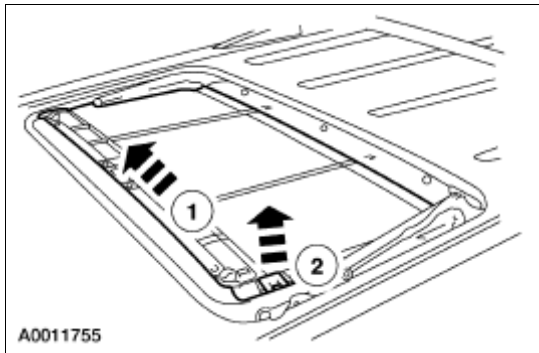
1. Remove the roof opening panel. For additional information, refer to [Roof Opening Panel](#) in this section.
2. Remove the water channel.
 1. Remove the screws.
 2. Remove the water channel.



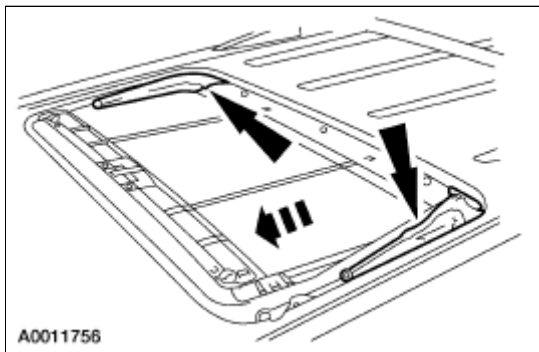
3. Slide the roof opening panel shield forward halfway.



4. Disengage the roof opening panel shield spring-loaded guide feet.
 1. Push the roof opening panel shield toward one side of the vehicle.
 2. Lift the front portion of the roof opening panel shield upward to disengage the spring-loaded guide feet.



5. Slide the roof opening panel shield forward and release the rear guide feet.



6. **NOTE:** When installing the water channel, make sure that the water channel is seated on the locking clips. The LH water channel screw must be installed first.

To install, reverse the removal procedure.

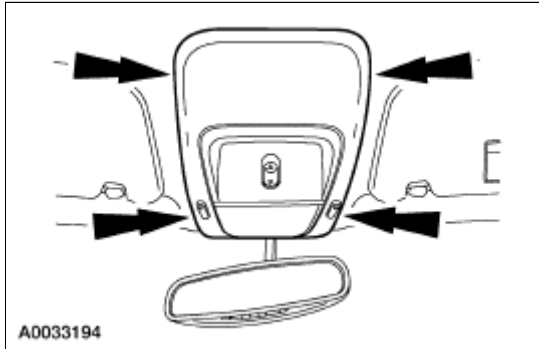
SECTION 501-17: Roof Opening Panel
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

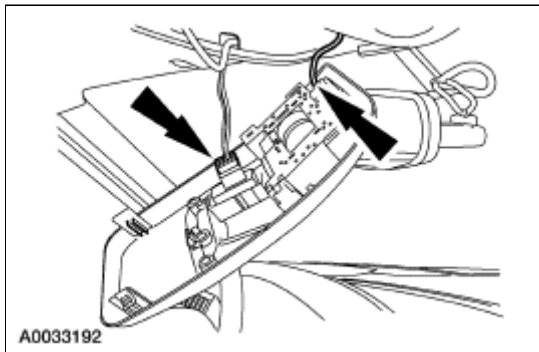
Motor —Roof Opening Panel

Removal

1. Remove the overhead console.
 - Disengage the retaining clips and partially remove the overhead console.



2. Disconnect the electrical connectors.



3. **NOTE:** Make sure that the roof opening panel motor is in the closed position before removal.

Remove the motor.

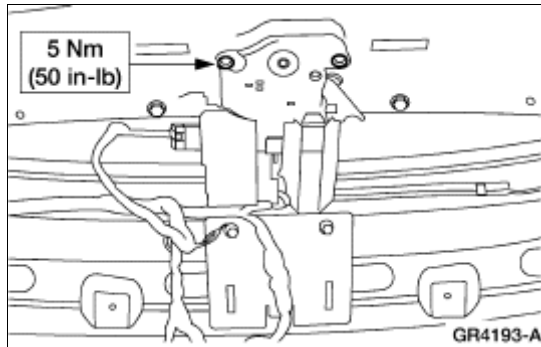
1. Remove the bolts.
2. Disconnect the electrical connector.

Installation

1. **NOTE:** The roof opening panel should be in the closed position.

Connect the roof opening panel motor electrical connector.

2. Position the overhead console and connect the electrical connectors.
3. With the motor still removed, bump the switch one time only towards the close or vent open position.
4. Position the roof opening panel motor and install the bolts.



5. Install the overhead console.
-

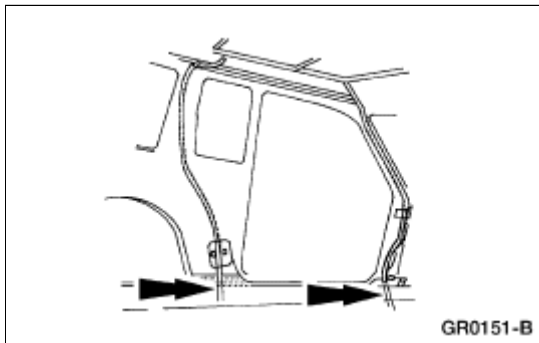
SECTION 501-17: Roof Opening Panel
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

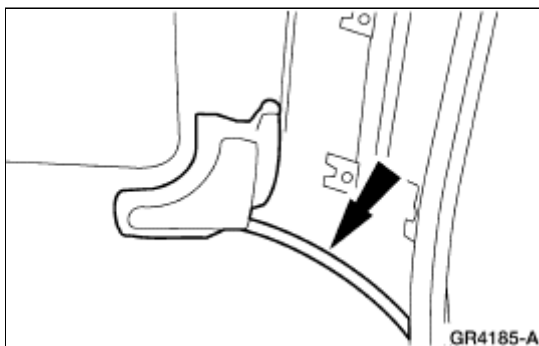
Roof Opening Panel Drain Hose

Removal and Installation

1. Remove the headliner. For additional information, refer to [Section 501-05](#).
2. From underneath the vehicle, securely attach a new drain hose to the lower end of the old drain hose.

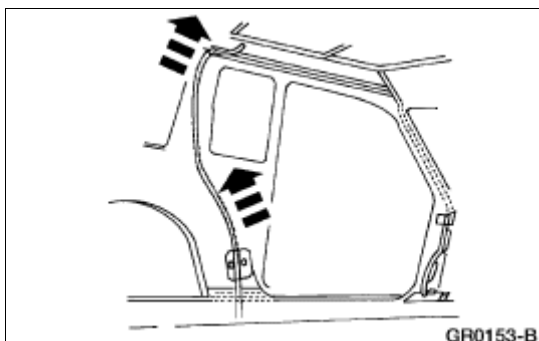


3. Disconnect the drain hose from the roof opening panel assembly.



4. **NOTE:** Make sure that the hoses are not kinked.

Pull the old drain hose through the body of the vehicle and connect the new hose to the roof opening panel.



5. Install the headliner. For additional information, refer to [Section 501-05](#).
-

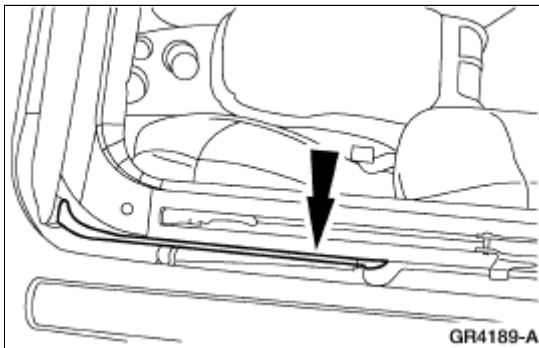
SECTION 501-17: Roof Opening Panel
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

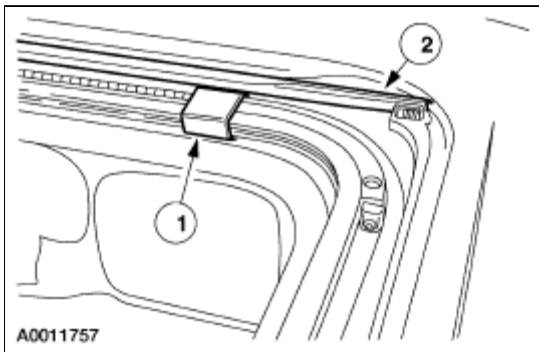
Air Deflector

Removal and Installation

1. Open the roof opening panel to the fully retracted position.
2. Release the two air deflector arms.



3. Remove the air deflector.
 1. Detach the two air deflector retainer clips from the U-frame.
 2. Remove the air deflector.



4. To install, reverse the removal procedure.
-

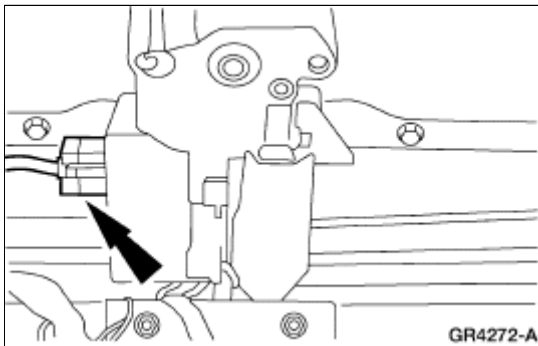
SECTION 501-17: Roof Opening Panel
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

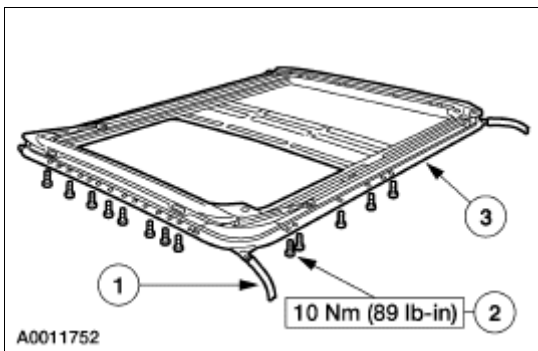
Roof Opening Panel Frame

Removal and Installation

1. Remove the headliner. For additional information, refer to [Section 501-05](#).
2. Disconnect the roof opening panel motor electrical connector.



3. Remove the roof opening panel frame.
 1. Disconnect the four drain hoses.
 2. Remove the fourteen screws.
 3. Remove the roof opening panel frame.



4. To install, reverse the removal procedure.
-

SECTION 501-19: Bumpers
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

Torque Specifications

Description	Nm	lb-ft
Front bumper cover strut bolts (Mountaineer)	12	9
Front bumper nuts	70	52
Front bumper fog lamp bracket bolts (Explorer)	30	22
Front bumper fog lamp bracket bolts (Mountaineer)	12	9
Rear bumper isolator and bracket bolts	98-132	72-97
Rear bumper to frame nuts	98-132	72-97

SECTION 501-19: Bumpers
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Bumpers

The bumper system consists of the following components:

- air deflector
 - fog lamps
 - front license plate mounting bracket
 - front bumper reinforcement
 - front bumper cover
 - front bumper cover corner mouldings (Explorer)
 - rear bumper spacers
 - rear bumper stone deflector
 - rear bumper
-

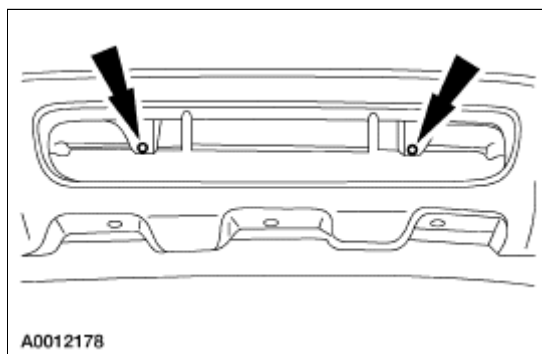
SECTION 501-19: Bumpers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

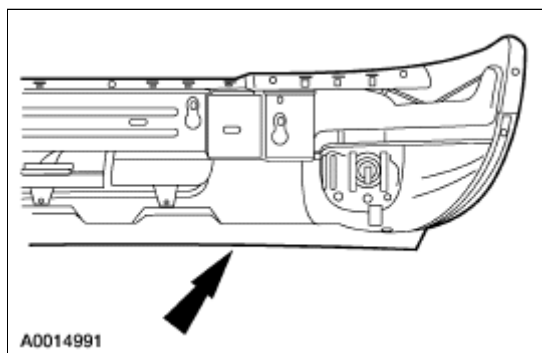
Bumper Cover —Explorer

Removal

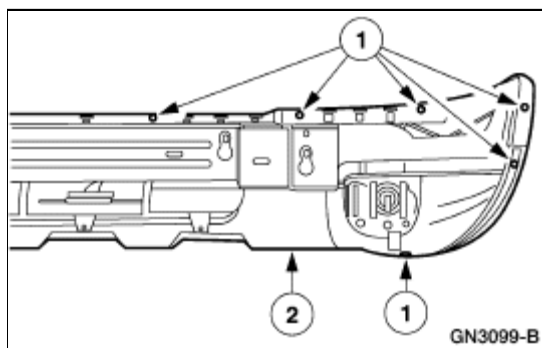
1. Remove the front bumper. For additional information, refer to [Bumper—Front](#) in this section.
2. Remove the bumper cover pin-type retainers.



3. Remove the six fasteners, one pin-type retainer and the air deflector.



4. Remove the bumper cover.
 1. Remove the 12 screws.
 2. Remove the bumper cover.



Installation

1. To install, reverse the removal procedure.
-

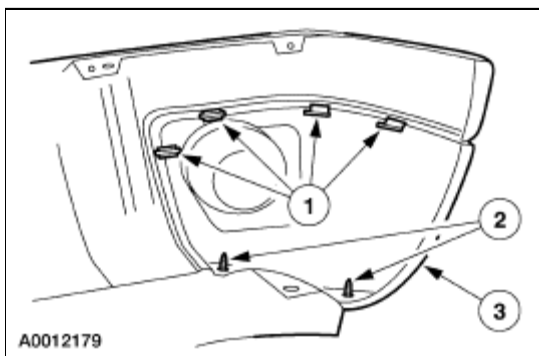
SECTION 501-19: Bumpers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Bumper Cover —Corner Molding, Explorer

Removal

1. Remove the front bumper cover. For additional information, refer to [Bumper Cover—Explorer](#) in this section.
2. Remove the bumper cover corner moulding.
 1. Remove the clips.
 2. Remove the screws.
 3. Remove the bumper cover corner moulding.



Installation

1. To install, reverse the removal procedure.

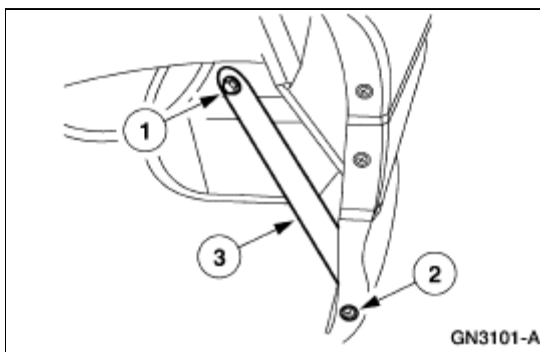
SECTION 501-19: Bumpers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

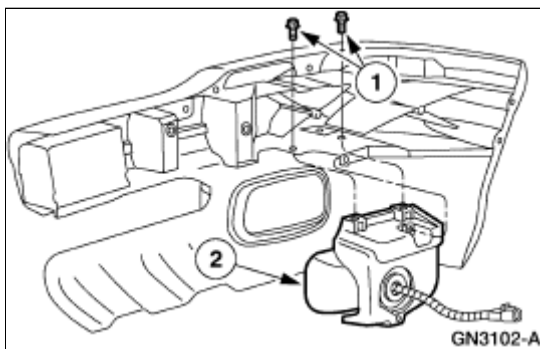
Bumper Cover —Mountaineer

Removal

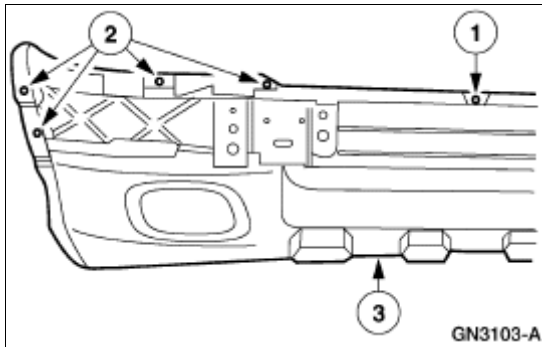
1. Remove the front bumper. For additional information, refer to [Bumper—Front](#) in this section.
2. Remove the two bumper cover struts.
 1. Remove the two bolts.
 2. Remove the two screws.
 3. Remove the two bumper cover struts.



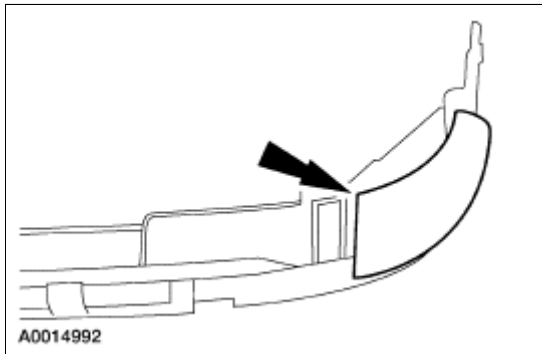
3. Remove the two fog lamp assemblies.
 1. Remove the four bolts.
 2. Remove the two fog lamp assemblies.



4. Remove the bumper cover.
 1. Remove the rivet.
 2. Remove the eight screws.
 3. Remove the bumper cover.

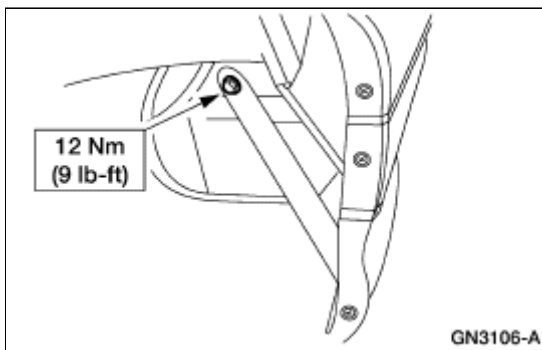
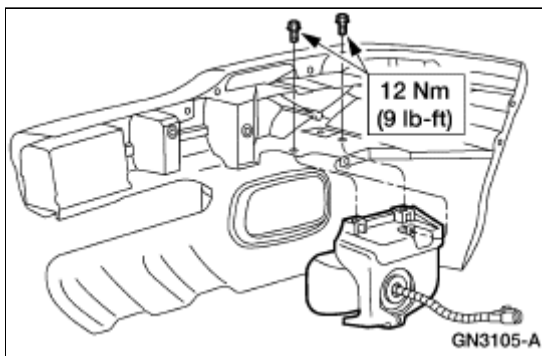


5. Remove the two bumper insulators.



Installation

1. To install, reverse the removal procedure.





SECTION 501-19: Bumpers
REMOVAL AND INSTALLATION

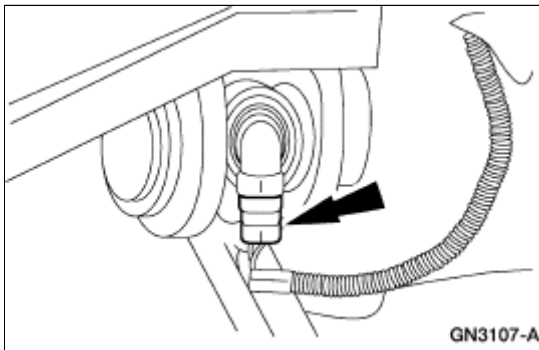
2000 Explorer/Mountaineer Workshop Manual

Bumper —Front

Removal

NOTE: Explorer shown, Mountaineer similar.

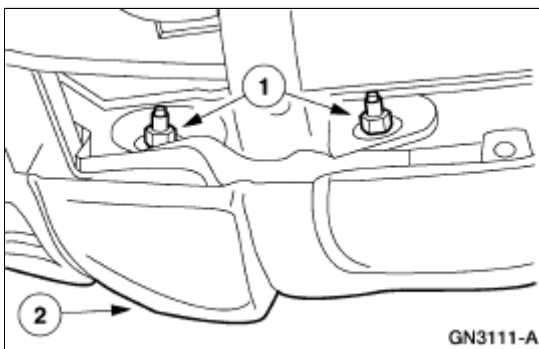
1. If equipped, disconnect the fog lamp electrical connector.



2.  **WARNING:** To avoid possible injury, support the front bumper before removing the nuts.

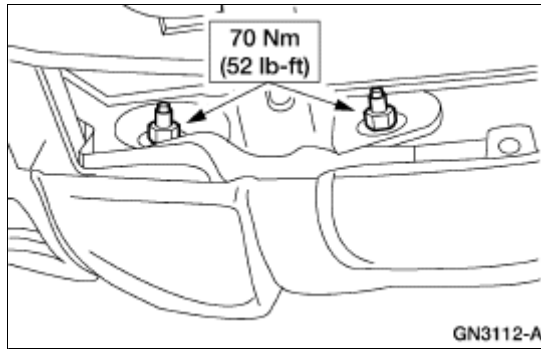
Remove the front bumper.

1. Remove the four nuts (two each side).
2. Remove the front bumper.



Installation

1. To install, reverse the removal procedure.



SECTION 501-19: Bumpers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Bumper —Rear

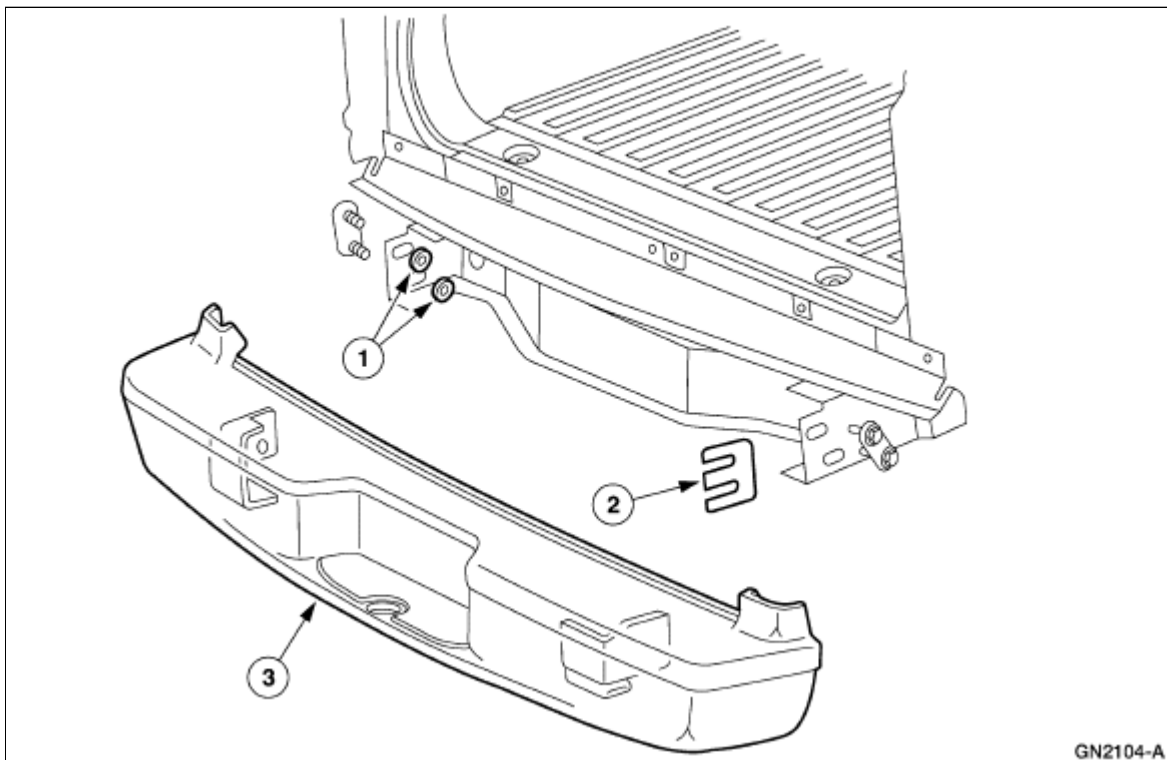
Removal

1. If equipped, disconnect the parking aid wiring harness electrical connector.
2.  **WARNING:** To avoid possible injury, support the rear bumper before removing the nuts.

NOTE: The rear bumper spacer is required for repair only.

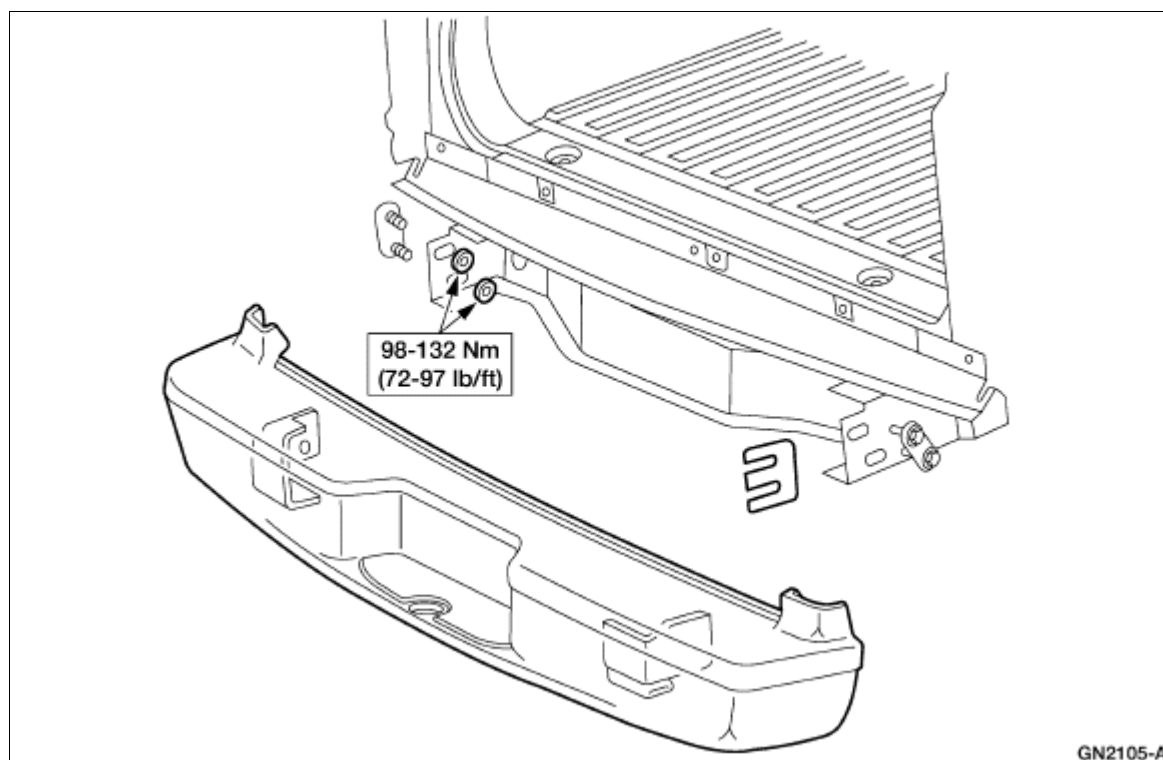
Remove the rear bumper (17906).

1. Support the bumper and remove the four nuts (two each side).
2. If equipped, remove the spacer.
3. Remove the rear bumper.



Installation

1. To install, reverse the removal procedure.



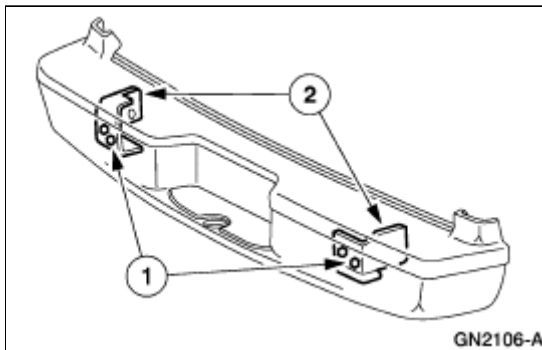
SECTION 501-19: Bumpers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Bumper Bracket —Rear

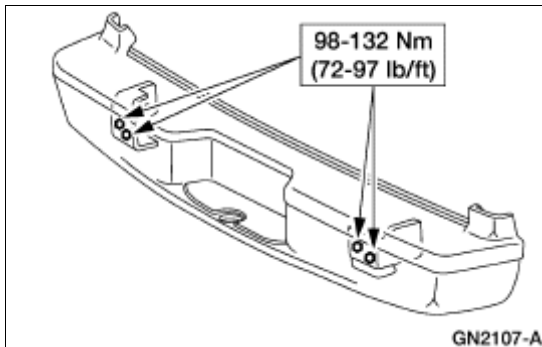
Removal

1. Remove the rear bumper (17906); refer to [Bumper—Rear](#) in this section.
2. Remove the rear bumper isolator and bracket (17787).
 1. Remove the nuts and bolts.
 2. Remove the isolators and brackets.



Installation

1. To install, reverse the removal procedure.



SECTION 501-19: Bumpers
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Parking Aid Sensor

Removal and Installation

For additional information, refer to [Section 413-13](#).

SECTION 501-20A: Occupant Restraints - Active
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

General Specifications

Item	Specification
Ford Threadlock 262 (E2FZ-19554-B)	WSK-M2G351-A6

Torque Specifications

Description	Nm	lb-ft	lb-in
Driver seat safety belt buckle nut	40	30	—
Front seat safety belt buckle bolts	40	30	—
Rear seat center occupant safety belt and retractor bolt	40	30	—
Rear seat safety belt buckle front nuts	40	30	—
Rear seat safety belt buckle assembly rear nuts	48	35	—
Safety belt anchor bolts	40	30	—
Safety belt guide to floor bolt	40	30	—
Safety belt guide to seat track bolt	9	—	80
Safety belt guide to seat track nut	9	—	80
Safety belt retractor bolts	40	30	—
Shoulder safety belt height adjuster bolts	40	30	—

SECTION 501-20A: Occupant Restraints - Active
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

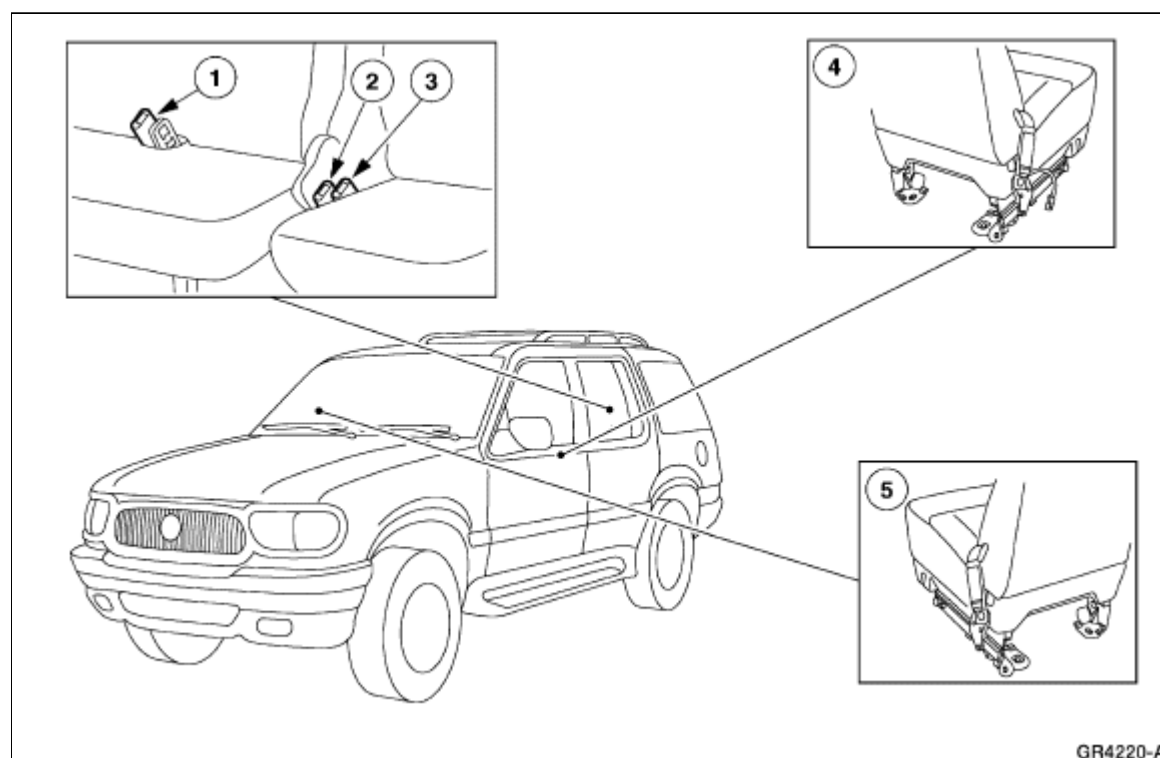
Occupant Restraint System



WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds that the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

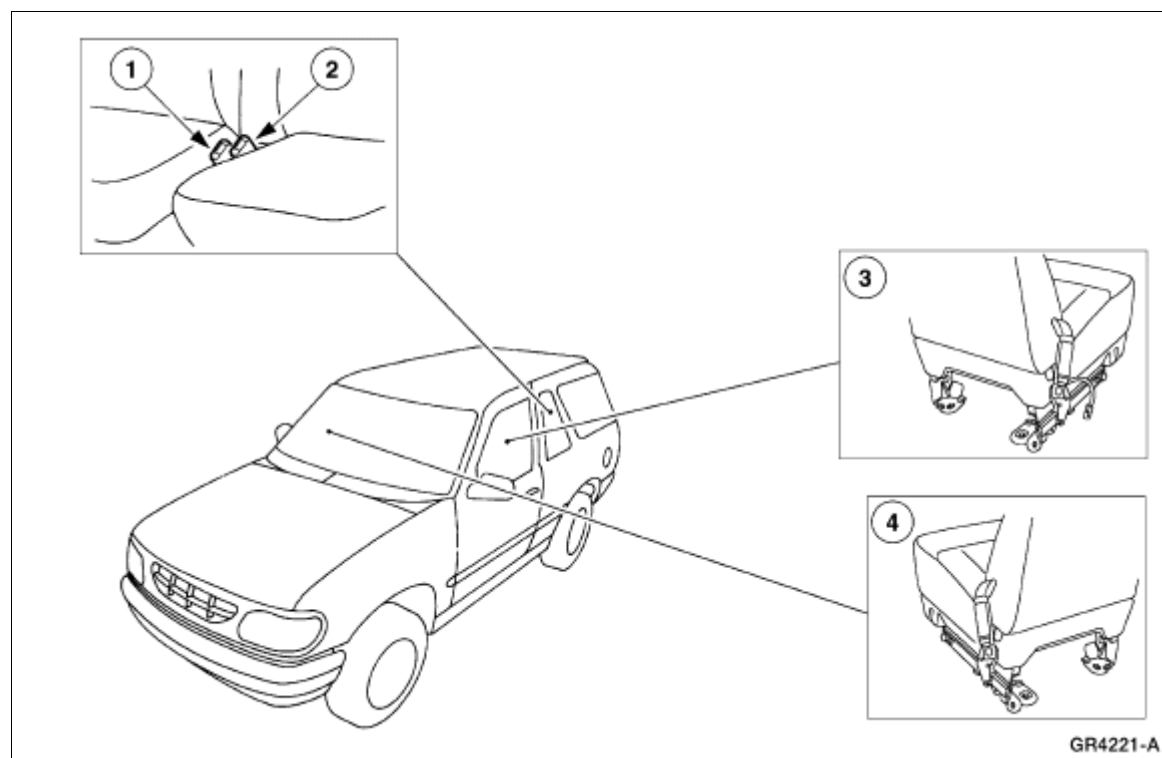
When replacing safety belt buckle or retractor assemblies, use only the replacement parts specified in the Ford Customer Service Division Master Parts Catalog.

Occupant Restraint System Component Locations — Buckles, Four-Door



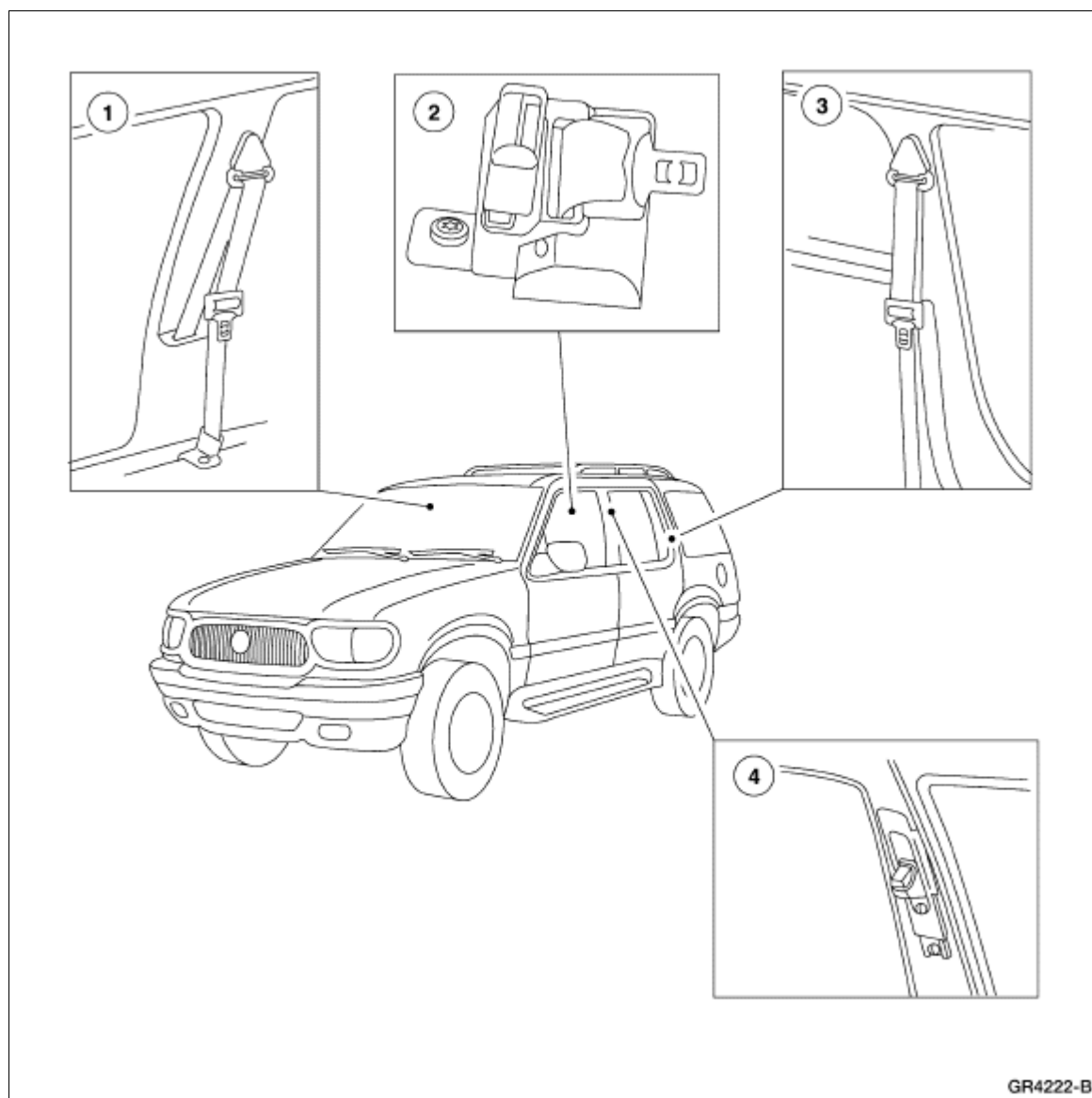
Item	Part Number	Description
1	—	Passenger side rear safety belt buckle
2	—	Center rear safety belt buckle
3	—	Driver side rear buckle
4	—	Driver side safety belt buckle (bucket seat)
5	—	Passenger side safety belt buckle (bucket seat)

Occupant Restraint System Component Locations — Buckles, Two-Door



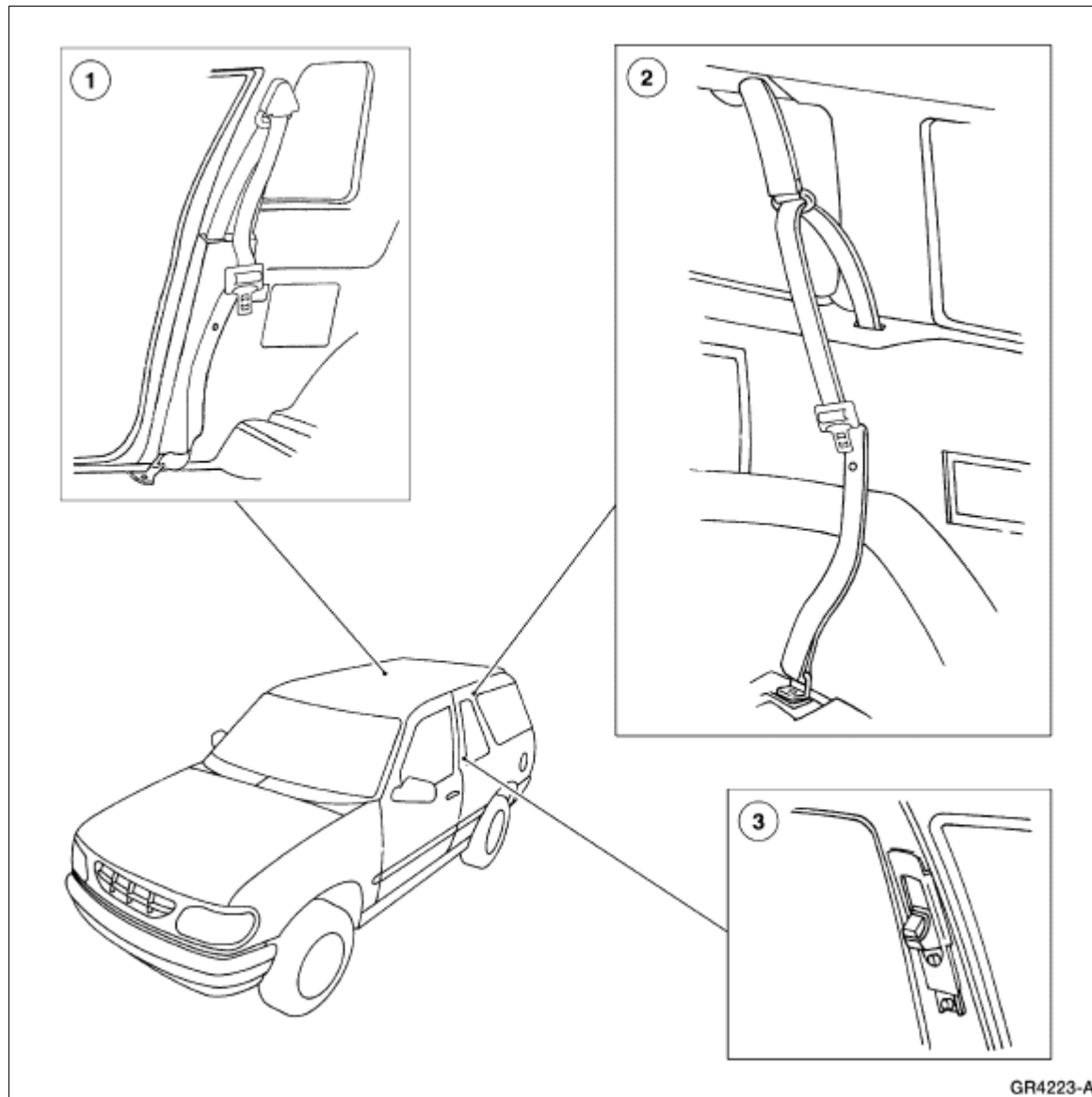
Item	Part Number	Description
1	—	Passenger side rear safety belt buckle
2	—	Driver side rear safety belt buckle
3	—	Driver side safety belt buckle (bucket seat)
4	—	Passenger side safety belt buckle (bucket seat)

Occupant Restraint System Component Locations — Retractors and Tongues, Four-Door



Item	Part Number	Description
1	—	Passenger side front safety belt retractor assembly
2	—	Center passenger rear safety belt retractor and rear passenger buckle assembly
3	—	Driver side rear retractor assembly (passenger side similar)
4	—	Driver shoulder safety belt height adjuster (passenger side similar)

Occupant Restraint System Component Locations — Retractors and Tongues, Two-Door



Item	Part Number	Description
1	—	Passenger side front safety belt retractor assembly
2	—	Rear driver side retractor assembly
3	—	Driver shoulder safety belt height adjuster (passenger side similar)

The outboard safety belt for the front and rear seats is a continuous-loop three-point system. The combination lap and shoulder belt (continuous-loop) uses a common sliding tongue and retractor.

The shoulder harness retractor is designed to let the webbing move freely in or out at all times, except during vehicle hard braking, hard cornering or an impact of 8 km/h (5 mph) or more, when it is automatically locked by a mechanically actuated inertia sensor.

Dual Locking Mode Retractors

NOTE: When replacing a dual locking mode retractor, the retractor should be checked to make sure it is not

in the automatic locking retractor (ALR) mode after installation in the stowed position.

All outboard continuous-loop, three-point retractor systems, except the driver position, are equipped with the dual locking mode system.

The emergency locking retractor (ELR) mode will allow the occupant freedom of movement, locking tight only on hard braking, hard cornering, or an impact of approximately 8 km/h (5 mph). The ELR mode helps to reduce the forward movement of the driver and passengers. The ELR mode is continuously in operation at all seating positions.

The ALR portion of this system does not allow the occupant freedom of movement. The ALR mode is used when locking a child seat in an outboard seating position or when a tight belt fit is desired. The ALR mode is disengaged when the webbing is free to move in or out of the retractor. The ALR mode is automatically engaged when the webbing is fully extracted from the retractor and then allowed to retract. As the webbing is retracted back onto the spool, an audible clicking sound is made, indicating that the retractor is in ALR mode. The ALR mode is automatically disengaged when most of the webbing is retracted back onto the spool.



WARNING: After any vehicle collision, the safety belt system at all outboard seating positions (except driver, which has no "automatic locking retractor" feature) must be checked by a qualified technician to verify that the "automatic locking retractor" feature for child seats is still functioning properly, in addition to other checks for proper safety belt system function. A belt and retractor assembly must be replaced if the safety belt assembly's "automatic locking retractor" feature or any other safety belt function is not operating properly when checked according to the procedures in the workshop manual. Failure to replace the Belt and Retractor assembly could increase the risk of injury in collisions.

This vehicle has a safety belt system with an energy management feature at the front seating positions to help further reduce the risk of injury in the event of a head-on collision.

This safety belt system has a retractor assembly that is designed to pay out webbing in a controlled manner. This feature is designed to help reduce the belt force acting on occupant's chest.

Safety Belt Extension Assembly

In certain cases, the safety belt may be too short even when it is fully extended. About 20 cm (8 in) can be added to the belt length by using a safety belt extension (611C22). Safety belt extensions are available at no cost from any Ford or Lincoln-Mercury dealer parts department at no cost. Safety belt extensions are only available with black webbing.

There are two extension assemblies available, one for the front seating positions and one for the rear seating positions and they are not interchangeable.

Use only extensions manufactured by the same supplier as the safety belt. Manufacturer identification is located at the end of the webbing on the label. Also, use the safety belt extension only if safety belt is too short for you when fully extended. Do not use extension to change the fit of the shoulder belt across the torso.

Attaching Safety Seats With Tether Straps

Some manufacturers make child safety seats that include a tether strap that goes over the back of the vehicle seat and attaches to an anchoring point. Other manufacturers offer the tether strap as an accessory. Contact the manufacturer of the child safety seat for information about ordering a tether strap.

Attach a tether strap anchor bracket to the rear floor by using a tether anchor kit, available at no charge from

any Ford or Lincoln-Mercury dealership.

Carefully read and follow the instructions provided with the kit for installation of the child tether strap anchor.

SECTION 501-20A: Occupant Restraints - Active
DESCRIPTION AND OPERATION

2000 Explorer/Mountaineer Workshop Manual

Occupant Restraint System —Indicator Lights and Chimes

Safety Belt Warning Indicator and Chime

The warning indicator and chime are reminders to fasten the safety belt. The following conditions will take place:

- If the safety belt is not buckled before the ignition is turned to the ON position, the chime will turn on for four to eight seconds and the indicator will come on for one to two minutes.
- If the safety belt is buckled while the indicator is on and the chime is sounding, both the indicator and chime will turn off.
- If the safety belt is buckled before the ignition is turned to the ON position, neither the indicator nor the chime will turn on.

Belt Minder (if equipped)

The Belt Minder feature is a supplemental warning to the safety belt warning function. This feature provides additional reminders to the driver that the driver's safety belt is unbuckled by intermittently sounding a chime and illuminating the safety belt warning lamp in the instrument cluster.

If...	Then...
The driver's safety belt is not buckled before the vehicle has reached at least 5 km/h (3 mph) and 1-2 minutes have elapsed since the ignition switch has been turned to ON...	The Belt Minder feature is activated - the safety belt warning light illuminates and the warning chime sounds for 6 seconds every 30 seconds, repeating for approximately 5 minutes or until safety belt is buckled.
The driver's safety belt is buckled while the safety belt indicator light is illuminated and the safety belt warning chime is sounding...	The Belt Minder feature will not activate.
The driver's safety belt is buckled before the ignition switch is turned to the ON position...	The Belt Minder feature will not activate.

SECTION 501-20A: Occupant Restraints - Active
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop Manual

Occupant Restraint System

Inspection and Verification

1. Verify the customer concern by operating the safety belts.
2. Visually inspect for obvious signs of mechanical and electrical damage. For additional information, refer to the following chart:

Visual Inspection Chart

Mechanical
• Loose webbing • Safety belt retractor and tongue assembly

3. If the concern is not visually evident, determine the symptom. GO to [Symptom Chart](#).

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
• Normal mode — occupant restraint system inoperative	• Broken tooth on retractor sensor gear. • Loose webbing.	• REFER to Component Test.
• Automatic locking retraction (ALR) system inoperative	• Broken tooth on retractor sensor gear. • Loose webbing.	• REFER to Component Test.
• The safety belt warning chime is inoperative	• Circuitry. • Safety belt warning switch. • Generic electronic module (GEM).	• REFER to Section 413-09.
• The safety belt warning indicator is inoperative	• Circuitry. • Safety belt warning switch. • Instrument cluster. • Bulb. • GEM.	• REFER to Section 413-01.

Component Test

Functional Test

1. The driver should buckle up and proceed to a safe test area. If the RH front or a rear passenger safety belt must be tested, a passenger should be buckled into the RH front or rear seat. The RH front belt may be tested using a driver only, providing driver has the ability to grasp the RH front shoulder belt and extend it approximately 66 cm (25.9 in) with no compromise to safe driving. This method applies to 8 km/h (5 mph) test only.
2. After reaching a safe area to carry out sudden stops, the driver will attain a speed of approximately 8 km/h (5 mph). The driver should inform the passenger (if applicable) that he is preparing to make a severe brake application. At this time, both the driver and passenger should grasp their respective shoulder harnesses and prepare to lean slightly forward at the moment the brake application is made.

3.  **WARNING: The driver and passenger must be prepared to brace themselves in the event the retractor does not lock.**

The driver will make a maximum brake application without tire skid. The maximum brake application should be on dry concrete or equivalent hard road surface; never on a wet or gravel road.

4. The driver and passenger should lean forward slightly into shoulder harness. At this instant, belts should lock up without webbing pay out.
5. If there is a lockup of both shoulder straps, safety belt assemblies are functioning correctly.
6. **NOTE:** If the retractor of a new safety belt assembly has been bolted into a damaged or distorted mounting area, the new retractor could be warped and may not function. If this is the case, reshape the sheet metal and install another new complete safety belt assembly.

Should either or both retractors fail to lock up at the 8 km/h (5 mph) speed, repeat the test at a constant 24 km/h (15 mph). This test must be carried out with RH front or rear passenger if RH front or rear belts are to be tested.

7. If either or both shoulder safety belts do not lock up at 24 km/h (15 mph) test, return vehicle for repair of malfunctioning safety belts. Remove retractor and rework sheet metal in retractor's mounting surface. Install retractor assembly and retest safety belt assembly(s).
-

Safety Belt Cleaning

1.  **WARNING: Do not bleach or re-dye the webbing, as the webbing may weaken.**

Clean the safety belt webbing only with a mild soap solution recommended for cleaning upholstery or carpets. Follow the instructions provided with the soap.

SECTION 501-20A: Occupant Restraints - Active
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop Manual

Safety Belt With Anchor Plate Thread Damage

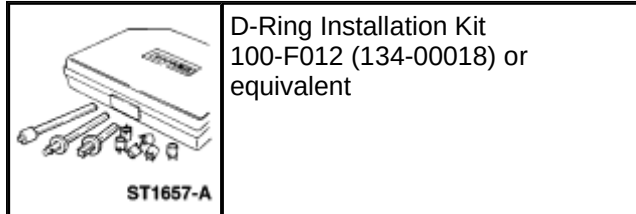
1. Remove the broken or stripped bolt and discard.
 2. Drill out the internal threads in the safety belt anchor plate with a 10.7 mm (27/64 in) drill.
 3. Rethread the anchor plate with a 1/2-13 tap (seat belt).
 4. Clean out the chips.
 5. Install the attachment parts. Original parts are to be replaced with the repair parts indicated in the Safety Belt Parts Replacement Guidelines.
 6. When repairing a multiple belt and attachment, install the nut to the bolt in the tunnel area from the underside of the floorpan.
-

Replacement of the Weld Nut and Reinforcement

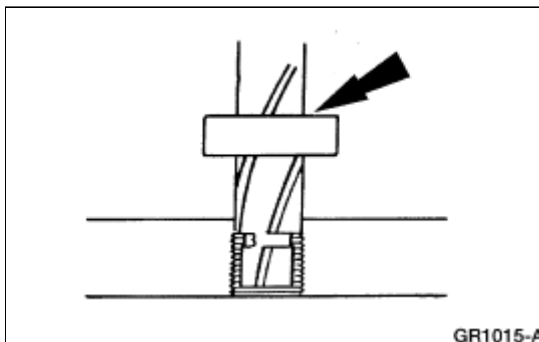
1. Remove the interior trim panel to expose the suspect anchor point. For additional information, refer to [Section 501-00](#).
 2. Determine if the weld nut only or the weld nut and reinforcement and weld nut are missing. If the B- or C- or D-pillar safety belt anchor nuts or reinforcements are stripped or missing, a new nut or reinforcement should be installed. To install a missing weld nut only, proceed to Step 3.
 3. Obtain the correct M12 weld nut and a standard washer to perform the procedure.
 4. Drill out two 8 mm (5/16 in) diameter holes adjacent to the clearance hole.
 5. Obtain a length of copper welding wire and feed through clearance hole in door frame opening until it becomes visible at the access hole.
 6. Pull the wire through so that it may be secured to the weld nut and washer.
 7. Pull the wire back up to the weld nut clearance hole.
 8. Hold the weld nut securely in place. Use the MIG Wire Feed Welder 106-00053 to plug weld the nut in place at the two 8 mm (5/16 in) diameter holes previously drilled.
 9. Metal finish as required.
 10. Verify the nut is securely in place.
-

Safety Belt Shoulder Height Adjuster With Stripped Weld Nuts

Special Tool(s)

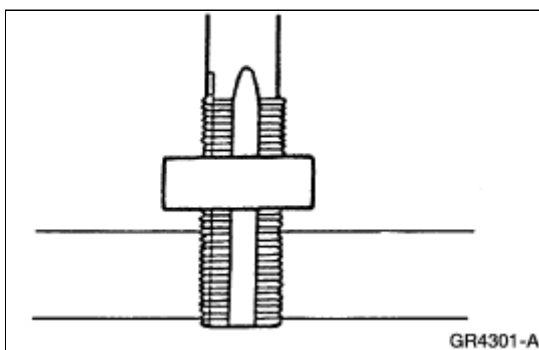


1. Remove the B-pillar trim panel. For additional information, refer to [Section 501-05](#).
2. Use the half-inch drill with integral stop provided in D-Ring Installation Kit to drill out the damaged threads in the upper pillar structure.

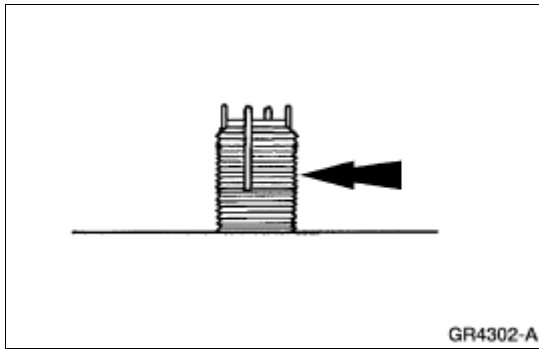


3. **NOTE:** After each rotation, back off tap slightly to remove new cuttings and be sure to blow out any chips before proceeding.

Apply a suitable lubricant to the M14 x 1.5 tap with integral stop provided in D-Ring Installation Kit and tap new threads.

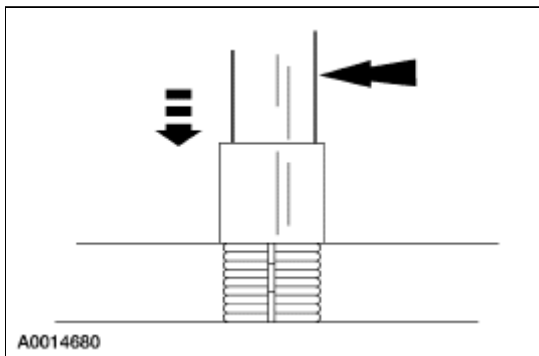


4. Use a threaded insert (N807170-S190) provided in the D-Ring Installation Kit and screw it into the retapped hole until it is slightly below the surface.



5. **NOTE:** If the two bolts on the height adjuster are not stripped, install the height adjuster. For additional information, refer to the appropriate height adjuster procedure in this section.

Use a hammer to lightly tap the installation tool provided in the D-Ring Installation Kit several times to seat the insert keys.



Safety Belt Procedure After a Collision

1.  **WARNING:** All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters, if so equipped, child safety seat tether attachments, and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate correctly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

NOTE: Safety belt assemblies should be periodically inspected to make sure they have not become damaged and that they remain in correct operating condition, particularly if they have been subjected to severe stress.

Before installing the new safety belt assembly, the safety belt attaching areas must be inspected for damage and distortion. If the attaching points are damaged and distorted, the sheet metal must be reworked back to its original shape and structural integrity.

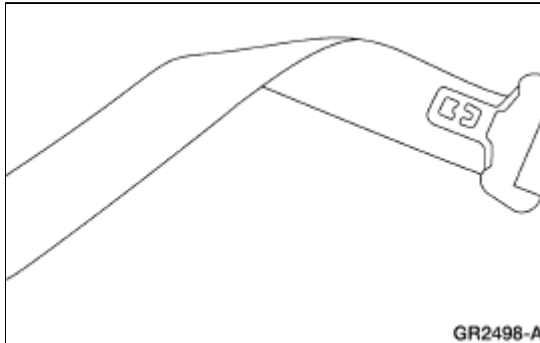
Install the new safety belt(s) using the appropriate instructions. Perform the Functional Test.

SECTION 501-20A: Occupant Restraints - Active
GENERAL PROCEDURES

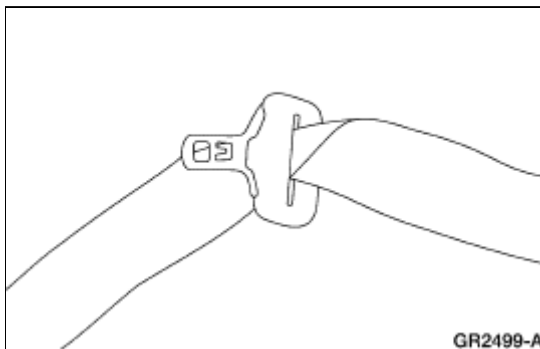
2000 Explorer/Mountaineer Workshop Manual

Safety Belt Tongue Rotated on Belt

1. Fold the safety belt as indicated.



2. Pull the safety belt tongue over the fold in the safety belt.



Automatic Locking Retractor —Evaluation of Lockability and Release



WARNING: After any vehicle collision, the safety belt system at all outboard seating positions (except driver, which has no "automatic locking retractor" feature) must be checked by a qualified technician to verify that the "automatic locking retractor" feature for child seats is still functioning properly, in addition to other checks for proper safety belt system function. A belt and retractor assembly must be replaced if the safety belt assembly's "automatic locking retractor" feature, or any other safety belt function, is not operating properly when checked according to the procedures in the workshop manual. Failure to replace the belt and retractor assembly could increase the risk of injury in collisions.

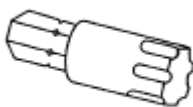
1. Extend the safety belt to latch the tongue into the buckle across an empty seat without slack in the safety belt, with the seat in the full down and rearmost position, seat back in an upright position, and if applicable, the D-ring adjusted in the full down position.
 2. Pull the shoulder belt to full extension to engage the retractor's automatic locking retractor (ALR) feature. Then allow the belt to retract freely in the ALR mode, and the retractor force set the correct belt tightness.
 3. Pull on the shoulder belt to check that the belt has remained in the ALR mode. If the belt is not locked, install a new belt and retractor assembly. The safety belt should remain locked in the ALR mode across an empty seat.
 4. To verify that the safety belt still automatically disengages from the ALR mode correctly, with the D-ring adjusted to the full up position, if applicable, unlatch the safety belt tongue from the buckle and allow the safety belt to retract to its stowed position. Pull on the shoulder belt to verify that the retractor assembly has converted automatically out of the ALR mode. If the belt remains locked in the stowed position, a new belt and retractor assembly must be installed. The safety belt should extract freely.
-

SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Retractor —B-Pillar, Two-Door

Special Tool(s)

 ST1181-A	Safety Belt Bolt Bit (Used for T-50 Head Bolt) 501-010 (T77L-2100-A)

Material

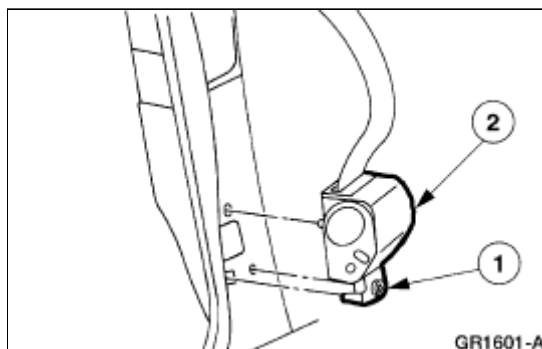
Item	Specification
Ford Threadlock 262 (E2F2-19554-B) or equivalent	WSK-M2G351-A6

Removal



WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

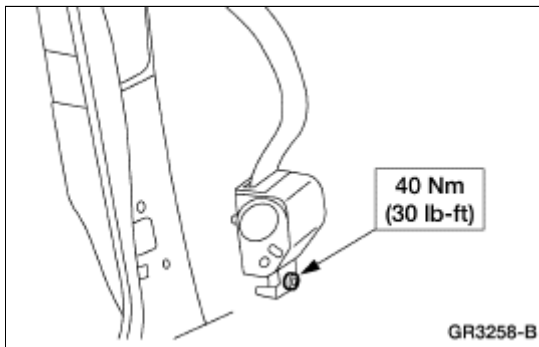
1. Remove the quarter trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the front safety belt retractor.
 1. Use Safety Belt Bolt Bit to remove the bolt.
 2. Remove the front safety belt retractor.



Installation

NOTE: Apply Ford Threadlock 262 (E2FZ-19554-B) or equivalent to fasteners when installing safety belt buckle or retractor assemblies.

1. Use Safety Belt Bolt Bit to install the front safety belt retractor.



2. Install the quarter trim panel. For additional information, refer to [Section 501-05](#).
 3. Check the restraint system for proper operation.
-

SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Retractor —Driver Side and Outside Passenger, B-Pillar, Four-Door

Special Tool(s)

ST1181-A	Safety Belt Bolt Bit (Used for T-50 Head Bolt) 501-010 (T77L-2100-A)

Material

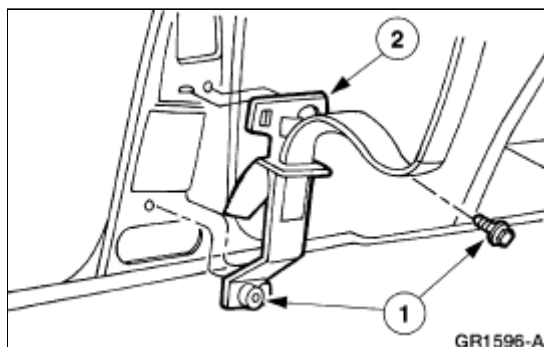
Item	Specification
Ford Threadlock 262 (E2F2-19554-B) or equivalent	WSK-M2G351-A6

Removal



WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

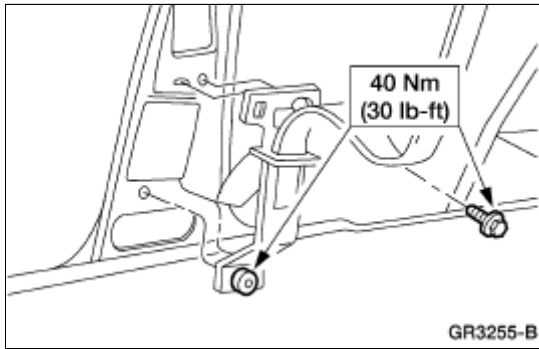
1. Remove the B-pillar trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the front safety belt retractor.
 1. Use Safety Belt Bolt Bit to remove the bolts.
 2. Remove the front safety belt retractor.



Installation

NOTE: Apply Ford Threadlock 262 (E2FZ-19554-B) or equivalent to fasteners when installing safety belt buckle or retractor assemblies.

1. Use Safety Belt Bolt Bit to install the front safety belt retractor.



2. Install the B-pillar trim panel. For additional information, refer to [Section 501-05](#).
 3. Check the restraint system for proper operation.
-

SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Retractor —Driver Side and Outside Passenger, B-Pillar, Four-Door

Special Tool(s)

ST1181-A	Safety Belt Bolt Bit (Used for T-50 Head Bolt) 501-010 (T77L-2100-A)

Material

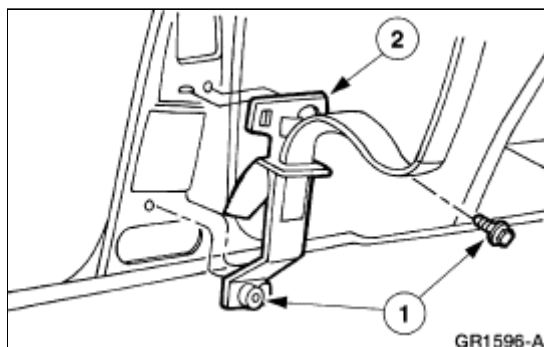
Item	Specification
Ford Threadlock 262 (E2F2-19554-B) or equivalent	WSK-M2G351-A6

Removal



WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

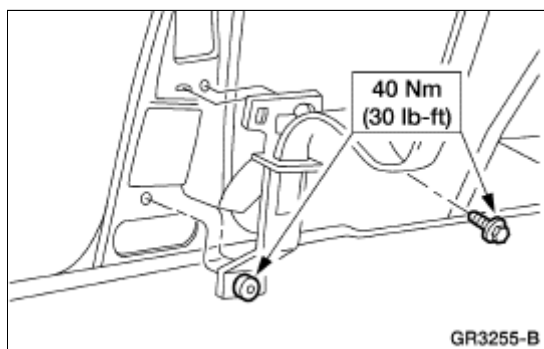
1. Remove the B-pillar trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the front safety belt retractor.
 1. Use Safety Belt Bolt Bit to remove the bolts.
 2. Remove the front safety belt retractor.



Installation

NOTE: Apply Ford Threadlock 262 (E2FZ-19554-B) or equivalent to fasteners when installing safety belt buckle or retractor assemblies.

1. Use Safety Belt Bolt Bit to install the front safety belt retractor.



2. Install the B-pillar trim panel. For additional information, refer to [Section 501-05](#).
 3. Check the restraint system for proper operation.
-

SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Retractor —C-Pillar, Four-Door

Special Tool(s)

ST1181-A	Safety Belt Bolt Bit (Used for T-50 Head Bolt) 501-010 (T77L-2100-A)

Material

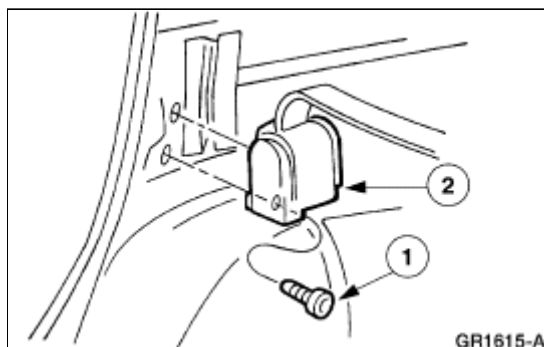
Item	Specification
Ford Threadlock 262 (E2F2-19554-B) or equivalent	WSK-M2G351-A6

Removal



WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

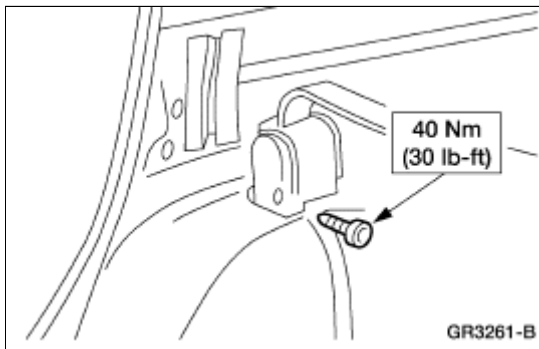
1. Remove the quarter trim panel; refer to [Section 501-05](#).
2. Remove the safety belt retractor.
 1. Use Safety Belt Bolt Bit to remove the bolt.
 2. Remove the safety belt retractor.



Installation

NOTE: Apply Ford Threadlock 262 (E2FZ-19554-B) or equivalent to fasteners when installing safety belt buckle or retractor assemblies.

1. Use Safety Belt Bolt Bit to install the safety belt retractor.



2. Install the quarter trim panel. For additional information, refer to [Section 501-05](#).
 3. Check the restraint system for proper operation.
-

SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Retractor —C-Pillar, Two-Door

Special Tool(s)

ST1181-A	Safety Belt Bolt Bit (Used for T-50 Head Bolt) 501-010 (T77L-2100-A)

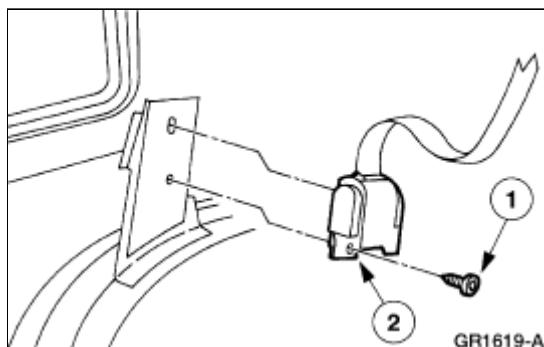
Material

Item	Specification
Ford Threadlock 262 (E2F2-19554-B) or equivalent	WSK-M2G351-A6

Removal

⚠ WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

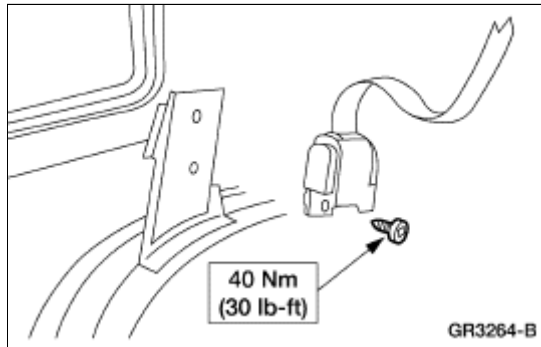
1. Remove the quarter trim panel. For additional information, refer to [Section 501-05](#).
2. Remove the safety belt retractor.
 1. Use Safety Belt Bolt Bit to remove the bolts.
 2. Remove the safety belt retractor.



Installation

NOTE: Apply Ford Threadlock 262 (E2FZ-19554-B) or equivalent to fasteners when installing safety belt buckle or retractor assemblies.

1. Use Safety Belt Bolt Bit to install the safety belt retractor.



2. Install the quarter trim panel. For additional information, refer to [Section 501-05](#).
 3. Check the restraint system for proper operation.
-

SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

Retractor —Rear Seat, Retractor and Buckle Assembly, Four-Door

Special Tool(s)

ST1181-A	Safety Belt Bolt Bit (Used for T-50 Head Bolt) 501-010 (T77L-2100-A)

Material

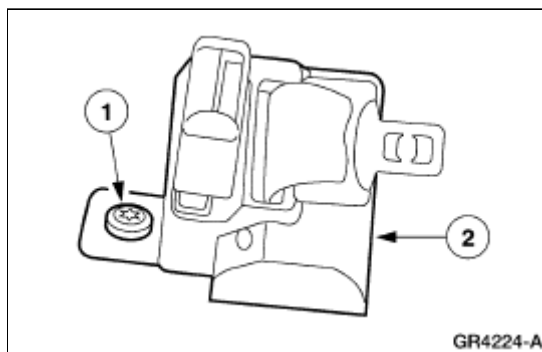
Item	Specification
Ford Threadlock 262 (E2F2-19554-B) or equivalent	WSK-M2G351-A6

Removal



WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

1. Fold the rear seat down to load floor position.
2. Remove the rear safety belt buckle and retractor assembly.
 1. Use Safety Belt Bolt Bit to remove the bolt.
 2. Remove the rear safety belt buckle and retractor assembly.



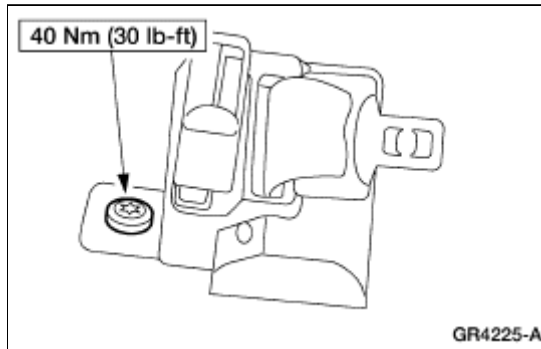
Installation

NOTE: Apply Ford Threadlock 262 (E2FZ-19554-B) or equivalent to fasteners when installing safety belt buckle or retractor assemblies.

1. **NOTE:** Make sure the safety belt webbing is not twisted prior to installation.

To install, reverse the removal procedure.

- Check the restraint system for proper operation.



SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

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Height Adjuster

Special Tool(s)

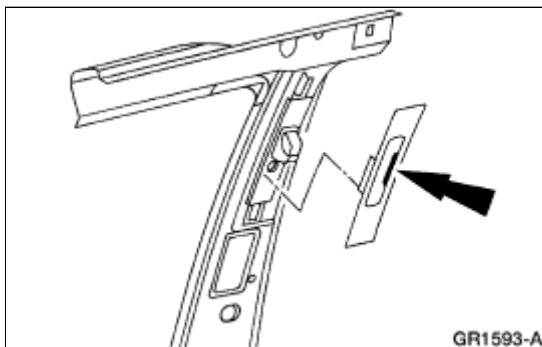
A line drawing of a specialized bolt bit with a hexagonal base and a multi-faceted tip. The part number ST1181-A is printed below the drawing.	Safety Belt Bolt Bit (Used for T-50 Head Bolt) 501-010 (T77L-2100-A)

Material

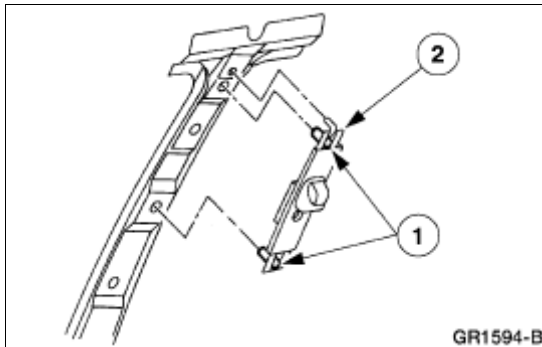
Item	Specification
Ford Threadlock 262 (E2F2-19554-B) or equivalent	WSK-M2G351-A6

Removal

1. On four-door models, remove the B-pillar trim panel. For additional information, refer to [Section 501-05](#).
2. On two-door models, remove the quarter trim panel. For additional information, refer to [Section 501-05](#).
3. Remove the height adjuster cover (602B90).



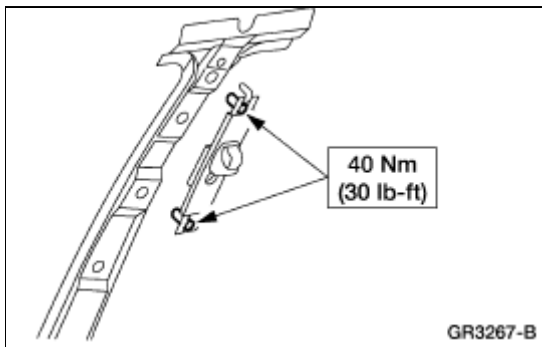
4. Remove the shoulder safety belt height adjuster (602B82).
 1. Use Safety Belt Bolt Bit to remove the two bolts.
 2. Remove the shoulder safety belt height adjuster.



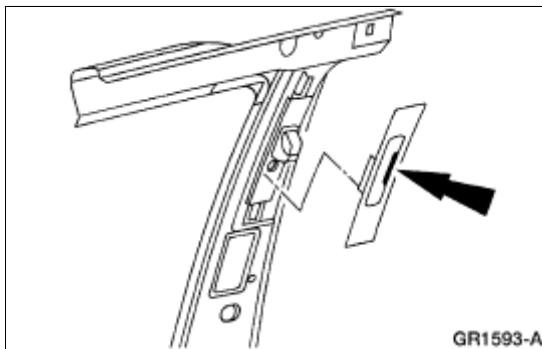
Installation

NOTE: Apply Ford Threadlock 262 (E2FZ-19554-B) or equivalent to fasteners when installing safety belt buckle or retractor assemblies.

1. Use Safety Belt Bolt Bit and install the shoulder safety belt height adjuster.



2. Install the height adjuster cover.



3. On two door models, install the quarter trim panel. For additional information, refer to [Section 501-05](#).
 4. On four door models, install the B-pillar trim panel. For additional information, refer to [Section 501-05](#).
 5. Check the restraint system for proper operation.
-

SECTION 501-20A: Occupant Restraints - Active
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Safety Belt Buckle —Bucket Seats

Special Tool(s)

ST1181-A	Safety Belt Bolt Bit (Used for T-50 Head Bolt) 501-010 (T77L-2100-A)

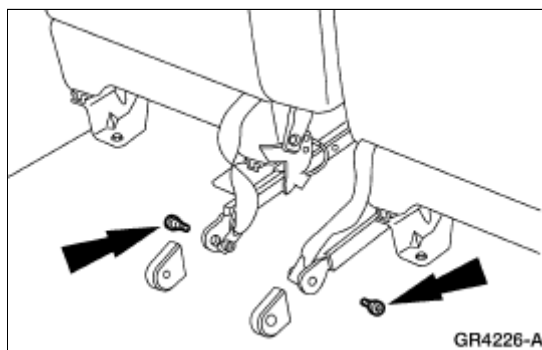
Material

Item	Specification
Ford Threadlock 262 (E2F2-19554-B) or equivalent	WSK-M2G351-A6

Removal

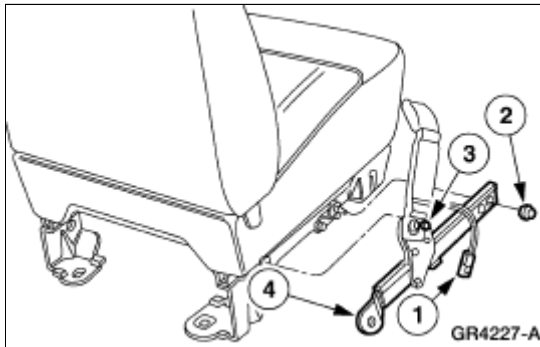
⚠ WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

1. Remove the floor console. For additional information, refer to [Section 501-12](#).
2. Move the seat forward and use Safety Belt Bolt Bit to remove the slide bar bolt.



3. Remove the front seat. For additional information, refer to [Section 501-10](#).
4. Remove the safety belt slide bar.
 1. Disconnect the electrical connector (LH only).
 2. Remove the nut.
 3. Remove the bolt.

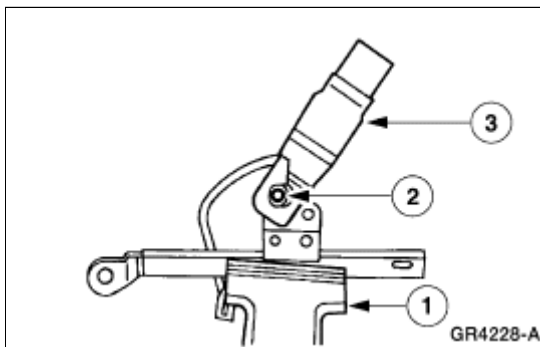
4. Remove the slide bar.



5. **NOTE:** Clamp the slide bar collar in a vise along the break line only.

Remove the safety belt buckle.

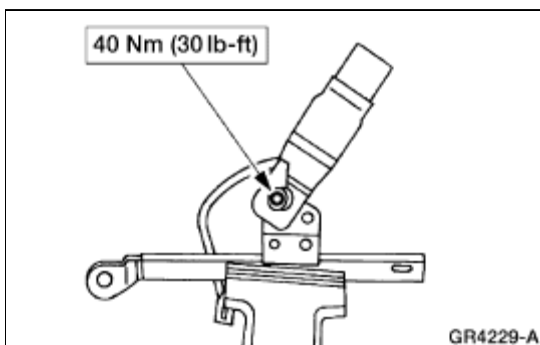
1. Clamp the slide bar in a suitable vise.
2. Use Safety Belt Bolt Bit to remove the bolt.
3. Remove the buckle.

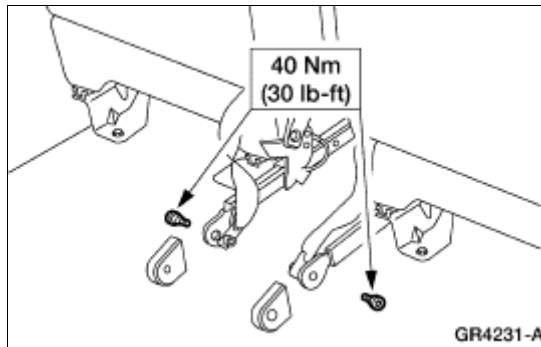
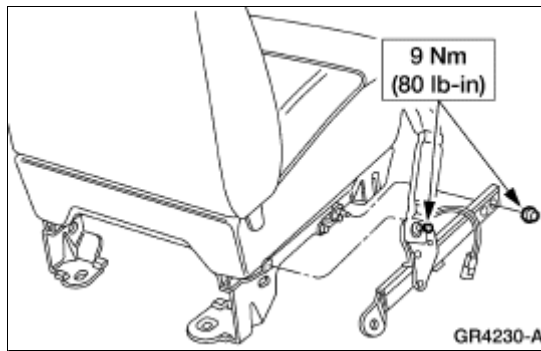


Installation

NOTE: Apply Ford Threadlock 262 (E2FZ-19554-B) or equivalent to fasteners when installing safety belt buckle or retractor assemblies.

1. To install, reverse the removal procedure.





SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

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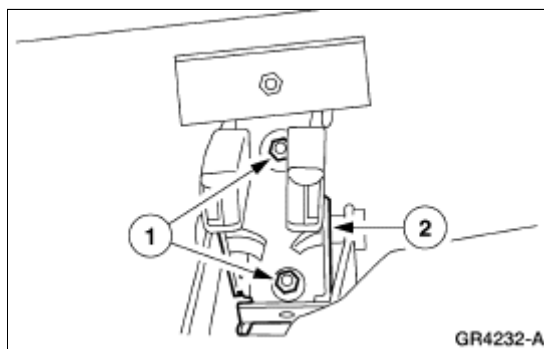
Safety Belt Buckle —Rear Seat, Four-Door

Removal



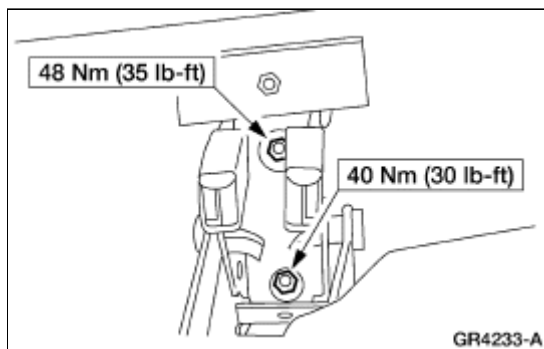
WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

1. Remove the rear seats. For additional information, refer to [Section 501-10](#).
2. Remove the rear safety belt buckle assembly.
 1. Remove the nuts.
 2. Remove the rear safety belt buckle assembly.



Installation

1. To install, reverse the removal procedure.
 - Check the restraint system for correct operation.



SECTION 501-20A: Occupant Restraints - Active
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop Manual

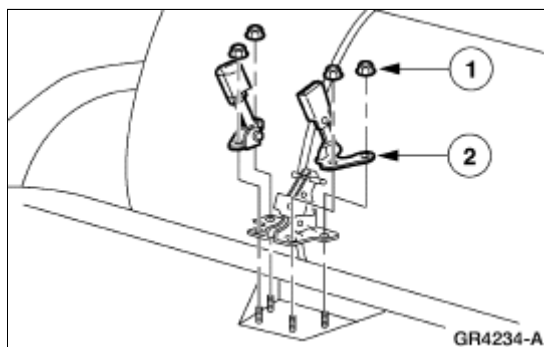
Safety Belt Buckle —Rear Seat, Two-Door

Removal



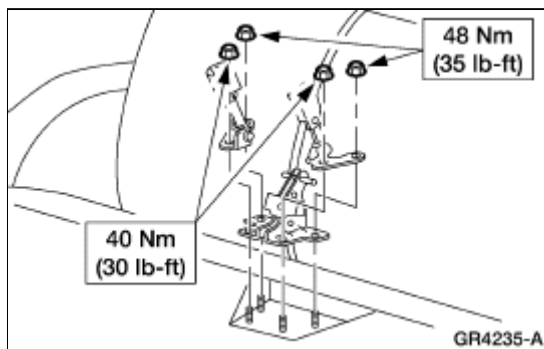
WARNING: All safety belt assemblies including retractors, buckles, front seat belt buckle support assemblies (slide bar), shoulder belt height adjusters (if so equipped) child safety seat tether attachments and attaching hardware should be inspected after any collision. All belt assemblies should be replaced unless a qualified technician finds the assemblies show no damage and operate properly. Belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.

1. Remove the rear seats. For additional information, refer to [Section 501-10](#).
2. Remove the rear safety belt buckles.
 1. Remove the nuts.
 2. Remove the rear safety belt buckles.



Installation

1. To install, reverse the removal procedure.
 - Check the restraint system for correct operation.



SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
SPECIFICATIONS

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General Specifications

Item	Specification
Connector Identification	
Butt connector E6FZ-14488-A	Gauge 18-22, Red, Class C
Butt connector E6FZ-14488-B	Gauge, 14-16, Blue, Class C
Butt connector E6FZ-14488-C	Gauge 10-12, Yellow, Class C

Torque Specifications

Description	Nm	lb-ft	lb-in
Side crash sensor	12	9	—
Restraints control module bracket	12	9	—
Driver air bag module	9	—	80
Passenger air bag module	7.6-10.4	—	67-92
Side air bag module	8	—	71
Seat back pivot bolt	29	21	—
Seat back recliner bolts	52	38	—
Track to cushion frame	20	15	—
Steering column fore and aft nuts	15	11	—
Lower steering column opening finish panel reinforcement	12	9	—
Front crash sensor	10.2-13.8	—	90-122
Weld nut repair screw (8 mm) (N802455-S190)	12	9	—
Grounding screw (6 mm) (N806327-S190)	12	9	—

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
DESCRIPTION AND OPERATION

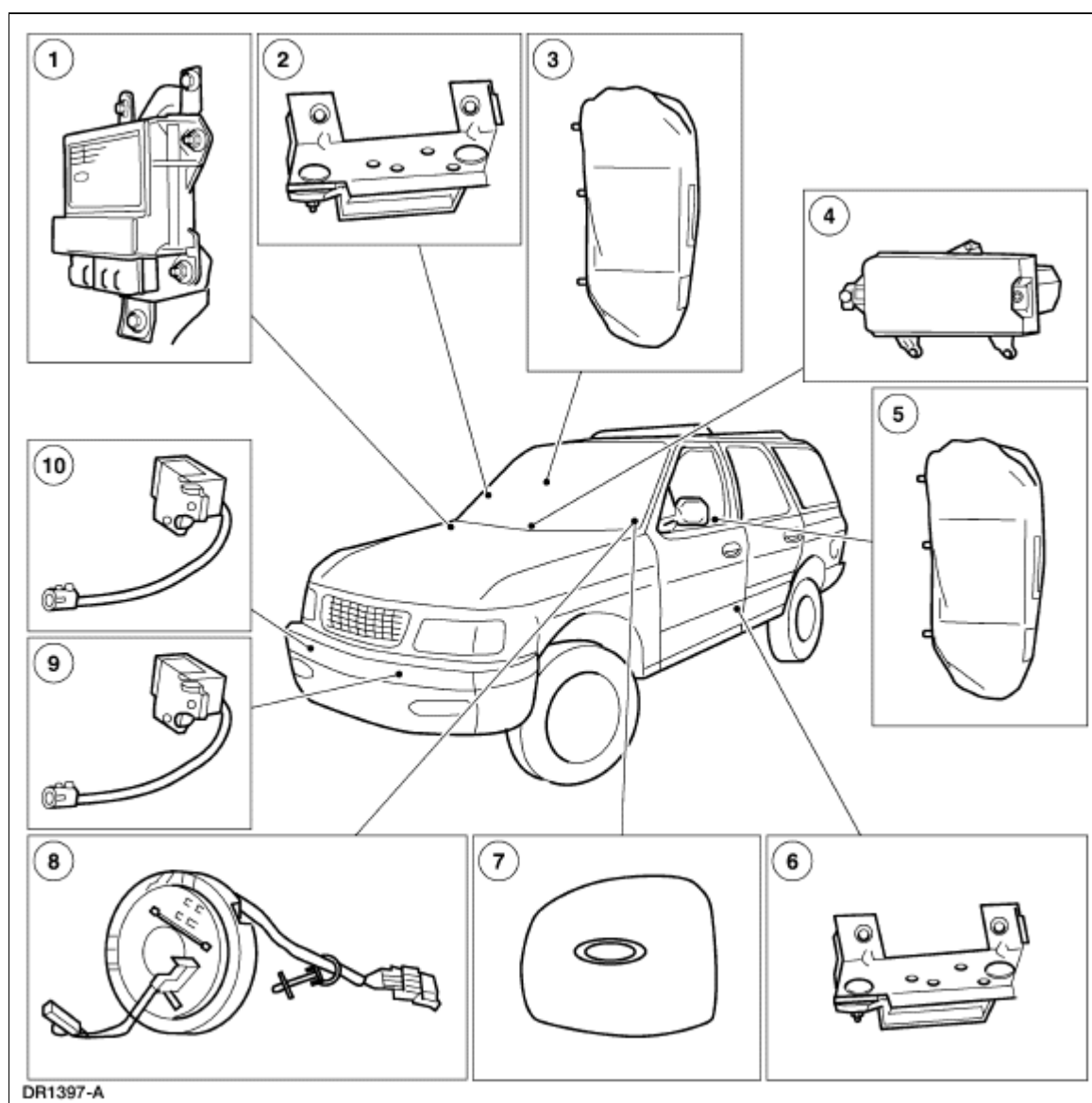
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Air Bag Supplemental Restraint System (SRS)

The air bag supplemental restraint system (SRS) is designed to provide increased collision protection for front seat occupants in addition to that provided by the three-point safety belt system. Safety belt use is necessary to obtain the best occupant protection and to receive the full advantage of the SRS.

The air bag supplemental restraint system (SRS) components are shown in the following illustration.

Air Bag Supplemental Restraint System (SRS) Components



DR1397-A

Item	Part Number	Description
1	14B321	Restraints control module (RCM)

2	14B345	Side crash sensor (RH)
3	98611D10	Passenger side air bag module
4	044A74	Passenger air bag module
5	78611D11	Driver side air bag module
6	14B345	Side crash sensor (LH)
7	043B13	Driver air bag module
8	14A664	Air bag sliding contact
9	14B005	Air bag sensor and bracket (LH)
10	14B005	Air bag sensor and bracket (RH)

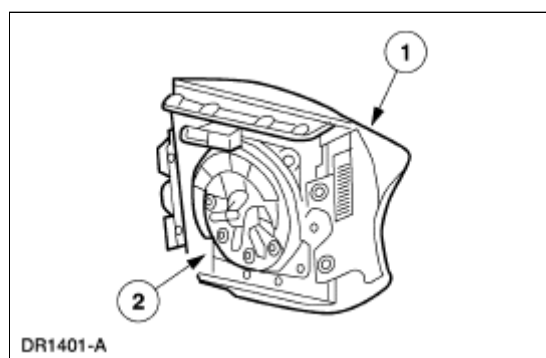
Air Bag Module — Driver

NOTE: References to the driver air bag module must not be confused with the seat-mounted air bag components of the supplemental restraint system (SRS).

The driver air bag module:

- is installed new as an assembly.
- is mounted in the center of the steering wheel.

Driver Air Bag Module



Item	Part Number	Description
1	—	Trim cover (part of 043B13)
2	043B13	Driver air bag module

Air Bag Sliding Contact

The air bag sliding contact:

- is mounted on the steering column, behind the steering wheel.
- continuously transfers electrical signals from the driver air bag module to the restraints control module (RCM).

Air Bag Module — Driver Side

NOTE: References to side air bag modules refer to the seat-mounted and not to the steering wheel or

instrument panel mounted air bag components of the supplemental restraint system (SRS).

The driver side air bag module:

- is installed new as an assembly.
- is mounted in the driver seat back.

Air Bag Module — Passenger Side

NOTE: References to side air bag modules refer to the seat-mounted and not to the steering wheel or instrument panel mounted air bag components of the supplemental restraint system (SRS).

The passenger side air bag module:

- is installed new as an assembly.
- is mounted in the passenger seat back.

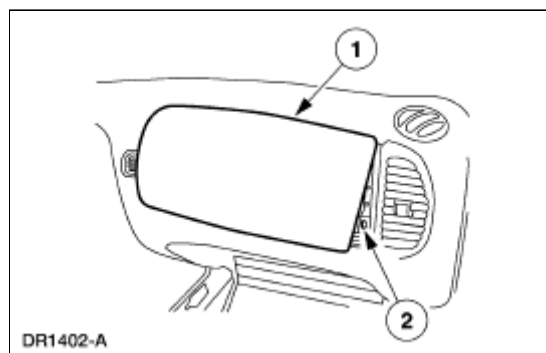
Air Bag Module — Passenger

NOTE: References to the passenger air bag module must not be confused with the seat-mounted air bag components of the supplemental restraint system (SRS).

The passenger air bag module:

- is installed new as an assembly.
- is mounted in the RH side of the instrument panel.

Passenger Air Bag Module



Item	Part Number	Description
1	—	Deployment door (part of 044A74)
2	044A74	Passenger air bag module

Restraints Control Module (RCM)

The restraints control module (RCM) carries out the following functions:

- signals the inflators to deploy the air bags in the event of a deployable crash.
- monitors the air bag supplemental restraint system (SRS) for faults.

- illuminates the air bag indicator if a fault is detected.
- flashes the air bag indicator to indicate the lamp fault code (LFC) detected.
- communicates through the data link connector (DLC) the current or historical Diagnostic Trouble Codes (DTCs).
- signals the generic electronic module (GEM) to activate a chime if the air bag indicator is not available and another SRS fault exists.

NOTE: The safety sensor is internal to the RCM and is not serviced separately.

The RCM monitors the SRS for possible faults. If a fault is detected while the ignition switch is in the RUN position, the RCM will illuminate the air bag indicator located in the instrument cluster.

When the ignition is cycled (turned off and then on), the air bag indicator will prove out by lighting for six seconds and then off for two seconds. After the prove out, the air bag indicator will then flash the two-digit LFC. If an SRS fault exists, the air bag indicator will flash the LFC five times, then it will remain illuminated for the rest of the key cycle. The RCM will also communicate the current and historical DTCs through the DLC, to the scan tool. If the air bag indicator does not function, and the system detects a fault condition, the RCM will signal the GEM to activate an audible chime. The chime is a series of five sets of five tone bursts. If the chime is heard, the SRS and the air bag indicator require repair.

LFCs are prioritized. If two or more faults occur at the same time, the fault having the highest priority will be displayed. After that fault has been corrected, the next highest priority fault will be displayed.

The RCM includes a backup power supply. This feature provides sufficient backup power to deploy the air bags in the event that the ignition circuit is damaged in a collision before the safing and air bag sensors determine that a deployment is required. The backup power supply will deplete its stored energy approximately one minute after the battery ground cable is disconnected.

Electrical System

The electrical system that supports the air bag supplemental restraint system (SRS):

- is powered from the battery through the ignition circuit.
- provides the electrical path from the restraints control module (RCM) to the air bag modules.
- provides the electrical path from the RCM to the air bag indicator.
- provides the electrical path from the RCM to the data link connector (DLC).
- provides the electrical path from the RCM to the generic electronic module (GEM).

Sensor



WARNING: The restraints control module (RCM) orientation is critical for correct system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) has been involved in a collision in which the right cowl A-pillar area has been damaged, inspect the mounting and bracket for deformation. If damaged, the RCM must be replaced whether or not the air bags have deployed. In addition, make sure the area of the RCM mounting is restored to its original condition.

The SRS contains two sensors which are integral to the RCM. The RCM is mounted on the RH A-pillar.

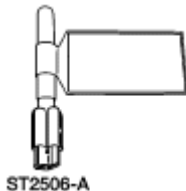
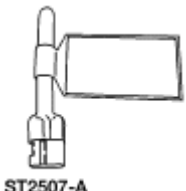
SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
DIAGNOSIS AND TESTING

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Air Bag Supplemental Restraint System (SRS)

Refer to Wiring Diagrams Cell [46](#), Air Bag for schematic and connector information.

Special Tool(s)

 ST2506-A	Front Air Bag Simulator (Restraint System Diagnostic Tool) 105-R0012 or Equivalent
 ST2507-A	Side Air Bag Simulator (Restraint System Diagnostic Tool) 418-133 or Equivalent

Restraint System Diagnostic Tool Warning



WARNING: This tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Diagnosing Customer Concerns Without Hard Diagnostic Trouble Codes (DTCs)

If a lamp fault code (LFC) is reported by the customer but is not present when the vehicle comes in for repair, follow the Diagnostic Instructions procedure in this section to identify the intermittent DTC.

Once the DTC is known, read the Normal Operation section for the code involved.

- Follow the deactivation procedure in this section.
- Determine the location of components involved in creating that code.
- Carry out a thorough visual inspection of:
 - components.
 - connectors.
 - splices and wiring harnesses.
 - pinched wires.
 - worn insulation on conductors.
 - opens, shorts or loosely mounted sensors.

Refer to Possible Causes, which lists the common concerns that relate to a particular code. Concerns are listed according to priority.

Diagnosing Customer Concerns with Hard Diagnostic Trouble Codes (DTCs)



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

Most air bag supplemental restraint system (SRS) diagnostic procedures will require the use of the deactivation and reactivation procedures in this section.

The deactivation procedure requires the removal of the driver air bag and the disconnection of the passenger air bag. Restraint system diagnostic tools are attached to the vehicle harness at the air bag sliding contact and at the electrical connectors for the passenger air bag and the two side air bags. This procedure removes the risk of air bag deployment while diagnostics are carried out.

Restraint system diagnostic tools are required to carry out diagnosis and testing of the SRS. The restraint system diagnostic tool is a 2-ohm resistor used to simulate air bag module connections to the system. It is not acceptable to short-circuit the air bag module connections with a zero-ohm jumper wire. If a zero-ohm jumper wire is used to short-circuit the air bag module connections, a lamp fault code (LFC) will be displayed.



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

The reactivation procedure requires the removal of any restraint system diagnostic tools installed and the reinstallation and reconnection of any air bag modules removed or disconnected.

Deactivation Procedure



1. **WARNING:** To avoid accidental deployment and possible personal injury, the backup

power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

Remove the front seats from the vehicle. For additional information, refer to [Section 501-10](#).

2.  **WARNING:** Carry a live air bag module with the air bag and trim cover pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

 **WARNING:** Do not set a live air bag module down with the trim cover face down. This will reduce the risk of injury in the event of an accidental deployment.

Remove the driver air bag module from the vehicle. Refer to [Module—Driver Air Bag](#) in this section.

3.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

Connect a front restraint system diagnostic tool to the vehicle harness at the top of the steering column.

4.  **WARNING:** Carry a live air bag module with the air bag and deployment door pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live air bag module down with the deployment door face down. This will reduce the risk of injury in the event of an accidental deployment.

Disconnect the passenger air bag module electrical connector.

5. Connect a front restraint system diagnostic tool to the vehicle harness.
6. Connect a side restraint system diagnostic tool to the vehicle harness used for the driver side air bag.
7. Connect a side restraint system diagnostic tool to the vehicle harness used for the passenger side air bag.
8. Reconnect the battery ground cable. For additional information, refer to [Section 414-01](#).

Reactivation Procedure



1. **WARNING: The air bag simulators must be removed and the air bag modules reconnected when the system is reactivated to avoid non-deployment in a collision, resulting in possible personal injury.**



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Disconnect the battery ground cable. For additional information, refer to [Section 414-01](#).

2. Wait at least one minute for the backup power supply in the restraints control module (RCM) to deplete its stored energy.
3. Remove the restraint system diagnostic tool from the vehicle harness connector at the top of the steering column.
4.  **WARNING: Carry a live air bag module with the air bag and trim cover pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.**

Install the driver air bag module. Refer to [Module—Driver Air Bag](#) in this section.

5. Remove the restraint system diagnostic tool from the vehicle harness connector at the passenger air bag module.
6.  **WARNING: Carry a live air bag module with the air bag and deployment door pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.**

Connect the passenger air bag module electrical connector.

7. Remove the restraint system diagnostic tool from the vehicle harness used for the passenger side air bag.

8. Remove the restraint system diagnostic tool from the vehicle harness used for the driver side air bag.
9. Install the front seats. For additional information, refer to [Section 501-10](#).
10. Reconnect the battery ground cable. For additional information, refer to [Section 414-01](#).
11. Prove out the system.

Glossary

Restraint System Diagnostic Tools

Restraint system diagnostic tools are used to simulate air bag module connections to the system.

Disconnect the Component

Disconnect the component means disconnect the component vehicle harness connector. It does not mean remove the component. Do not reconnect a disconnected component unless instructed to do so.

Deactivate the System

Deactivate the system means to carry out the deactivation procedure. Refer to Deactivation Procedure in this section.

Prove Out the System

Prove out the system means to turn the ignition switch from the OFF to the RUN position and visually monitor the air bag indicator with the air bag modules installed. The air bag indicator will light continuously for approximately six seconds and then turn off. If an air bag supplemental restraint system (SRS) fault is present, the air bag indicator will either:

- fail to light.
- remain lit continuously.
- flash.

The flashing might not occur until approximately 30 seconds after the ignition switch has been turned from the OFF to the RUN position. This is the time required for the restraints control module (RCM) to complete the testing of the SRS. If the air bag indicator is inoperative and an SRS fault exists, a chime will sound in a pattern of five sets of five beeps. If this occurs, the air bag indicator will need to be repaired before diagnosis can continue.

Reactivate the System

Reactivate the system means to carry out the reactivation procedure. Refer to Reactivation Procedure in this section.

Reconnect the System

Reconnect the system means to reconnect all system components. Refer to Air Bag Reconnect Checklist in this section.

Install a New Component

Install a new component means to remove the existing component and install a new authorized part obtained from Ford Customer Service Division.

Verify the System

Verify the system means to prove out the system with restraint system diagnostic tools for the air bag modules in place of the components.

Air Bag Reconnect Checklist

The checklist below should be completed following diagnosis or repair of any air bag system concern:

1. Is the three-way connector at the base of the steering column connected?
 2. Are the air bag modules connected?
 3. Is the restraints control module (RCM) connected?
 4. Is the vehicle battery connected?
-

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
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DIAGNOSIS AND TESTING

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Diagnostic Instructions — Air Bag Supplemental Restraint System (SRS)

Special Tool(s)

	Worldwide Diagnostic System (WDS) 418-F224, New Generation STAR (NGS) Tester 418-F052, or equivalent scan tool

The symptom chart can be used to help locate the air bag supplemental restraint system (SRS) concerns if no diagnostic trouble codes (DTCs) are retrieved and the listed symptoms are observed. Whether or not the listed symptoms are observed, always carry out the following:

1. Retrieve all DTCs stored in the restraints control module (RCM) memory. Refer to Retrieve/Clear Continuous DTCs in this section.
2. Run the On-Demand Self Test to determine what DTCs are currently being sensed by the RCM; refer to On-Demand Self Test in this section.
3. If the stored DTCs are different than the current DTCs, always repair the current DTCs first.
4. If memory displays different continuous DTCs than the On-Demand Self Test, perform in the following order:
 - On-Demand Self Test.
 - Memory (Retrieve/Clear Continuous DTCs).

A DTC can indicate several concerns. The DTCs are to assist in system diagnosis and are not to be considered definitive. Always refer to the pinpoint test corresponding to the DTC to determine where the concern lies and to repair the concern correctly.

The SRS diagnostics can be divided into three sections:

- diagnostic test modes.
- PID/data monitor and record.
- active command modes.

Diagnostic Test Modes

Two menu options are available under the diagnostic test modes:

- Retrieve/Clear Continuous DTCs.

- On-Demand Self Test.

Retrieve/Clear Continuous DTCs

During vehicle operation the restraints control module (RCM) will detect and store both intermittent and hard fault DTCs in nonvolatile memory. The DTC strategy employed by the RCM incorporates a time-out scheme for determining when a concern exists in the system. This requires a concern to exist for up to one minute in the system before the RCM will detect it. For the RCM to determine that a concern no longer exists, the concern must be absent for up to one minute. The actual detection time-outs vary with each DTC. The DTCs can be retrieved with the scan tool. Any DTCs stored in the RCM will be displayed on the scan tool along with a brief description of the DTC. If no DTCs are present, the scan tool will display a SYSTEM PASSED message. The scan tool can also be used to clear DTCs from the RCM memory, as long as the concern no longer exists. Once 254 key cycles have been recorded since the concern was last detected, the DTC will automatically be removed from memory.

To retrieve or clear DTCs, connect the scan tool to the data link connector (DLC). Follow the instructions for the scan tool being used. All continuous DTCs will be displayed on the screen. Before proceeding with the clearing operation, make note of the DTCs displayed, because once cleared, they cannot be retrieved. Hard DTCs will be redisplayed after clearing DTCs since they cannot be cleared from the RCM.

On-Demand Self Test

The On-Demand Self Test option is used to verify that no electrical concerns exist with the air bag supplemental restraint system (SRS). Upon entering the self test, the restraint control module (RCM) will make an electrical check of each electrical component in the system. If a concern is detected, a DTC is displayed on the scan tool with a brief description of the DTC. Concerns detected during the self test are not stored in memory, unless the same concern was also detected during normal vehicle operation. The self test should always be run after any repair to verify that the repair was successful.

To run the On-Demand Self Test, connect the scan tool to the data link connector (DLC). Follow the instructions for the scan tool being used. The RCM will run the On-Demand Self Test and display on-demand DTCs (reflecting hard system concerns) on the screen.

PID/Data Monitor and Record

The PID/Data Monitor and Record option allows the scan tool operator to read the state of several parameter IDs (PIDs) to aid in diagnosing the system. PIDs are real time measurements of parameters such as voltages, resistances, etc., calculated by the restraints control module (RCM) and sent to the scan tool for display. Many of the PIDs supported by the RCM are calculated periodically and are, therefore, not true real time readings.

To retrieve PIDs, connect the scan tool to the data link connector (DLC). Follow the instructions for the scan tool being used. PIDs are updated continuously on the display.

Active Commands

This command allows the technician to verify operation of the air bag indicator and chime. When the air bag

output command is executed, the indicator and the chime are activated simultaneously for approximately four seconds. Both devices are deactivated automatically.

Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table

DTC ^a	LFC ^b	LFC Priority	Description	Action To Take
—	—	1	RCM Disconnected, Inoperative, or Lost/Low Ignition Feed	GO to Pinpoint Test A .
B1318	—	—	Ignition Voltage Below 9 Volts	CHECK battery voltage. REFER to Section 414-01 .
B1342	24	2	RCM is Faulted	GO to Pinpoint Test B .
B1231	19	3	RCM Crash Data Memory Full	GO to Pinpoint Test C .
B1921	21	4	RCM Bracket Ground Resistance High	GO to Pinpoint Test D .
C1414	29	5	Incorrect Vehicle Identification Code	GO to Pinpoint Test E .
B1887	15	6	Driver Air Bag Circuit Shorted to Ground	GO to Pinpoint Test F .
B1916	15	7	Driver Air Bag Circuit Shorted to Battery or Ignition	GO to Pinpoint Test G .
B1888	16	8	Passenger Air Bag Circuit Shorted to Ground	GO to Pinpoint Test H .
B1925	16	9	Passenger Air Bag Circuit Shorted to Battery or Ignition	GO to Pinpoint Test I .
B1932	32	10	Driver Air Bag Circuit Resistance High	GO to Pinpoint Test J .
B1933	33	11	Passenger Air Bag Circuit Resistance High	GO to Pinpoint Test K .
B1934	34	12	Driver Air Bag Circuit Resistance Low	GO to Pinpoint Test L .
B1935	35	13	Passenger Air Bag Circuit Resistance Low	GO to Pinpoint Test M .
B1901	14	14	Front External Crash Sensor Shorted to Ground	GO to Pinpoint Test N .
B1941	41	15	Front External Crash Sensor Open Circuit or Short to Battery	GO to Pinpoint Test O .
B2444	48	16	Driver Side Crash Sensor is Faulted	GO to Pinpoint Test P .
B2445	49	17	Passenger Side Crash Sensor is Faulted	GO to Pinpoint Test Q .
B2441	42	18	Driver Side Crash Sensor Mounting Fault	GO to Pinpoint Test R .
B2440	43	19	Passenger Side Crash Sensor Mounting Fault	GO to Pinpoint Test S .
U2017	44	20	Driver Side Crash Sensor Communication Fault	GO to Pinpoint Test T .
U2018	45	21	Passenger Side Crash Sensor Communication Fault	GO to Pinpoint Test U .
B1993	36	22	Driver Side Air Bag Circuit Shorted to Ground	GO to Pinpoint Test V .
B1992	36	24	Driver Side Air Bag Circuit Shorted to Battery or Ignition	GO to Pinpoint Test W .
B1994	36	26	Driver Side Air Bag Circuit Resistance High	GO to Pinpoint Test X .

B1995	36	28	Driver Side Air Bag Circuit Resistance Low	GO to Pinpoint Test Y .
B1997	37	23	Passenger Side Air Bag Circuit Shorted to Ground	GO to Pinpoint Test Z .
B1996	37	25	Passenger Side Air Bag Circuit Shorted to Battery or Ignition	GO to Pinpoint Test AA .
B1998	37	27	Passenger Side Air Bag Circuit Resistance High	GO to Pinpoint Test AB .
B1999	37	29	Passenger Side Air Bag Circuit Resistance Low	GO to Pinpoint Test AC .
B1892	—	30	Air Bag Tone Warning Indicator Circuit Shorted to Ground or Open	GO to Pinpoint Test AD .
B1891	—	31	Air Bag Tone Warning Indicator Circuit Shorted to Battery or Ignition	GO to Pinpoint Test AE .
B1869	Tone ^c	32	Air Bag Indicator Inoperative	GO to Pinpoint Test AF .
B1870	Tone ^c	33	Air Bag Indicator Shorted to Battery	GO to Pinpoint Test AG .
—	—	—	No Communication With the Restraints Control Module (RCM)	GO to Pinpoint Test AH .

^a DTC: Diagnostic trouble code, retrieved using scan tool.

^b LFC: Lamp fault code, flashed on air bag indicator.

^c Tone will sound only if additional DTCs are present.

Inspection and Verification

1. Verify the customer concern by checking the air bag indicator in the instrument cluster. Refer to Prove Out the System in this section.
2. Visually inspect for obvious signs of mechanical and electrical damage using the following chart.

Visual Inspection Chart

Mechanical	Electrical
• Damaged restraints control module (RCM) bracket • Damaged front external crash sensor bracket	• Open fuse(s) • Damaged wiring harness • Loose or corroded connectors • Circuitry open/shorted • Damaged shorting bars

3. If the concern is not visually evident, use the scan tool to retrieve diagnostic trouble codes (DTCs) and carry out the on-demand self test.
4.  **WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.**

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag

system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

If the on-demand self test is passed and no DTCs are retrieved, proceed to the symptom chart.

5. If DTCs are retrieved, refer to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table.

Symptom Chart

Symptom Chart

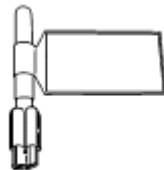
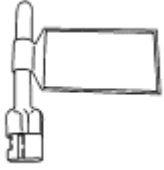
Condition	Possible Sources	Action
Air bag warning indicator is illuminated continuously	- Ignition circuits. - Ground circuits. - RCM. - Connector shorting bar. - RCM camming beam. - RCM disconnected. - Other circuitry. - Instrument cluster.	GO to Pinpoint Test A.
Air bag indicator flashing	Air bag SRS system fault.	REFER to DTC Priority Table.
Audible tone — DTCs retrieved	Air bag SRS system fault.	- GO to Pinpoint Test AF. - GO to Pinpoint Test AG.
No communication with the restraints control module (RCM)	- Scan Tool. - Data Link Connector (DLC). - RCM. - Circuitry.	GO to Pinpoint Test AH.

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
DIAGNOSIS AND TESTING

2000 Explorer/Mountaineer Workshop
Manual

Pinpoint Tests — Air Bag Supplemental Restraint System (SRS)

Special Tool(s)

 ST1137-A	73 Digital Multimeter 105-R0051 or Equivalent
 ST2506-A	Front Air Bag Simulator (Restraint System Diagnostic Tool) 105-R0012 or Equivalent
 ST2507-A	Side Air Bag Simulator (Restraint System Diagnostic Tool) 418-133 or Equivalent
 ST2332-A	Worldwide Diagnostic System 418-F224, New Generation STAR (NGS) Tester 418-F048, or equivalent scan tool

Restraint System Diagnostic Tool Warning



WARNING: This tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Pinpoint Test A: Air Bag Warning Indicator Is Illuminated Continuously — RCM Disconnected, Inoperative or Lost/Low Ignition Feed

Normal Operation

NOTE: During normal operation the air bag indicator will be lit continuously for 6 seconds after the ignition switch is placed in the RUN position and after five cycles of a lamp fault code (LFC) if a fault exists. Be sure to cycle the ignition switch and look for a 6 second indicator prove-out without LFCs.

The restraints control module (RCM) will communicate diagnostic trouble codes (DTCs) to the scan tool through the data link connector (DLC). If the scan tool displays NO COMMUNICATION when retrieving continuous DTCs, use Pinpoint Test AH to troubleshoot the system.

Possible Causes

An air bag indicator that is illuminated continuously can be caused by one of the following:

- the ignition circuit damaged.
- the RCM disconnected from the vehicle harness.
- a loss of RCM ground.
- the RCM inoperative.
- other circuitry.
- worn or damaged shorting bar or camming beam.

PINPOINT TEST A: AIR BAG WARNING INDICATOR IS ILLUMINATED CONTINUOUSLY — RCM DISCONNECTED, INOPERATIVE OR LOST/LOW IGNITION FEED

CONDITIONS	DETAILS/RESULTS/ACTIONS
A1 CHECK FOR CONTINUOUS OR ON-DEMAND SELF TEST DTCs	
1  2  3  4  5 	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Were any continuous or on-demand self test DTCs retrieved? → Yes If continuous DTCs were retrieved, GO to

[A3](#). If on-demand DTCs were retrieved, GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction.

→ **No**
GO to [A2](#).

A2 CHECK THE RCM CONNECTION

1



RCM C232

1

Make sure RCM C232 is fully connected and the red locking tab is engaged.

- Is RCM C232 fully connected and are the red locking tabs engaged?

→ **Yes**
GO to [A3](#).

→ **No**
CONNECT C232 and ENGAGE the locking tabs. GO to [A7](#).

A3 CHECK THE RCM CONNECTOR

1

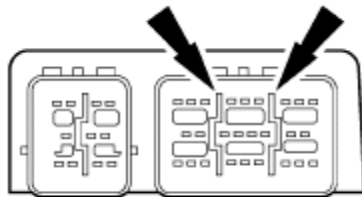


2



RCM C232

3



DR1540-A

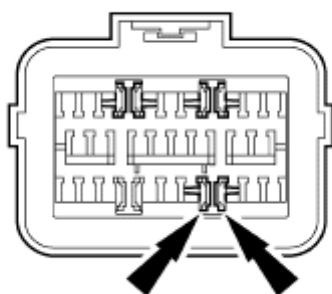
4

3

Inspect C232 component side for a worn or damaged camming beam. Inspect for foreign material.

4

NOTE: The shorting bars can be accessed by prying out the blue cover from the harness side of the connector.



DR1541-A

Inspect C232 harness side for worn, damaged, or dislodged shorting bar at pins 20 and 21. Inspect for foreign material.

- Were any connector concerns found?

→ **Yes**
CORRECT connector concerns. GO to [A7](#).

→ **No**
GO to [A4](#).

A4 CHECK THE IGNITION CIRCUIT 364 (BK/LG) FOR AN OPEN



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

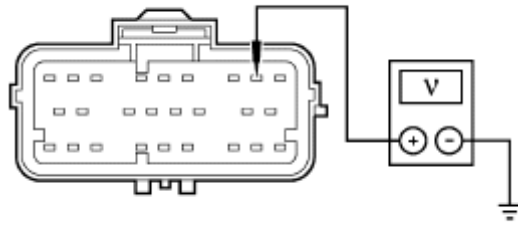
2



3

1 Deactivate the system.

3 Measure the voltage between RCM C232 pin 2, circuit 364 (BK/LG), harness side and ground.



DR0994-A

- Is the voltage between 9 and 16 volts?

→ **Yes**

GO to [A5](#).

→ **No**

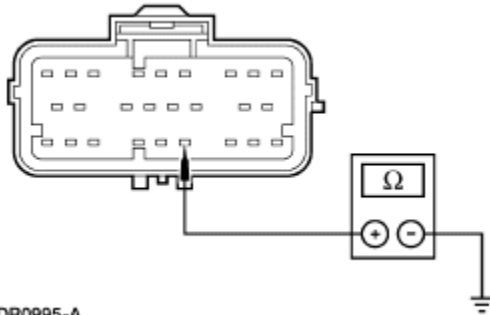
REPAIR the circuit. GO to [A7](#).

A5 CHECK THE GROUND CIRCUIT 649 (BK/OG) FOR AN OPEN

1



2



DR0995-A

2

Measure the resistance between RCM C232 pin 21, circuit 649 (BK/OG), harness side and a sheet metal ground near the RCM.

- Is the resistance less than 10 ohms?

→ **Yes**

GO to [A6](#).

→ **No**

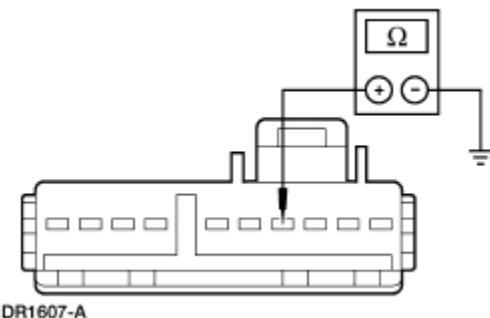
REPAIR the circuit. GO to [A7](#).

A6 CHECK CIRCUIT 608 (BK/YE) FOR A SHORT TO GROUND

1



Instrument Cluster C288

2  RCM C232 3  DR1607-A	3 Measure the resistance to ground at instrument cluster C288 pin 4, circuit 608 (BK/YE), harness side. • Is the resistance less than 10,000 ohms? → Yes REPAIR the circuit. GO to A7. → No INSTALL a new RCM. GO to A7.
A7 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step A1. • Were any continuous DTCs retrieved during Step A1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test B: LFC 24/DTC B1342 — RCM Is Faulted

Normal Operation

The restraints control module (RCM) monitors the backup power supply, accelerometer operation and memory. If the RCM detects a fault in any of these components, it will store a diagnostic trouble code (DTC) B1342 in memory and flash a lamp fault code (LFC) 24 on the air bag indicator.

Possible Causes

An RCM fault can be caused by:

- the backup power supply not operating correctly.
- an internal module circuit fault detected.
- a microcontroller RAM/ROM/EEPROM fault.

PINPOINT TEST B: LFC 24/DTC B1342 — RCM IS FAULTED

CONDITIONS	DETAILS/RESULTS/ACTIONS
B1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1342 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be

	cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. INSTALL a new RCM. GO to B2. → No This is an intermittent fault. The fault condition is not present at this time. INSTALL a new RCM. GO to B2.
B2 CHECK FOR ADDITIONAL DTCs	
	1 Refer to the continuous DTCs recorded during Step B1. • Were any continuous DTCs retrieved during Step B1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No CLEAR all DTCs.

Pinpoint Test C: LFC 19/DTC B1231 — RCM Crash Data Memory Full

Normal Operation



WARNING: The restraints control module (RCM) orientation is critical for correct system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) has been involved in a collision in which the right cowl A-pillar area has been damaged, inspect the mounting and bracket for deformation. If damaged, the RCM must be replaced whether or not the air bags have deployed. In addition, make sure the area of the RCM mounting is restored to its original condition.



WARNING: A new RCM must be installed if the air bag modules have deployed.



WARNING: Clearing DTC B1231 will potentially remove all record of the crash event.

When the air bags are deployed during a collision, the restraints control module (RCM) will flash a lamp fault code (LFC) 19 on the air bag indicator and store a diagnostic trouble code (DTC) B1231 in memory. The LFC 19 and DTC B1231 indicate that a crash has been recorded by the RCM.

Possible Causes

Crash data memory full is caused by a crash event that deployed the air bags.

PINPOINT TEST C: LFC 19/DTC B1231 — RCM CRASH DATA MEMORY FULL

CONDITIONS	DETAILS/RESULTS/ACTIONS
C1 CHECK FOR A HARD OR INTERMITTENT DTC	
1	

 2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1231 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. INSTALL a new driver air bag module and passenger air bag module. GO to C2. → No This is an intermittent fault. The fault condition is not present at this time. GO to C3.
C2 CHECK THE CONDITION OF THE RCM MOUNTING BRACKET	
	1 Inspect the RCM mounting bracket for damage. • Is there any damage to the RCM mounting bracket? → Yes RESTORE sheet metal to its original shape and structural integrity. INSTALL a new RCM and mounting bracket. GO to C3. → No INSTALL a new RCM. GO to C3.

C3 CHECK FOR ADDITIONAL DTCs

1 Refer to the continuous DTCs recorded during Step C1.

- **Were any continuous DTCs retrieved during Step C1?**

→ **Yes**

Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction.

→ **No**

CLEAR all DTCs.

Pinpoint Test D: LFC 21/DTC B1921 — RCM Bracket Ground Resistance High**Normal Operation**

WARNING: The tightening torque of the restraints control module (RCM) retaining bolts is critical for correct air bag supplemental restraint system (SRS) operation. Refer to [Module—Restraints Control](#) in this section for correct torque values.

The restraints control module (RCM) monitors the resistance between the ground connections at its housing and the reference ground at pin 21. If the RCM detects a resistance greater than 100 ohms, it will store a diagnostic trouble code (DTC) B1921 in memory and flash a lamp fault code (LFC) 21 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

High resistance between the RCM housing ground and pin ground can be caused by:

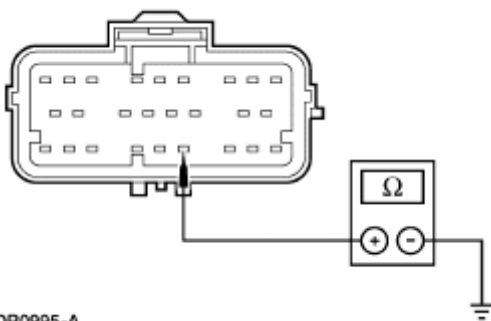
- incorrect seating of the RCM retaining bolts.
- incorrect tightening torque of the RCM retaining bolts.
- high resistance on RCM logic ground circuit 649 (BK/OG).

PINPOINT TEST D: LFC 21/DTC B1921 — RCM BRACKET GROUND RESISTANCE HIGH

CONDITIONS	DETAILS/RESULTS/ACTIONS
D1 CHECK FOR A HARD OR INTERMITTENT DTC	
1 	
2 	

Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1921 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to D2. → No This is an intermittent fault. The fault condition is not present at this time. GO to D6.
D2 INSPECT THE RCM MOUNTING, MOUNTING BRACKET AND MOUNTING SURFACE	
	1 Remove the RCM. Refer to Module—Restraints Control in this section. 2 Visually inspect the RCM, mounting bracket and mounting surface for damage, corrosion or dirt. 3 Inspect the RCM mounting and make sure that the retaining bolts are fully seated and tightened correctly. Refer to Module—Restraints Control in this section for correct tightening torque. • Was a significant amount of corrosion or dirt found, the RCM mounting bracket attached to the mounting surface incorrectly or the three RCM retaining bolts not fully seated and tightened correctly? → Yes MAKE SURE the RCM, mounting bracket and

	mounting surface are free of damage, corrosion or dirt, and the three retaining bolts are fully seated and correctly tightened. REATTACH the RCM and mounting bracket to the mounting surface. GO to D7. → No GO to D3.
D3 CHECK THE RCM HARNESS CONNECTION	
	1 Inspect the RCM harness pins and check the RCM harness connection. • Are the RCM harness pins OK and are the RCM harness connectors connected to the RCM correctly with the red locking clips engaged? → Yes GO to D4. → No ATTACH the RCM harness connectors correctly. GO to D7.
D4 CHECK THE VEHICLE CHASSIS GROUND	
	1 Measure the resistance between a known good chassis ground and the mounting surface of the RCM. • Is the resistance greater than 100 ohms? → Yes REPAIR the chassis grounding system. GO to D7. → No GO to D5.
D5 CHECK THE GROUND CIRCUIT 649 (BK/OG) FOR AN OPEN	
1  2  RCM C232 3	3 Measure the resistance between RCM C232 pin 21, circuit 649 (BK/OG), harness side and a sheet metal ground near the RCM.



- Is the resistance greater than 100 ohms?

→ **Yes**
REPAIR the circuit. GO to [D7](#).

→ **No**
GO to [D7](#).

D6 CHECK FOR AN INTERMITTENT FAULT

1 Refer to the continuous DTCs recorded during Step D1.

- Was the continuous DTC retrieved during Step D1 an intermittent fault?

→ **Yes**
CHECK for causes of intermittent high resistance on circuit 649 (BK/OG). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [D7](#).

→ **No**
GO to [D7](#).

D7 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1 Refer to the continuous DTCs recorded during Step D1.

- Were any continuous DTCs retrieved during Step D1

→ **Yes**
Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC)

Priority Table in this section for pinpoint test direction.

→ **No**
RECONNECT the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test E: LFC 29/DTC C1414 — Incorrect Vehicle Identification Code

Normal Operation

The restraints control module (RCM) monitors the voltage at pins 10, 13 and 14 to determine if it is installed on the correct vehicle. If the RCM detects an unexpected condition at any of these pins, it will store a diagnostic trouble code (DTC) C1414 in memory and flash a lamp fault code (LFC) 29 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

An incorrect vehicle identification code can be caused by:

- an RCM installed on the wrong vehicle.
- an incorrectly programmed RCM.
- a wiring concern at RCM C2 pins 10, 13 or 14.

PINPOINT TEST E: LFC 29/DTC C1414 — INCORRECT VEHICLE IDENTIFICATION CODE

CONDITIONS	DETAILS/RESULTS/ACTIONS
E1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  3  4  Scan Tool Retrieve/Clear Continuous DTCs	4 Retrieve and record any continuous DTCs for use later in this pinpoint test.

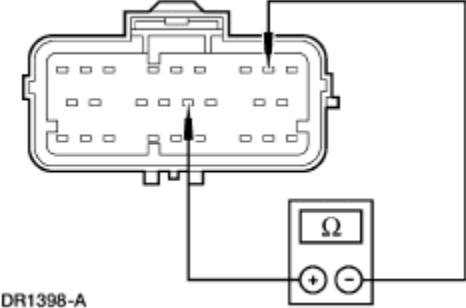
5 On-Demand Self Test	• Was DTC B1414 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to E2. → No This is an intermittent fault. The fault condition is not present at this time. GO to E5.

E2 CHECK THE VEHICLE IDENTIFICATION PINS NO. 1 AND NO. 3**NOTE:** For this vehicle application, RCM C232 pins 10 and 14 should be open circuited.

1 2 RCM C232	3 Make sure RCM C232 pins 10 and 14 connector slots are empty and no connection is made when connected to the RCM. • Are RCM C232 pins 10 and 14 connector slots empty? → Yes GO to E3. → No REPAIR the connector concern at RCM C232 pins 10 and 14. GO to E3.

E3 CHECK THE VEHICLE IDENTIFICATION PIN NO. 2**NOTE:** For this vehicle application, RCM C232 pin 13 should be connected to ignition voltage.

1	

2  Battery Ground Cable 3  4  DR1398-A	4 Measure the resistance between C232 pin 13 circuit 364 (BK/LG) and C232 pin 2 circuit 364 (BK/LG). • Is the resistance less than 5 ohms? → Yes GO to E4. → No REPAIR the high resistance concern. GO to E6.
E4 CHECK THE RCM PROGRAMMED VEHICLE ID	
1  PID/Data Monitor and Record	1 Select PID VID #1, VID #2, and VID #3. • Were VID #1 and VID #3 open circuit and was VID #2 ignition? → Yes GO to E5. → No INSTALL a new RCM. GO to E6.
E5 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step E1.

	• Was the continuous DTC retrieved during Step E1 an intermittent fault? → Yes CHECK for causes of an intermittent open on circuit 364 (BK/LG). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to E6. → No GO to E6.
E6 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step E1. • Were any continuous DTCs retrieved during Step E1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test F: LFC 15/DTC B1887 — Driver Air Bag Circuit Shorted to Ground

Normal Operation

The restraints control module (RCM) checks for driver air bag circuit shorts to ground by monitoring the voltage of circuits 614 (GY/OG) and 615 (GY/WH) at pins 3 and 4. If the RCM detects a short to ground on either of these pins, it will store a diagnostic trouble code (DTC) B1887 in memory and flash a lamp fault code (LFC) 15 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

A driver air bag circuit short to ground can be caused by:

- a short to ground on circuit 614 (GY/OG).
- a short to ground on circuit 615 (GY/WH).
- a short to ground on the air bag sliding contact (14A664) .
- a short to ground on the driver air bag module.

PINPOINT TEST F: LFC 15/DTC B1887 — DRIVER AIR BAG CIRCUIT SHORTED TO GROUND

CONDITIONS	DETAILS/RESULTS/ACTIONS
F1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1887 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to F2. → No This is an intermittent fault. The fault condition is not present at this time. GO to F5.
F2 CHECK THE DRIVER AIR BAG MODULE  WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system	

must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

• Was the DTC B1887 retrieved?

→ **Yes**
GO to [F3](#).

→ **No**
INSTALL a new driver air bag module. GO to [F6](#).

F3 CHECK THE DRIVER AIR BAG MODULE CIRCUIT

1



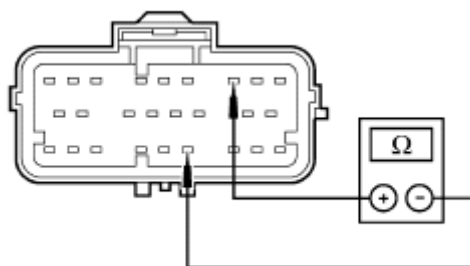
2



RCM C232

3

3 **NOTE:** Do not separate or remove the



DR0999-B

shorting bars from RCM C232.

Measure the resistance between RCM C232 pin 3, circuit 614 (GY/OG), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.

- **Is the resistance less than 10,000 ohms?**

→ **Yes**
GO to [F4](#).

→ **No**
INSTALL a new RCM. GO to [F6](#).

F4 CHECK THE DRIVER AIR BAG MODULE WIRING AND THE AIR BAG SLIDING CONTACT

1



Driver Air Bag Module C2011

2



Air Bag Sliding Contact C271

- 3 Inspect all crimps, terminals, wires and connectors in circuit 614 (GY/OG) feeding the RCM pin 3, circuit 615 (GY/WH) feeding pin 4, the air bag sliding contact assembly and the air bag sliding contact connector C271. Check for pinched wires and damaged connector pin terminals.

- **Was any damage found?**

→ **Yes**
REPAIR as necessary. GO to [F6](#).

→ **No**
GO to [F6](#).

F5 CHECK FOR AN INTERMITTENT FAULT

- 1 Refer to the continuous DTCs recorded during Step F1.

	• Was the continuous DTC retrieved during Step F1 an intermittent fault? → Yes CHECK for causes of intermittent short to ground on circuit 614 (GY/OG), circuit 615 (GY/WH), and the air bag sliding contact assembly. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to F6. → No GO to F6.
F6 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step F1. • Were any continuous DTCs retrieved during Step F1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test G: LFC 15/DTC B1916 — Driver Air Bag Circuit Shorted to Battery or Ignition

Normal Operation

The restraints control module (RCM) checks for driver air bag circuit shorts to battery or ignition by monitoring the voltage of circuit 614 (GY/OG) and 615 (GY/WH) at pins 3 and 4. If the RCM detects a short to battery or ignition on either of these pins, it will store a diagnostic trouble code (DTC) B1916 in memory and flash a lamp fault code (LFC) 15 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

A driver air bag circuit short to battery or ignition can be caused by:

- a short to battery or ignition on circuit 614 (GY/OG).
- a short to battery or ignition on circuit 615 (GY/WH).

- a short to battery or ignition on the air bag sliding contact.
- a short to battery or ignition on the driver air bag module.

PINPOINT TEST G: LFC 15/DTC B1916 — DRIVER AIR BAG CIRCUIT SHORTED TO BATTERY OR IGNITION

CONDITIONS	DETAILS/RESULTS/ACTIONS
G1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1916 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to G2. → No This is an intermittent fault. The fault condition is not present at this time. GO to G5.
G2 CHECK THE DRIVER AIR BAG MODULE	



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

• Was DTC B1916 retrieved?

→ **Yes**
GO to [G3](#).

→ **No**
INSTALL a new driver air bag module. GO to [G6](#).

G3 CHECK THE DRIVER AIR BAG MODULE CIRCUIT

1



2

Battery Ground Cable 3 RCM C232 4 5 DR1035-A	NOTE: Do not separate or remove the shorting bars from RCM C232. Measure the resistance between RCM C232 pin 3, circuit 614 (GY/OG), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side. • Is the resistance less than 10,000 ohms? → Yes GO to G4. → No INSTALL a new RCM. GO to G6.

G4 CHECK THE DRIVER AIR BAG MODULE WIRING AND THE AIR BAG SLIDING CONTACT

1 Driver Air Bag Module C2011 2 Air Bag Sliding Contact C271	3 Inspect all crimps, terminals, wires and connectors in circuit 614 (GY/OG) feeding the RCM pin 3, circuit 615 (GY/WH) feeding pin 4, the air bag sliding contact assembly and

	the air bag sliding contact connector C271. Check for pinched wires and damaged connector pin terminals. • Was any damage found? → Yes REPAIR as necessary. GO to G6. → No GO to G6.
G5 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step G1. • Was the continuous DTC retrieved during Step G1 an intermittent fault? → Yes CHECK for causes of intermittent short to battery or ignition on circuit 614 (GY/OG), circuit 615 (GY/WH), and the air bag sliding contact assembly. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to G6. → No GO to G6.
G6 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step G1. • Were any continuous DTCs retrieved during Step G1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test H: LFC 16/DTC B1888 — Passenger Air Bag Circuit Shorted to Ground**Normal Operation**

The restraints control module (RCM) checks for passenger air bag circuit shorts to ground by monitoring the voltage of circuits 607 (LB/OG) and 616 (PK/BK) at pins 6 and 7. If the RCM detects a short to ground on either of these pins, it will store a diagnostic trouble code (DTC) B1888 in memory and flash a lamp fault code (LFC) 16 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

A passenger air bag circuit short to ground can be caused by:

- a short to ground on circuit 607 (LB/OG).
- a short to ground on circuit 616 (PK/BK).
- a short to ground on the passenger air bag module.
- an RCM internal concern.

PINPOINT TEST H: LFC 16/DTC B1888 — PASSENGER AIR BAG CIRCUIT SHORTED TO GROUND

CONDITIONS	DETAILS/RESULTS/ACTIONS
H1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test.

- Was DTC B1888 retrieved during the on-demand self test?

→ **Yes**

This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to [H2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [H5](#).

H2 CHECK THE PASSENGER AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2

Deactivate the system.

- Was DTC B1888 retrieved?

→ **Yes**

GO to [H3](#).

→ **No**
INSTALL a new passenger air bag module.
GO to [H6](#).

H3 CHECK THE PASSENGER AIR BAG MODULE CIRCUIT

1

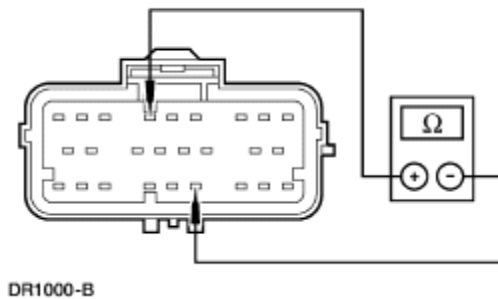


2



RCM C232

3



DR1000-B

3 **NOTE:** Do not separate or remove the shorting bars from RCM C232.

Measure the resistance between RCM C232 pin 6, circuit 607 (LB/OG), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.

- Is the resistance less than 10,000 ohms?

→ **Yes**
GO to [H4](#).

→ **No**
INSTALL a new RCM. GO to [H6](#).

H4 CHECK THE PASSENGER AIR BAG MODULE WIRING

1



Passenger Air Bag Module C272

2 Inspect all crimps, terminals, wires and connectors in circuit 607 (LB/OG) feeding the RCM pin 6, circuit 616 (PK/BK) feeding pin 7. Check for pinched wires and damaged connector pin terminals.

- Was any damage found?

	→ Yes REPAIR as necessary. GO to H6. → No GO to H6.
H5 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step H1. • Was the DTC retrieved during Step H1 an intermittent fault? → Yes CHECK for causes of intermittent short to ground on circuit 607 (LB/OG) and circuit 616 (PK/BK). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to H6. → No GO to H6.
H6 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step H1. • Were any continuous DTCs retrieved during Step H1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test I: LFC 16/DTC B1925 — Passenger Air Bag Circuit Shorted to Battery or Ignition

Normal Operation

The restraints control module (RCM) checks for passenger air bag circuit shorts to battery or ignition by monitoring the voltage of circuits 607 (LB/OG) and 616 (PK/BK) at pins 6 and 7. If the RCM detects a short

to battery or ignition on either of these pins, it will store a diagnostic trouble code (DTC) B1925 in memory and flash a lamp fault code (LFC) 16 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

A passenger air bag circuit short to battery or ignition can be caused by:

- a short to battery or ignition on circuit 607 (LB/OG).
- a short to battery or ignition on circuit 616 (PK/BK).
- a short to battery or ignition on the passenger air bag module.
- an RCM internal concern.

PINPOINT TEST I: LFC 16/DTC B1925 — PASSENGER AIR BAG CIRCUIT SHORTED TO BATTERY OR IGNITION

CONDITIONS	DETAILS/RESULTS/ACTIONS
I1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1925 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still

present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to [I2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [I5](#).

I2 CHECK THE PASSENGER AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

• Was DTC B1925 retrieved?

→ **Yes**

GO to [I3](#).

→ **No**

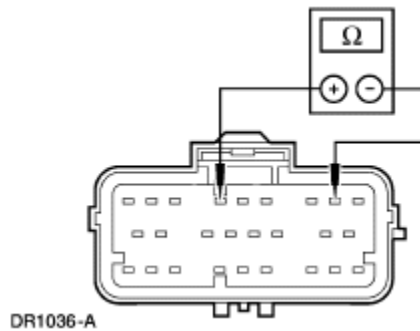
INSTALL a new passenger air bag module.
GO to [I6](#).

I3 CHECK THE PASSENGER AIR BAG MODULE CIRCUIT**1****2**

Battery Ground Cable

3

RCM C232

4**5****5**

NOTE: Do not separate or remove the shorting bars from RCM C232.

Measure the resistance between RCM C232 pin 6, circuit 607 (LB/OG), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side.

- Is the resistance less than 10,000 ohms?

→ **Yes**
GO to [I4](#).

→ **No**
INSTALL a new RCM. GO to [I6](#).

I4 CHECK THE PASSENGER AIR BAG MODULE WIRING**1**

Passenger Air Bag Module C272

2

Inspect all crimps, terminals, wires, and connectors in circuit 607 (LB/OG) feeding the

	RCM pin 6, circuit 616 (PK/BK) feeding pin 7. Check for pinched wires and damaged connector pin terminals. • Was any damage found? → Yes REPAIR as necessary. GO to 16. → No GO to 16.
I5 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step I1. • Was the DTC retrieved during Step I1 an intermittent fault? → Yes CHECK for causes of intermittent short to battery or ignition on circuit 607 (LB/OG) and circuit 616 (PK/BK). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to 16. → No GO to 16.
I6 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step I1. • Were any continuous DTCs retrieved during Step I1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test J: LFC 32/DTC B1932 — Driver Air Bag Circuit Resistance High**Normal Operation**

The restraints control module (RCM) monitors the resistance for the driver air bag ignitor by measuring the resistance between pins 3 and 4. If the RCM detects high resistance between these pins, it will store a diagnostic trouble code (DTC) B1932 in memory and flash a lamp fault code (LFC) 32 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

Driver air bag high resistance can be caused by:

- a poor connection or corrosion in the driver air bag module circuits or the air bag sliding contact.
- an open circuit or high resistance in the air bag sliding contact windings.
- an open circuit or high resistance in the wiring harness.
- an open circuit or high resistance in the driver air bag module.
- an RCM internal concern.

PINPOINT TEST J: LFC 32/DTC B1932 — DRIVER AIR BAG CIRCUIT RESISTANCE HIGH

CONDITIONS	DETAILS/RESULTS/ACTIONS
J1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test.

- Was DTC B1932 retrieved during the on-demand self test?

→ **Yes**

This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to [J2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [J5](#).

J2 CHECK THE DRIVER AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

- Was DTC B1932 retrieved?

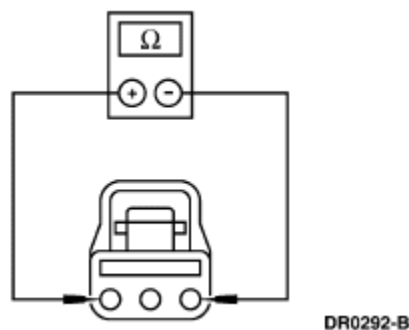
- **Yes**
GO to [J3](#).
- **No**
INSTALL a new driver air bag module. GO to [J6](#).

J3 CHECK THE DRIVER AIR BAG MODULE CIRCUIT**1****2**

RCM C232

3

Driver Air Bag Restraint System Diagnostic Tool

4

DR0292-B

- 4** **NOTE:** By disconnecting the RCM connector, circuit 614 (GY/OG) and circuit 615 (GY/WH) of the RCM connector are shorted together with a shorting bar. Do not remove the shorting bar.

NOTE: Zero the multimeter prior to taking the measurement.

Measure the resistance between driver air bag C2011, circuit 614 (GY/OG), harness side and driver air bag C2011, circuit 615 (GY/WH), harness side.

- **Is the resistance greater than 0.5 ohm?**

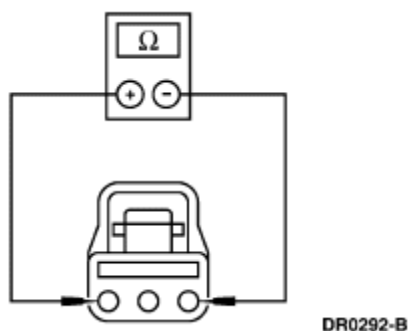
- **Yes**
GO to [J4](#).

- **No**
INSTALL a new RCM. GO to [J6](#).

J4 CHECK THE AIR BAG SLIDING CIRCUIT**1**

Air Bag Sliding Contact C271

2



2

NOTE: By disconnecting the air bag sliding contact connector, the connector pins are shorted together with a shorting bar. Do not remove the shorting bar.

NOTE: Zero the multimeter prior to taking the measurement.

Measure the resistance between air bag sliding contact C271, circuit 614 (GY/OG), harness side and air bag sliding contact C271, circuit 615 (GY/WH), harness side.

- **Is the resistance greater than 0.5 ohm?**

→ **Yes**
INSTALL a new air bag sliding contact. GO to [J6](#).

→ **No**
REPAIR the circuit(s) as necessary. GO to [J6](#).

J5 CHECK FOR AN INTERMITTENT FAULT

1

Refer to the continuous DTCs recorded during Step J1.

- **Was the continuous DTC retrieved during Step J1 an intermittent fault?**

→ **Yes**
CHECK for causes of intermittent high resistance on circuit 614 (GY/OG), circuit 615 (GY/WH), and the air bag sliding contact assembly. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [J6](#).

→ **No**
GO to [J6](#).

J6 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

Refer to the continuous DTCs recorded during Step J1.

- **Were any continuous DTCs retrieved during Step J1?**

→ **Yes**

	Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test K: LFC 33/DTC B1933 — Passenger Air Bag Circuit Resistance High

Normal Operation

The restraints control module (RCM) monitors the resistance of the passenger air bag ignitor by measuring the resistance between pins 6 and 7. If the RCM detects high resistance between these pins, it will store a diagnostic trouble code (DTC) B1933 in memory and flash a lamp fault code (LFC) 33 (or higher priority code if one exists) on the air bag indicator.

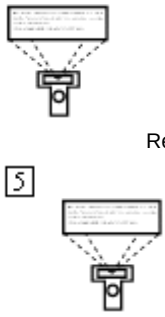
Possible Causes

A passenger air bag high resistance can be caused by:

- a poor connection or corrosion in the passenger air bag module circuits.
- an open circuit or high resistance in the wiring harness.
- an open circuit or high resistance in the passenger air bag module.
- an RCM internal concern.

PINPOINT TEST K: LFC 33/DTC B1933 — PASSENGER AIR BAG CIRCUIT RESISTANCE HIGH

CONDITIONS	DETAILS/RESULTS/ACTIONS
K1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4 	4 Retrieve and record any continuous DTCs for

 Retrieve/Clear Continuous DTCs 5 On-Demand Self Test	use later in this pinpoint test. • Was DTC B1933 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to K2. → No This is an intermittent fault. The fault condition is not present at this time. GO to K4.

K2 CHECK THE PASSENGER AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3

2

Deactivate the system.



4



On-Demand Self Test

- Was DTC B1933 retrieved?

→ Yes

GO to [K3](#).

→ No

INSTALL a new passenger air bag module.

GO to [K5](#).**K3 CHECK THE PASSENGER AIR BAG MODULE CIRCUIT**

1



2



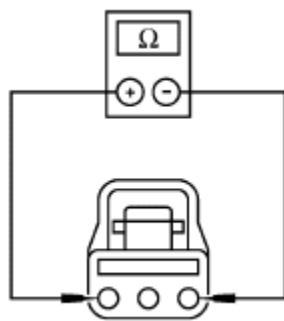
RCM C232

3



Passenger Air Bag Restraint System Diagnostic Tool

4



DR0292-B

4

NOTE: By disconnecting the RCM connector, circuit 607 (LB/OG) and circuit 616 (PK/BK) of the RCM connector are shorted together with a shorting bar. Do not remove the shorting bar.

NOTE: Zero the multimeter prior to taking the measurement.

Measure the resistance between passenger air bag C272, circuit 607 (LB/OG), harness side and passenger air bag C272, circuit 616 (PK/BK) harness side.

- Is the resistance greater than 0.5 ohm?

	→ Yes REPAIR the circuit(s) as necessary. GO to K5. → No INSTALL a new RCM. GO to K5.
K4 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step K1. • Was the continuous DTC retrieved during Step K1 an intermittent fault? → Yes CHECK for causes of intermittent high resistance on circuit 607 (LB/OG) and circuit 616 (PK/BK). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to K5. → No GO to K5.
K5 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step K1. • Were any continuous DTCs retrieved during Step K1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test L: LFC 34/DTC B1934 — Driver Air Bag Circuit Resistance Low

Normal Operation

The restraints control module (RCM) monitors the resistance of the driver air bag ignitor by measuring the resistance between pins 3 and 4. If the RCM detects low resistance between these pins, it will store a

diagnostic trouble code (DTC) B1934 in memory and flash a lamp fault code (LFC) 34 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

Driver air bag low resistance can be caused by:

- a short in the air bag sliding contact windings.
- a short in the wiring harness.
- a low resistance in the driver air bag module.
- an RCM internal concern.
- a worn or damaged connector shorting bar (harness side).
- a worn or damaged connector camming beam (component side).

PINPOINT TEST L: LFC 34/DTC B1934 — DRIVER AIR BAG CIRCUIT RESISTANCE LOW

CONDITIONS	DETAILS/RESULTS/ACTIONS
L1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1934 retrieved during the on-demand self test?

→ **Yes**

This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to [L2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [L5](#).

L2 CHECK THE DRIVER AIR BAG MODULE

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

- Was DTC B1934 retrieved?

→ **Yes**

GO to [L3](#).

→ **No**

INSTALL a new driver air bag module. GO to [L6](#).

L3 CHECK THE DRIVER AIR BAG MODULE CIRCUIT

1

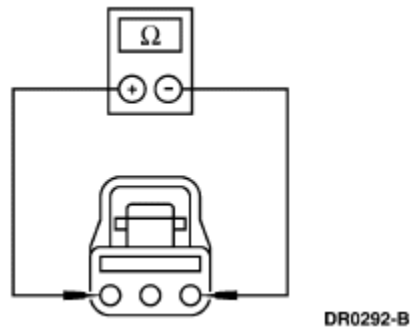


2



Driver Air Bag Restraint System Diagnostic Tool

3



DR0292-B

3 Measure the resistance between driver air bag C2011, circuit 614 (GY/OG), harness side and driver air bag C2011, circuit 615 (GY/WH), harness side.

- Is the resistance greater than 10,000 ohms?

→ **Yes**
GO to [L4](#).

→ **No**
INSTALL a new RCM. GO to [L6](#).

L4 CHECK THE AIR BAG SLIDING CONTACT

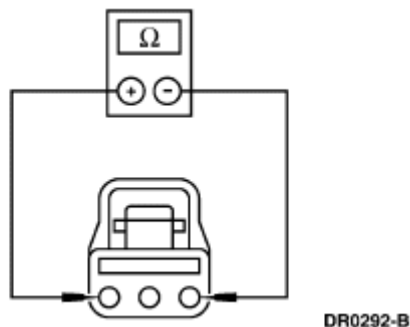
1



Air Bag Sliding Contact C271

2

2 Measure the resistance between air bag sliding contact C271, circuit 614 (GY/OG), harness side and air bag sliding contact C271, circuit 615 (GY/WH), harness side.



- Is the resistance greater than 10,000 ohms?

→ **Yes**
INSTALL a new air bag sliding contact. GO to [L6](#).

→ **No**
REPAIR the circuit(s) as necessary. GO to [L6](#).

L5 CHECK FOR AN INTERMITTENT FAULT

1 Refer to the continuous DTCs recorded during Step L1.

- Was the DTC retrieved during Step L1 an intermittent fault?

→ **Yes**
CHECK for causes of intermittent low resistance on circuit 614 (GY/OG), circuit 615 (GY/WH), and the air bag sliding contact assembly. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [L6](#).

→ **No**
GO to [L6](#).

L6 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1 Refer to the continuous DTCs recorded during Step L1.

- Were any continuous DTCs retrieved during Step L1?

→ **Yes**

	Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test M: LFC 35/DTC B1935 — Passenger Air Bag Circuit Resistance Low

Normal Operation

The restraints control module (RCM) monitors the resistance of the passenger air bag ignitor by measuring the resistance between pins 6 and 7. If the RCM detects low resistance between these pins, it will store a diagnostic trouble code (DTC) B1935 in memory and flash a lamp fault code (LFC) 35 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

Passenger air bag low resistance can be caused by:

- a short in the wiring harness.
- a low resistance in the passenger air bag module.
- an RCM internal concern.
- a worn or damaged shorting bar.
- a worn or damaged connector camming beam (component side).

PINPOINT TEST M: LFC 35/DTC B1935 — PASSENGER AIR BAG CIRCUIT RESISTANCE LOW

CONDITIONS	DETAILS/RESULTS/ACTIONS
M1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3 	



4



On-Demand Self Test

- Was DTC B1935 retrieved?

→ **Yes**GO to [M3](#).→ **No**

INSTALL a new passenger air bag module.

GO to [M5](#).**M3 CHECK THE PASSENGER AIR BAG MODULE CIRCUIT**

1

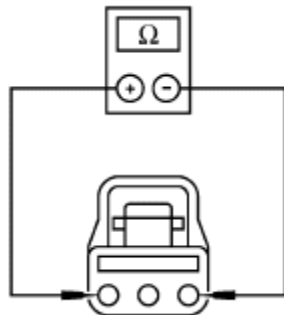


2



Passenger Air Bag Restraint System Diagnostic Tool

3



DR0292-B

3

Measure the resistance between passenger air bag C272, circuit 607 (LB/OG), harness side and passenger air bag C272, circuit 616 (PK/BK), harness side.

- Is the resistance greater than 10,000 ohms?

→ **Yes**INSTALL a new RCM. GO to [M5](#).→ **No**

REPAIR the circuit(s) as necessary. GO to [M5](#).

M4 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step M1. • Was the DTC retrieved during Step M1 an intermittent fault? → Yes CHECK for causes of intermittent low resistance on circuit 607 (LB/OG) and circuit 616 (PK/BK). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to M5. → No GO to M5.
M5 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step M1. • Were any continuous DTCs retrieved during Step M1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test N: LFC 14/DTC B1901 — Front External Crash Sensor Shorted To Ground

Normal Operation

The front external crash sensors monitor the severity of a crash event. If the crash event is severe enough, the sensor(s) will close and signal the restraints control module (RCM) to deploy the air bags. Each front external crash sensor contains a 1580 ohm resistor. The two crash sensors are connected in parallel at the splice in circuit 619 (PK/WH). Because of the parallel connection, the RCM normally measures about 790 ohms to ground on circuit 619 (PK/WH).

The RCM measures this resistance to verify that the crash sensors are correctly mounted and connected. If there is a short to ground on circuit 619 (PK/WH), the RCM will store diagnostic trouble code (DTC) B1901

in memory. The RCM will also flash lamp fault code (LFC) 14 (or higher priority code if one exists) on the air bag indicator.

Possible Causes

A front external crash sensor shorted to ground fault can be caused by:

- a short to ground on circuit 619 (PK/WH).
- a damaged or inoperative front external crash sensor.
- an RCM internal concern.

PINPOINT TEST N: LFC 14/DTC B1901 — FRONT EXTERNAL CRASH SENSOR SHORTED TO GROUND

CONDITIONS	DETAILS/RESULTS/ACTIONS
N1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1901 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is

corrected and the DTC is no longer retrieved during the on-demand self test. GO to [N2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [N5](#).

N2 CHECK CIRCUIT 619 (PK/WH)



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1

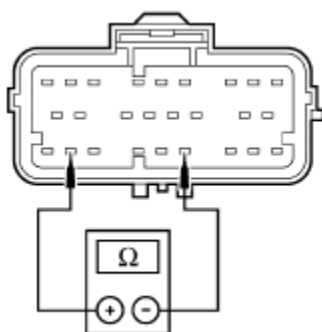


3



RCM C232

4



DR1001-A

2

Deactivate the system.

4

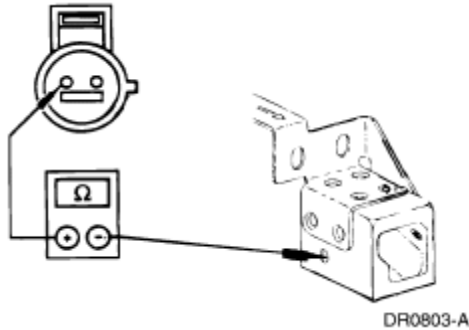
Measure the resistance between RCM C232 pin 25, circuit 619 (PK/WH), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.

- Is the resistance between 690 and 890 ohms?

- **Yes**
INSTALL a new RCM. GO to [N6](#).
- **No**
GO to [N3](#).

N3 CHECK THE RH FRONT EXTERNAL CRASH SENSOR**1**

RH Front External Crash Sensor C133

2

- 2** Measure the resistance between RH front external crash sensor C133, circuit 619 (PK/WH) component side and the rivet on the side of the RH front external crash sensor case.

- Is the resistance between 1530 and 1630 ohms?

- **Yes**
GO to [N4](#).

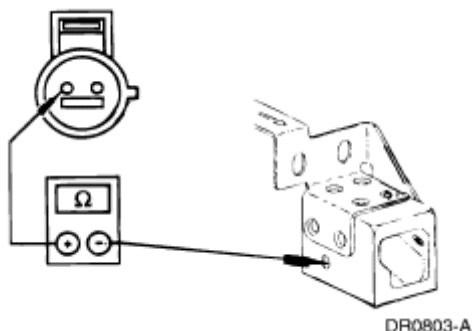
- **No**
INSTALL a new RH front external crash sensor. GO to [N6](#).

N4 CHECK THE LH FRONT EXTERNAL CRASH SENSOR**1**

LH Front External Crash Sensor C132

2

- 2** Measure the resistance between LH front external crash sensor C132, circuit 619 (PK/WH) component side and the rivet on the side of the LH front external crash sensor case.



- Is the resistance between 1530 and 1630 ohms?

→ **Yes**
REPAIR circuit 619 (PK/WH). GO to [N6](#).

→ **No**
INSTALL a new LH front external crash sensor. GO to [N6](#).

N5 CHECK FOR AN INTERMITTENT FAULT

1 Refer to the continuous DTCs recorded during Step **N1**.

- Was the continuous DTC retrieved during Step **N1** an intermittent fault?

→ **Yes**
CHECK for causes of intermittent short to ground on circuit 619 (PK/WH). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [N6](#).

→ **No**
GO to [N6](#).

N6 CHECK FOR ADDITIONAL DTCs

! WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1 Refer to the continuous DTCs recorded during Step **N1**.

- Were any continuous DTCs retrieved during Step **N1**?

→ **Yes**
Do not clear any DTCs until all DTCs have

	been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test O: LFC 41/DTC B1941 — Front External Crash Sensor Open Circuit or Short to Battery

Normal Operation

The front external crash sensors monitor the severity of a crash event. If the crash event is severe enough, the sensor(s) will close and signal the restraints control module (RCM) to deploy the air bags. Each front external crash sensor contains a 1590 ohm resistor. Since the two crash sensors are connected in parallel through the splice in circuit 619 (PK/WH), the RCM normally measures about 790 ohms.

The RCM measures this resistance to verify that the crash sensors are correctly mounted and connected. If there is a short to battery or an open on circuit 619 (PK/WH), the RCM will store a diagnostic trouble code (DTC) B1941 in memory and flash a lamp fault code (LFC) 41 (or higher priority code is one exists) on the air bag indicator.

Possible Causes

A front external crash sensor open circuit or short to battery fault can be caused by:

- damaged wiring on circuit 619 (PK/WH).
- damaged front external crash sensor.
- a short to battery on circuit 619 (PK/WH).
- an RCM internal concern.

PINPOINT TEST O: LFC 41/DTC B1941 — FRONT EXTERNAL CRASH SENSOR OPEN CIRCUIT OR SHORT TO BATTERY

CONDITIONS	DETAILS/RESULTS/ACTIONS
O1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  3 Scan Tool	



4



Retrieve/Clear Continuous DTCs

5



On-Demand Self Test

4

Retrieve and record any continuous DTCs for use later in this pinpoint test.

• **Was DTC B1941 retrieved during the on-demand self test?**

→ **Yes**

This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to [O2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [O6](#).

O2 CHECK FOR BATTERY ON CIRCUIT 619 (PK/WH)



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

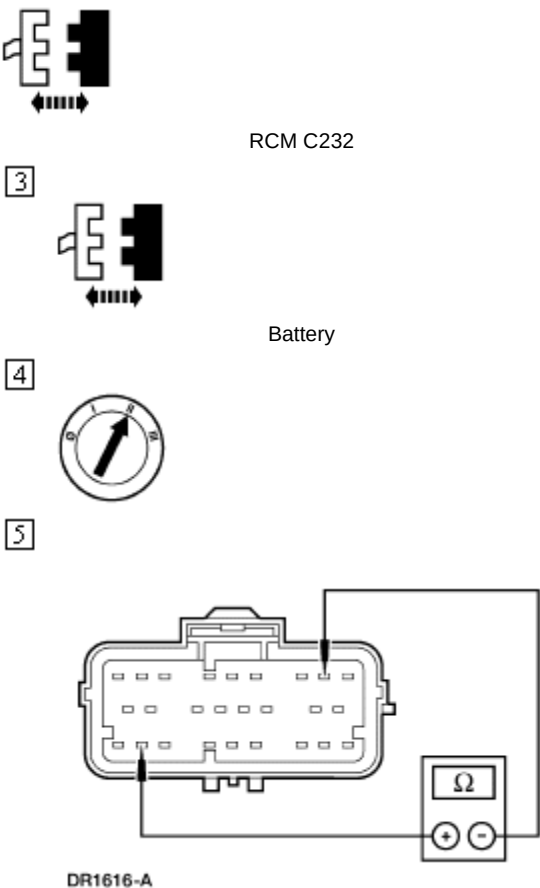
NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

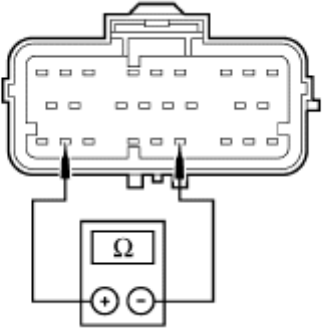
NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

2

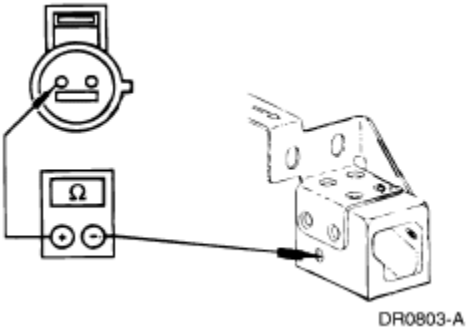
1

Deactivate the system.

 RCM C232 Battery DR1616-A	5 Measure the resistance between RCM C232 pin 2, circuit 364 (BK/LG) and pin 25, circuit 619 (PK/WH). Is the resistance greater than 10,000 ohms? → Yes GO to O3. → No REPAIR the short to battery on circuit 619 (PK/WH). RETEST the system for normal operation.
O3 CHECK CIRCUIT 619 (PK/WH) 1  3	2 Deactivate the system. 3 Measure the resistance between RCM C232 pin 25, circuit 619 (PK/WH), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.

 DR1001-A	Is the resistance between 690 and 890 ohms? → Yes INSTALL a new RCM. GO to O7. → No GO to O4.

O4 CHECK THE RH FRONT EXTERNAL CRASH SENSOR

1  Front External Crash Sensor C133 2  DR0803-A	2 Measure the resistance between RH front external crash sensor C133, circuit 619 (PK/WH) component side and the rivet on the side of the RH front external crash sensor case. Is the resistance between 1530 and 1630 ohms? → Yes GO to O5. → No INSTALL a new RH front external crash sensor. GO to O7.

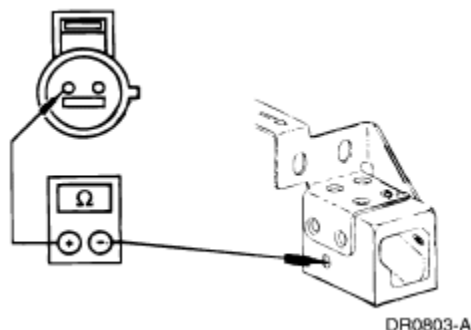
O5 CHECK THE LH FRONT EXTERNAL CRASH SENSOR

1	



Front External Crash Sensor C132

2



2

Measure the resistance between LH front external crash sensor C132, circuit 619 (PK/WH) component side and the rivet on the side of the LH front external crash sensor case.

- Is the resistance between 1530 and 1630 ohms?

→ Yes

REPAIR circuit 619 (PK/WH). GO to [O6](#).

→ No

INSTALL a new LH front external crash sensor. GO to [O7](#).

O6 CHECK FOR AN INTERMITTENT FAULT

1

Refer to the continuous DTCs recorded during Step O1.

- Was the continuous DTC retrieved during Step O1 an intermittent fault?

→ Yes

CHECK for causes of intermittent high resistance or short to battery on circuit 619 (PK/WH). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [O6](#).

→ No

GO to [O7](#).

O7 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

Refer to the continuous DTCs recorded during Step O1.

	• Were any continuous DTCs retrieved during Step O1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test P: LFC 48/DTC B2444 — Driver Side Crash Sensor Is Faulted

Normal Operation

The driver side crash sensor monitors the severity of a crash event. If the crash event is severe enough, the sensor will signal the restraints control module (RCM) to deploy the driver side air bag.

The RCM monitors the two-wire current loop to the driver side crash sensor for a signal that is out of the expected range. If the RCM detects a signal from the driver side crash sensor, indicating a fault, it will store diagnostic trouble code (DTC) B2444 and flash a lamp fault code (LFC) 48 (or a higher priority code if one exists) on the air bag indicator.

Possible Causes

A driver side crash sensor fault can be caused by:

- damaged driver side crash sensor.

PINPOINT TEST P: LFC 48/DTC B2444 — DRIVER SIDE CRASH SENSOR IS FAULTED

CONDITIONS	DETAILS/RESULTS/ACTIONS
P1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool	

The RCM monitors the two-wire current loop to the passenger side crash sensor for a signal that is out of the expected range. If the RCM detects a signal from the passenger side crash sensor, indicating a fault, it will store diagnostic trouble code (DTC) B2445 and flash a lamp fault code (LFC) 49 (or a higher priority

code if one exists) on the air bag indicator.

Possible Causes

A passenger side crash sensor fault can be caused by:

- damaged passenger side crash sensor.

PINPOINT TEST Q: LFC 49/DTC B2445 — PASSENGER SIDE CRASH SENSOR IS FAULTED

CONDITIONS	DETAILS/RESULTS/ACTIONS
Q1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B2445 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. INSTALL a new passenger side crash sensor. GO to Q2.

	→ No This is an intermittent fault. The fault condition is not present at this time. INSTALL a new passenger side crash sensor. GO to Q2.
Q2 CHECK FOR ADDITIONAL DTCs	
	1 Refer to the continuous DTCs recorded during Step Q1. • Were any continuous DTCs retrieved during Step Q1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No CLEAR all DTCs.

Pinpoint Test R: LFC 42/DTC B2441 — Driver Side Crash Sensor Mounting Fault

Normal Operation

The driver side crash sensor monitors the severity of a crash event. If the crash event is severe enough, the sensor will signal the restraints control module (RCM) to deploy the driver side air bag.

The RCM monitors the two-wire current loop to the driver side crash sensor for a signal that is out of the expected range. If the RCM detects a signal from the driver side crash sensor, indicating a sensor mounting fault, it will store diagnostic trouble code (DTC) B2441 and flash a lamp fault code (LFC) 42 (or a higher priority code if one exists) on the air bag indicator.

Possible Causes

A driver side crash sensor mounting fault can be caused by:

- damaged driver side crash sensor.
- corrosion or damage at the sensor mounting surface.

PINPOINT TEST R: LFC 42/DTC B2441 — DRIVER SIDE CRASH SENSOR MOUNTING FAULT

CONDITIONS	DETAILS/RESULTS/ACTIONS
R1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2 	

Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B2441 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to R2. → No This is an intermittent fault. The fault condition is not present at this time. GO to R5.
R2 CHECK THE MOUNTING OF THE DRIVER SIDE CRASH SENSOR	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.	
	1 Deactivate the system.

	2 Remove the driver side crash sensor. For additional information, refer to Sensor—Side Crash in this section. 3 Visually inspect the driver side crash sensor, mounting bracket and mounting surface for damage, corrosion or dirt. 4 Inspect the driver side crash sensor mounting and make sure that the retaining bolts are fully seated and tightened correctly. For additional information, refer to Sensor—Side Crash in this section for correct tightening torque. • Was a significant amount of corrosion or dirt found, the driver side crash sensor mounting bracket attached to the mounting surface incorrectly, or the two driver side crash sensor retaining bolts not fully seated and tightened correctly? → Yes MAKE SURE the driver side crash sensor, mounting bracket and mounting surface are free of damage, corrosion or dirt and the two retaining bolts are fully seated and correctly tightened. REATTACH the driver side crash sensor and mounting bracket to the mounting surface. GO to R6. → No GO to R3.
R3 CHECK THE DRIVER SIDE CRASH SENSOR HARNESS CONNECTION	
	1 Check the driver side crash sensor harness. • Is the driver side crash sensor harness connector connected to the driver side crash sensor correctly? → Yes GO to R4. → No ATTACH the driver side crash sensor harness connector correctly. GO to R6.
R4 CHECK THE VEHICLE CHASSIS GROUND	
	1 Measure the resistance between a known good chassis ground and the mounting surface of the driver side crash sensor. • Is the resistance greater than 100 ohms? → Yes REPAIR the chassis grounding system. GO to R6. → No INSTALL a new driver side crash sensor. GO to R6.
R5 CHECK FOR AN INTERMITTENT FAULT	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system	

must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

	1 Deactivate the system. 2 Refer to the continuous DTCs recorded during Step R1. • Was a continuous DTC retrieved during Step R1 an intermittent fault? → Yes CHECK for causes of an intermittent mounting fault. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to R6. → No GO to R6.

R6 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

	1 Refer to the continuous DTCs recorded during Step R1. • Were any continuous DTCs retrieved during Step R1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test S: LFC 43/DTC B2440 — Passenger Side Crash Sensor Mounting Fault

Normal Operation

The passenger side crash sensor monitors the severity of a crash event. If the crash event is severe enough, the sensor will signal the restraints control module (RCM) to deploy the passenger side air bag.

The RCM monitors the two-wire current loop to the passenger side crash sensor for a signal that is out of

the expected range. If the RCM detects a signal from the passenger side crash sensor, indicating a sensor mounting fault, it will store diagnostic trouble code (DTC) B2440 and flash a lamp fault code (LFC) 43 (or a higher priority code if one exists) on the air bag indicator.

Possible Causes

A passenger side crash sensor mounting fault can be caused by:

- damaged passenger side crash sensor.
- corrosion or damage at the sensor mounting surface.

PINPOINT TEST S: LFC 43/DTC B2440 — PASSENGER SIDE CRASH SENSOR MOUNTING FAULT

CONDITIONS	DETAILS/RESULTS/ACTIONS
S1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B2440 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-

demand self test. GO to [S2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [S5](#).

S2 CHECK THE MOUNTING OF THE PASSENGER SIDE CRASH SENSOR



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

- 1 Deactivate the system.
 - 2 Remove the passenger side crash sensor. For additional information, refer to [Sensor—Side Crash](#) in this section.
 - 3 Visually inspect the passenger side crash sensor, mounting bracket and mounting surface for damage, corrosion or dirt.
 - 4 Inspect the passenger side crash sensor mounting and make sure that the retaining bolts are fully seated and tightened correctly. For additional information, refer to [Sensor—Side Crash](#) in this section for correct tightening torque.
- **Was a significant amount of corrosion or dirt found, the passenger side crash sensor mounting bracket attached to the mounting surface correctly, or the two passenger side crash sensor retaining bolts not fully seated and tightened correctly?**
- **Yes**
MAKE SURE the passenger side crash sensor, mounting bracket and mounting surface are free of damage, corrosion or dirt and the two retaining bolts are fully seated and properly tightened. REATTACH the passenger side crash sensor and mounting bracket to the mounting surface. GO to [S6](#).
- **No**
GO to [S3](#).

S3 CHECK THE PASSENGER SIDE CRASH SENSOR HARNESS CONNECTION

- 1 Check the passenger side crash sensor harness connection.

	• Is the passenger side crash sensor harness connector connected to the passenger side crash sensor correctly? → Yes GO to S4. → No ATTACH the passenger side crash sensor harness connector correctly. GO to S6.
S4 CHECK THE VEHICLE CHASSIS GROUND	
	1 Measure the resistance between a known good chassis ground and the mounting surface of the passenger side crash sensor. • Is the resistance greater than 100 ohms? → Yes REPAIR the chassis grounding system. GO to S6. → No INSTALL a new passenger side crash sensor. GO to S6.
S5 CHECK FOR AN INTERMITTENT FAULT	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector. NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.	
	1 Deactivate the system. 2 Refer to the continuous DTCs recorded during Step S1. • Was a continuous DTC retrieved during Step S1 an intermittent fault? → Yes CHECK for causes of an intermittent mounting fault. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to S6.

	→ No GO to S6 .
S6 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step S1. • Were any continuous DTCs retrieved during Step S1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test T: LFC 44/DTC U2017 — Driver Side Crash Sensor Communication Fault

Normal Operation

The driver side crash sensor monitors the severity of a crash event. If the crash event is severe enough, the sensor will signal the restraints control module (RCM) to deploy the driver side air bag.

The RCM monitors the two-wire current loop to the driver side crash sensor for a signal that is out of the expected range. If the RCM detects an out-of-range signal from the driver side crash sensor, indicating a sensor communication fault, it will store diagnostic trouble code (DTC) U2017 and flash a lamp fault code (LFC) 44 (or a higher priority code if one exists) on the air bag indicator.

Possible Causes

A driver side crash sensor communication fault condition can be caused by:

- damaged wiring on circuit 1261 (WH/LG).
- damaged wiring on circuit 1262 (BN/LG).
- damaged driver side crash sensor.

PINPOINT TEST T: LFC 44/DTC U2017 — DRIVER SIDE CRASH SENSOR COMMUNICATION FAULT

CONDITIONS	DETAILS/RESULTS/ACTIONS
T1 CHECK FOR CONTINUOUS OR ON-DEMAND SELF TEST DTCs	
1 	

2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC U2017 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to T2. → No This is an intermittent fault. The fault condition is not present at this time. GO to T9.
T2 CHECK THE DRIVER SIDE CRASH SENSOR HARNESS CONNECTOR	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector. NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle. NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.	

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

- 1 Deactivate the system.
- 2 Make sure the driver side crash sensor harness connector is fully connected to the driver side crash sensor.

- **Is the driver side crash sensor connected correctly?**

→ **Yes**
GO to [T3](#).

→ **No**
CONNECT the driver side crash sensor connector correctly. GO to [T10](#).

T3 CHECK THE CIRCUIT 1261 (WH/LG) FOR AN OPEN

1



2



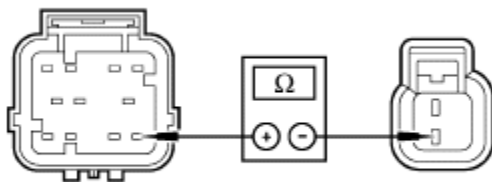
RCM C233

3



Driver Side Crash Sensor C310

4



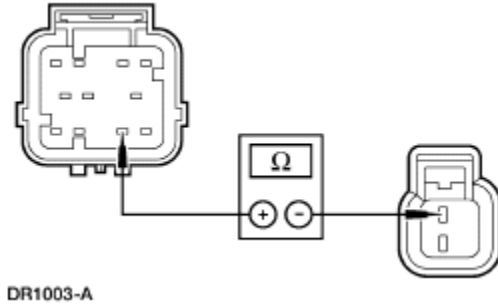
DR1002-A

- 4 Measure the resistance between RCM C233 pin 8, circuit 1261 (WH/LG), harness side and driver side crash sensor C310, circuit 1261 (WH/LG), harness side.

- **Is the resistance greater than 1 ohm?**

→ **Yes**
REPAIR the circuit. GO to [T10](#).

→ **No**
GO to [T4](#).

T4 CHECK CIRCUIT 1262 (BN/LG) FOR AN OPEN**1**

1 Measure the resistance between RCM C233 pin 9, circuit 1262 (BN/LG), harness side and driver side crash sensor C310, circuit 1262 (BN/LG), harness side.

- Is the resistance greater than 1 ohm?

→ **Yes**
REPAIR the circuit. GO to [T10](#).

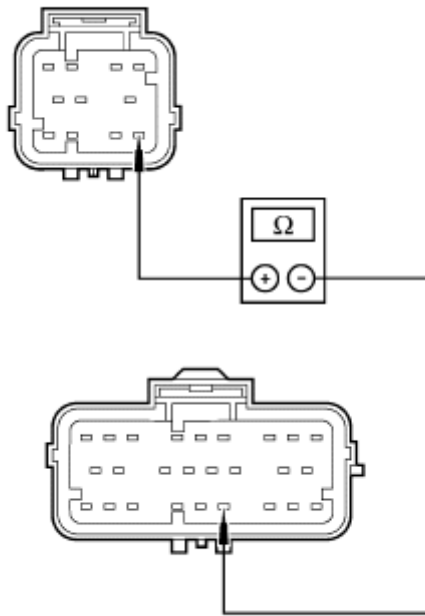
→ **No**
GO to [T5](#).

T5 CHECK CIRCUIT 1261 (WH/LG) FOR A SHORT TO GROUND**1**

RCM C232

2

2 Measure the resistance between RCM C233 pin 8, circuit 1261 (WH/LG), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.



DR1010-A

- Is the resistance less than 1000 ohms?

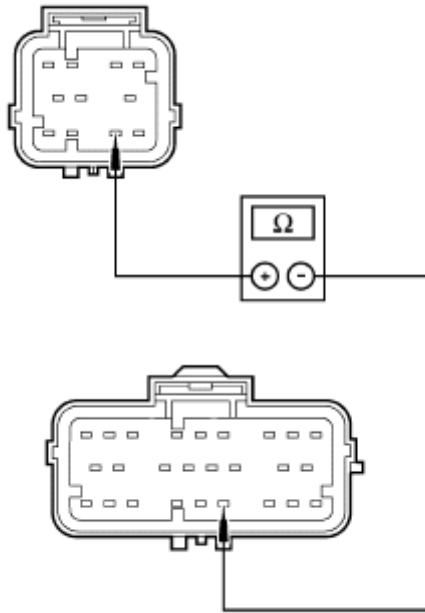
→ **Yes**
REPAIR the circuit. GO to [T10](#).

→ **No**
GO to [T6](#).

T6 CHECK CIRCUIT 1262 (BN/LG) FOR A SHORT TO GROUND

1

1 Measure the resistance between RCM C233 pin 9, circuit 1262 (BN/LG), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.



DR1020-A

- Is the resistance less than 1000 ohms?

→ **Yes**
REPAIR the circuit. GO to [T10](#).

→ **No**
GO to [T7](#).

T7 CHECK CIRCUIT 1261 (WH/LG) FOR A SHORT TO BATTERY OR IGNITION

1



2



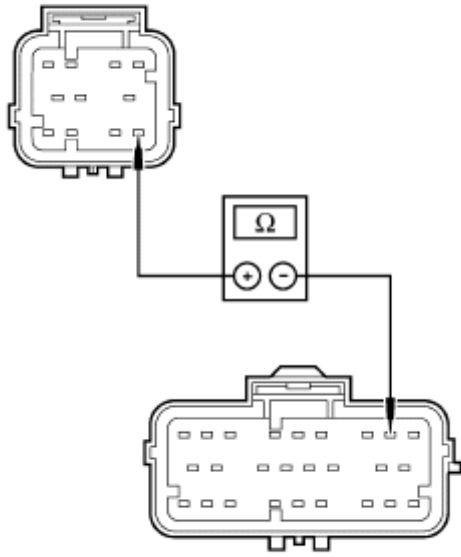
Battery Ground Cable

3



4

- 4 Measure the resistance between RCM C233 pin 8, circuit 1261 (WH/LG), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side.



DR1021-A

- Is the resistance less than 10,000 ohms?

→ **Yes**
REPAIR the circuit. GO to [T10](#).

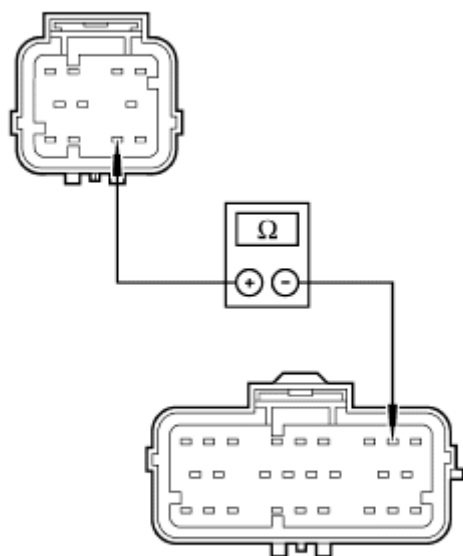
→ **No**
GO to [T8](#).

T8 CHECK CIRCUIT 1262 (BN/LG) FOR A SHORT TO BATTERY OR IGNITION

1

1

Measure the resistance between RCM C233 pin 9, circuit 1262 (BN/LG), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side.



DR1022-A

- Is the resistance less than 10,000 ohms?

→ **Yes**REPAIR the circuit. GO to [T10](#).→ **No**INSTALL a new driver side crash sensor. GO to [T10](#).**T9 CHECK FOR AN INTERMITTENT FAULT**

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

	1 Deactivate the system. 2 Refer to the continuous DTCs recorded during Step T1. • Was the continuous DTC retrieved during Step T1 an intermittent fault? → Yes CHECK for causes of a communication fault. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to T10. → No GO to T10.
T10 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step T1. • Were any continuous DTCs retrieved during Step T1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test U: LFC 45/DTC U2018 — Passenger Side Crash Sensor Communication Fault

Normal Operation

The passenger side crash sensor monitors the severity of a crash event. If the crash event is severe enough, the sensor will signal the restraints control module (RCM) to deploy the passenger side air bag.

The RCM monitors the two-wire current loop to the passenger side crash sensor for a signal that is out of the expected range. If the RCM detects an out-of-range signal from the passenger side crash sensor, indicating a sensor communication fault, it will store diagnostic trouble code (DTC) U2018 and flash a lamp fault code (LFC) 45 (or a higher priority code if one exists) on the air bag indicator.

Possible Causes

A passenger side crash sensor communication fault condition can be caused by:

- damaged wiring on circuit 1263 (WH).
- damaged wiring on circuit 1264 (BN).
- damaged passenger side crash sensor.

PINPOINT TEST U: LFC 45/DTC U2018 — PASSENGER SIDE CRASH SENSOR COMMUNICATION FAULT

CONDITIONS	DETAILS/RESULTS/ACTIONS
U1 CHECK FOR CONTINUOUS OR ON-DEMAND SELF TEST DTCs	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC U2018 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to U2. → No This is an intermittent fault. The fault

condition is not present at this time. GO to [U9](#).

U2 CHECK THE PASSENGER SIDE CRASH SENSOR HARNESS CONNECTOR



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

- 1 Deactivate the system.
- 2 Make sure the passenger side crash sensor harness connector is fully connected to the passenger side crash sensor.

• Is the passenger side crash sensor connected correctly?

→ **Yes**
GO to [U3](#).

→ **No**
CONNECT the passenger side crash sensor connector correctly. GO to [U10](#).

U3 CHECK CIRCUIT 1263 (WH) FOR AN OPEN

1



2



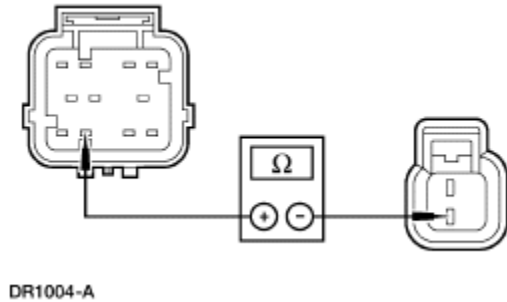
RCM C233

3



Passenger Side Crash Sensor C309

4



4

Measure the resistance between RCM C233 pin 10, circuit 1263 (WH), harness side and passenger side crash sensor C309, circuit 1263 (WH), harness side.

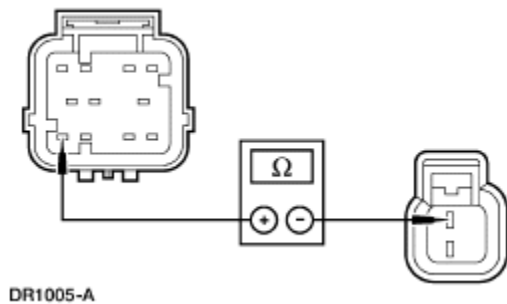
- Is the resistance greater than 1 ohm?

→ **Yes**
REPAIR the circuit. GO to [U10](#).

→ **No**
GO to [U4](#).

U4 CHECK CIRCUIT 1264 (BN) FOR AN OPEN

1



1

Measure the resistance between RCM C233 pin 11, circuit 1264 (BN), harness side and passenger side crash sensor C309, circuit 1264 (BN), harness side.

- Is the resistance greater than 1 ohm?

→ **Yes**
REPAIR the circuit. GO to [U10](#).

→ **No**
GO to [U5](#).

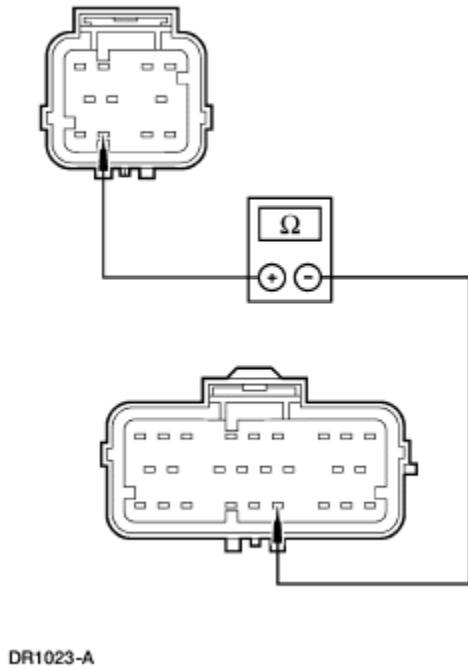
U5 CHECK CIRCUIT 1263 (WH) FOR A SHORT TO GROUND

1



RCM C232

2



2

Measure the resistance between RCM C233 pin 10, circuit 1263 (WH), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.

- Is the resistance less than 1000 ohms?

→ **Yes**

REPAIR the circuit. GO to [U10](#).

→ **No**

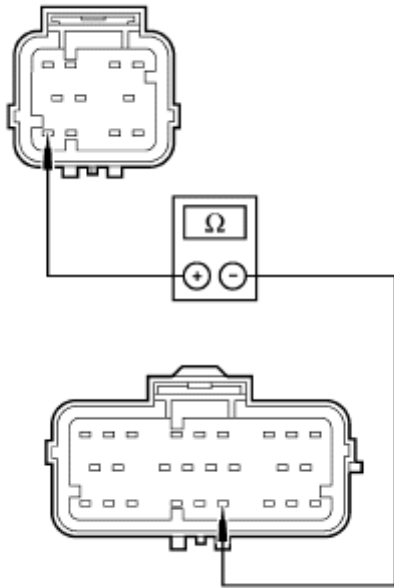
GO to [U6](#).

U6 CHECK CIRCUIT 1264 (BN) FOR A SHORT TO GROUND

1

1

Measure the resistance between RCM C233 pin 11, circuit 1264 (BN), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.



DR1057-A

- Is the resistance less than 1,000 ohms?

→ **Yes**REPAIR the circuit. GO to [U10](#).→ **No**GO to [U7](#).**U7 CHECK CIRCUIT 1263 (WH) FOR A SHORT TO BATTERY OR IGNITION**

1



2



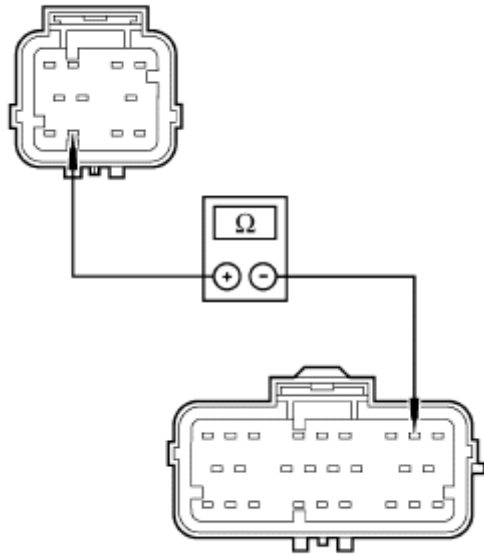
Battery Ground Cable

3



4

- 4 Measure the resistance between RCM C233 pin 10, circuit 1263 (WH), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side.

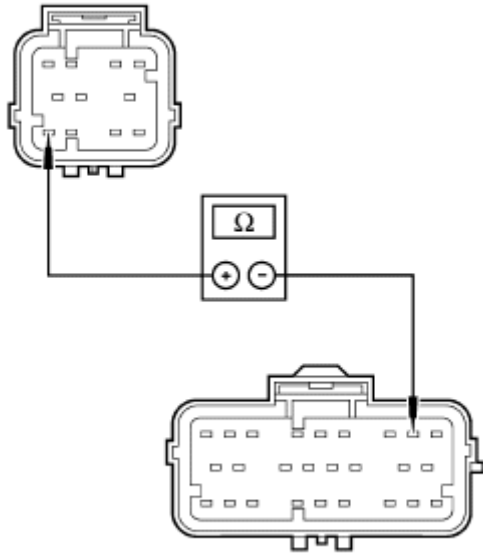


DR1044-A

- Is the resistance less than 10,000 ohms?

→ **Yes**REPAIR the circuit. GO to [U10](#).→ **No**GO to [U8](#).**U8 CHECK CIRCUIT 1264 (BN) FOR A SHORT TO BATTERY OR IGNITION****1****1**

Measure the resistance between the RCM C233 pin 11, circuit 1264 (BN), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side.



DR1045-A

- Is the resistance less than 10,000 ohms?

→ **Yes**

REPAIR the circuit. GO to [U10](#).

→ **No**

INSTALL a new passenger side crash sensor. GO to [U10](#).

U9 CHECK FOR AN INTERMITTENT FAULT

1 Deactivate the system.

2 Refer to the continuous DTCs recorded during Step U1.

- Was the continuous DTC retrieved during Step U1 an intermittent fault?

→ **Yes**

CHECK for causes of a communication fault. ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [U10](#).

→ **No**

GO to [U10](#).

U10 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

	1 Refer to the continuous DTCs recorded during Step U1. • Were any continuous DTCs retrieved during Step U1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test V: LFC 36/DTC B1993 — Driver Side Air Bag Circuit Shorted to Ground

Normal Operation

The restraints control module (RCM) monitors the resistance to ground at RCM C1 pins 2 and 3. If the resistance is less than 1000 ohms at either pin, the RCM will interpret that as a ground short, store diagnostic trouble code (DTC) B1993 and flash lamp fault code (LFC) 36.

Possible Causes

A driver side air bag circuit short to ground can be caused by:

- grounded wiring on circuit 1257 (WH/LB).
- damaged wiring on circuit 1258 (BN/LB).
- ground short in the driver side air bag module.
- an RCM internal concern.

PINPOINT TEST V: LFC 36/DTC B1993 — DRIVER SIDE AIR BAG CIRCUIT SHORTED TO GROUND

CONDITIONS	DETAILS/RESULTS/ACTIONS
V1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2	

 Scan Tool 3  4  Retrieve/Clear Continuous DTCs	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1993 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to V2. → No This is an intermittent fault. The fault condition is not present at this time. GO to V7.

V2 CHECK THE DRIVER SIDE AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

- Was DTC B1993 retrieved?

→ Yes
GO to [V5](#).

→ No
GO to [V3](#).

V3 CHECK THE DRIVER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1257 (WH/LB) FOR A SHORT TO GROUND

1

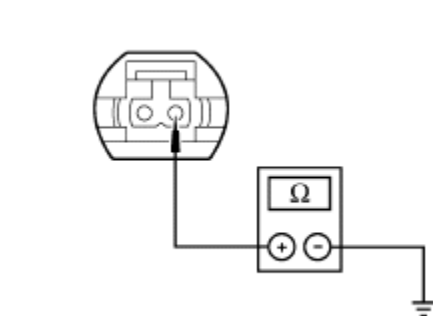


2



Driver Side Air Bag Seat Harness C313

3



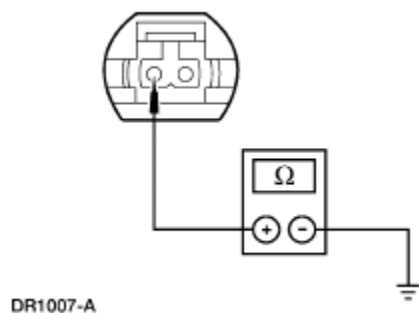
DR1006-A

3 Measure the resistance between driver side air bag seat harness C313, circuit 1257 (WH/LB), harness side and ground.

- Is the resistance less than 1,000 ohms?

→ Yes
REPAIR the circuit. GO to [V8](#).

→ No

GO to [V4](#).**V4 CHECK THE DRIVER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1258 (BN/LB) FOR A SHORT TO GROUND****1****1**

Measure the resistance between driver side air bag seat harness C313, circuit 1258 (BN/LB), harness side and ground.

- Is the resistance less than 1,000 ohms?

→ **Yes**REPAIR the circuit. GO to [V8](#).→ **No**

INSTALL a new driver side air bag module.
GO to [V8](#).

V5 CHECK THE DRIVER SIDE AIR BAG MODULE CIRCUIT TO THE SEAT HARNESS**1****2**

RCM C233

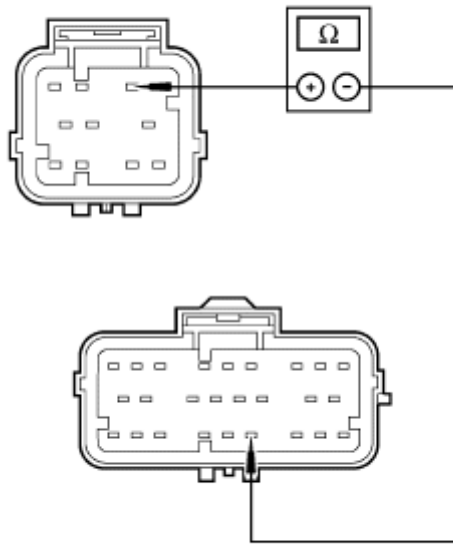
3

RCM 232

4**4**

NOTE: Do not separate or remove shorting bars from RCM C233.

Measure the resistance between RCM C233 pin 2, circuit 1257 (WH/LB), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.



DR1011-A

- Is the resistance less than 10,000 ohms?

→ **Yes**
REPAIR the circuit(s) as necessary, GO to [V8](#).

→ **No**
GO to [V6](#).

V6 CHECK THE DRIVER SIDE AIR BAG MODULE WIRING TO THE SEAT HARNESS

1



Driver Side Air Bag Module Restraint System Diagnostic Tool

- 2 Inspect all crimps, terminals, wires and connectors in circuit 1257 (WH/LB) between the seat harness C313 and RCM C233 pin 2 and circuit 1258 (BN/LB) between the seat harness C313 and RCM C233 pin 3. Check for pinched wires and damaged connector pin terminals.

- Was any damage found?

→ **Yes**
REPAIR as necessary. GO to [V8](#).

	→ No INSTALL a new RCM. GO to V8 .
V7 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step V1. • Was the continuous DTC retrieved during Step V1 an intermittent fault? → Yes CHECK for causes of intermittent short to ground on circuit 1257 (WH/LB) and circuit 1258 (BN/LB). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to V8. → No GO to V8.
V8 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step V1. • Were any continuous DTCs retrieved during Step V1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test W: LFC 36/DTC B1992 — Driver Side Air Bag Circuit Shorted to Battery or Ignition

Normal Operation

The restraints control module (RCM) monitors the driver side air bag circuits at RCM C1 pins 2 and 3 for a short to battery or ignition. If battery or ignition voltage is detected, the RCM will store diagnostic trouble code (DTC) B1992 and flash lamp fault code (LFC) 36.

Possible Causes

A driver side air bag circuit short to battery or ignition can be caused by:

- battery or ignition voltage on circuit 1257 (WH/LB).
- battery or ignition voltage on circuit 1258 (BN/LB).
- battery or ignition voltage short in the driver side air bag.
- an RCM internal concern.

PINPOINT TEST W: LFC 36/DTC B1992 — DRIVER SIDE AIR BAG CIRCUIT SHORTED TO BATTERY OR IGNITION

CONDITIONS	DETAILS/RESULTS/ACTIONS
W1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1992 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to W2. → No

This is an intermittent fault. The fault condition is not present at this time. GO to [W7](#).

W2 CHECK THE DRIVER SIDE AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

• Was DTC B1992 retrieved?

→ Yes
GO to [W5](#).

→ No
GO to [W3](#).

W3 CHECK THE DRIVER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1257 (WH/LB) FOR A SHORT TO BATTERY OR IGNITION

1



2

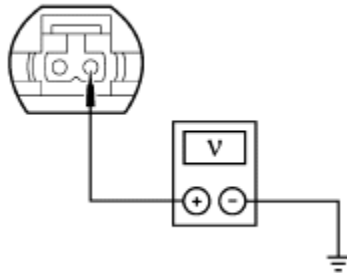


Driver Side Air Bag Seat Harness C313

3



4



DR1046-A

- 4 Measure the voltage between driver side air bag seat harness C313, circuit 1257 (WH/LB), harness side and ground.

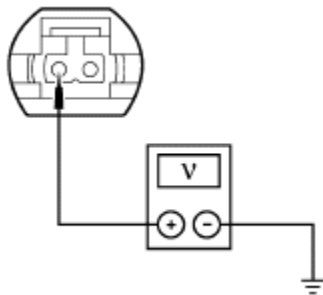
- Is the voltage greater than 10 volts?

→ **Yes**
REPAIR the circuit. GO to [W8](#).

→ **No**
GO to [W4](#).

W4 CHECK THE DRIVER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1258 (BN/LB) FOR A SHORT TO BATTERY OR IGNITION

1



DR1009-A

- 1 Measure the voltage between driver side air bag seat harness C313, circuit 1258 (BN/LB) and ground.

- Is the voltage greater than 10 volts?

→ **Yes**

REPAIR the circuit. GO to [W8](#).

→ **No**
INSTALL a new driver side air bag module.
GO to [W8](#).

W5 CHECK THE DRIVER SIDE AIR BAG MODULE CIRCUIT TO THE SEAT HARNESS

1



2



Battery Ground Cable

3



RCM C233

4



RCM 232

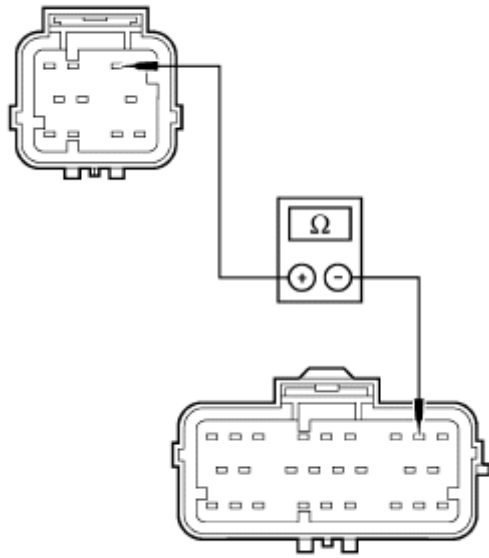
5



6

NOTE: Do not separate or remove shorting bars from RCM C233.

Measure the resistance between RCM C233 pin 2, circuit 1257 (WH/LB), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side.



DR1047-A

- Is the resistance less than 10,000 ohms?

→ **Yes**
REPAIR the circuit(s) as necessary. GO to [W8](#).

→ **No**
GO to [W6](#).

W6 CHECK THE DRIVER SIDE AIR BAG MODULE WIRING TO THE SEAT HARNESS

1



Driver Side Air Bag Restraint System Diagnostic Tool

- 2 Inspect all crimps, terminals, wires and connectors in circuit 1257 (WH/LB) between the seat harness C313 and RCM C233 pin 2 and circuit 1258 (BN/LB) between the seat harness C313 and RCM C233 pin 3. Check for pinched wires and damaged connector pin terminals.

- Was any damage found?

→ **Yes**
REPAIR as necessary. GO to [W8](#).

	→ No INSTALL a new RCM. GO to W8 .
W7 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step W1. • Was the continuous DTC retrieved during Step W1 an intermittent fault? → Yes CHECK for causes of intermittent short to battery or ignition on circuit 1257 (WH/LB) and circuit 1258 (BN/LB). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to W8. → No GO to W8.
W8 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step W1. • Were any continuous DTCs retrieved during Step W1? → Yes Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTC.

Pinpoint Test X: LFC 36/DTC B1994 — Driver Side Air Bag Circuit Resistance High

Normal Operation

The restraints control module (RCM) monitors the resistance of the driver side air bag circuit loop and the air bag module igniter at RCM C1 pins 2 and 3. If the resistance is greater than 3.6 ohms, the RCM will store diagnostic trouble code (DTC) B1994 and flash lamp fault code (LFC) 36.

Possible Causes

A high resistance on the driver side air bag circuit can be caused by:

- damaged wiring on circuit 1257 (WH/LB).
- damaged wiring on circuit 1258 (BN/LB).
- damaged driver side air bag module.
- damaged RCM.

PINPOINT TEST X: LFC 36/DTC B1994 — DRIVER SIDE AIR BAG CIRCUIT RESISTANCE HIGH

CONDITIONS	DETAILS/RESULTS/ACTIONS
X1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1994 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to X2. → No This is an intermittent fault. The fault condition is not present at this time. GO to X7.
X2 CHECK THE DRIVER SIDE AIR BAG MODULE	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible	

violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2

Deactivate the system.

- Was DTC B1994 retrieved?

→ Yes

GO to [X5](#).

→ No

GO to [X3](#).**X3 CHECK THE DRIVER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1257 (WH/LB) FOR HIGH RESISTANCE**

1

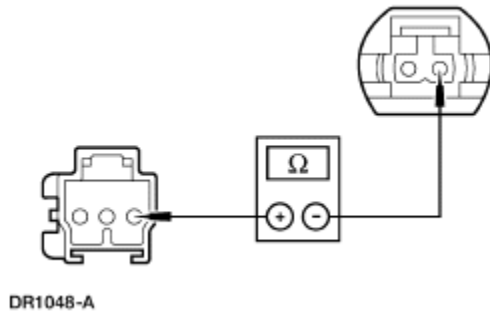


2



Driver Side Air Bag C313

3



3

Measure the resistance between driver side air bag seat harness C307, circuit 1257 (WH/LB), harness side and driver side air bag C313, circuit 1257 (WH/LB), harness side.

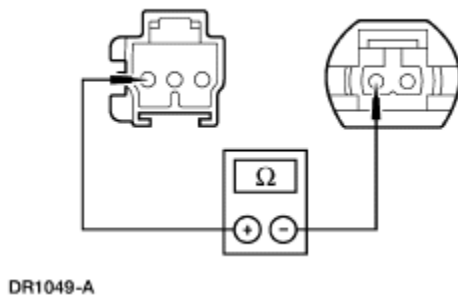
- Is the resistance greater than 1.0 ohms?

→ **Yes**
REPAIR the circuit. GO to [X8](#).

→ **No**
GO to [X4](#).

X4 CHECK THE DRIVER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1258 (BN/LB) FOR HIGH RESISTANCE

1



1

Measure the resistance between driver side air bag seat harness C307, circuit 1258 (BN/LB), harness side and driver side air bag seat harness C313, circuit 1258 (BN/LB), harness side.

- Is the resistance greater than 1.0 ohm?

→ **Yes**
REPAIR the circuit. GO to [X8](#).

→ **No**
INSTALL a new driver side air bag module.
GO to [X8](#).

X5 CHECK THE DRIVER SIDE AIR BAG MODULE CIRCUIT TO THE SEAT HARNESS

1



2



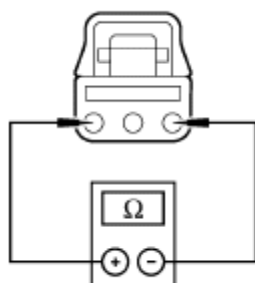
RCM C233

3



Driver Side Air Bag Restraint System Diagnostic Tool

4



DR1050-A

4

NOTE: By disconnecting RCM C233, circuit 1257 (WH/LB) and circuit 1258 (BN/LB) of the RCM connector are shorted together with a shorting bar. Do not remove the shorting bar.

NOTE: Zero the multimeter prior to taking the measurement.

Measure the resistance between driver side air bag C307, circuit 1257 (WH/LB), harness side and driver side air bag C307, circuit 1258 (BN/LB), harness side.

- Is the resistance greater than 1.0 ohm?

→ Yes

REPAIR the circuit(s) as necessary. GO to [X8](#).

→ No

GO to [X6](#).

X6 CHECK THE DRIVER SIDE AIR BAG MODULE WIRING TO THE SEAT HARNESS

1



Driver Side Air Bag Restraint System Diagnostic Tool

2

Inspect all crimps, terminals, wires and connectors in circuit 1257 (WH/LB) between the seat harness C307 and RCM C233 pin 2 and circuit 1258 (BN/LB) between the seat harness C307 and RCM C233 pin 3. Check for pinched wires and damaged connector pin terminals.

- Was any damage found?

→ Yes

REPAIR as necessary. GO to [X8](#).

	→ No INSTALL a new RCM. GO to X8 .
X7 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step X1. • Was the continuous DTC retrieved during Step X1 an intermittent fault? → Yes CHECK for causes of intermittent high resistance on circuit 1257 (WH/LB) and circuit 1258 (BN/LB). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to X8. → No GO to X8.
X8 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step X1. • Were any continuous DTCs retrieved during Step X1. → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test Y: LFC 36/DTC B1995 — Driver Side Air Bag Circuit Resistance Low

Normal Operation

The restraints control module (RCM) monitors the resistance of the driver side air bag circuit loop and the air bag module igniter at RCM C1 pin 2 and 3. If the resistance is less than 1.4 ohms, the RCM will store diagnostic trouble code (DTC) B1995 and flash lamp fault code (LFC) 36.

Possible Causes

A low resistance on the driver side air bag circuit can be caused by:

- damaged wiring on circuit 1257 (WH/LB).
- damaged wiring on circuit 1258 (BN/LB).
- damaged driver side air bag module.
- damaged RCM.
- worn or damaged shorting bar or camming beam in C233 or C313.

PINPOINT TEST Y: LFC 36/DTC B1995 — DRIVER SIDE AIR BAG CIRCUIT RESISTANCE LOW

CONDITIONS	DETAILS/RESULTS/ACTIONS
Y1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self-Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1995 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to Y2. → No

This is an intermittent fault. The fault condition is not present at this time. GO to [Y6](#).

Y2 CHECK THE DRIVER SIDE AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

• Was DTC B1995 retrieved?

→ **Yes**
GO to [Y3](#).

→ **No**
GO to [Y5](#).

Y3 CHECK THE DRIVER SIDE AIR BAG MODULE CIRCUIT TO THE SEAT HARNESS

1



2



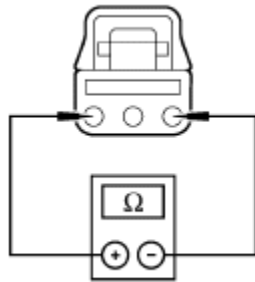
RCM C233

3



Driver Side Air Bag Restraint System Diagnostic Tool

4



DR1050-A

4

Measure the resistance between driver side air bag C307, circuit 1257 (WH/LB), vehicle harness side and driver side air bag C307, circuit 1258 (BN/LB), vehicle harness side.

- Is the resistance greater than 10,000 ohms?

→ **Yes**
GO to [Y4](#).

→ **No**
REPAIR the circuit(s) as necessary. GO to [Y7](#).

Y4 CHECK THE DRIVER SIDE AIR BAG MODULE WIRING TO THE SEAT HARNESS

1



Driver Side Air Bag Seat Harness C313

2

Inspect all crimps, terminals, wires and connectors in circuit 1257 (WH/LB) between the seat harness C313 and RCM C233 pin 2 and circuit 1258 (BN/LB) between the seat harness C313 and RCM C233 pin 3. Check for pinched wires and damaged connector pin terminals.

- Was any damage found?

→ **Yes**
REPAIR as necessary. GO to [Y7](#).

→ **No**
INSTALL a new RCM. GO to [Y7](#).

Y5 CHECK THE DRIVER SIDE AIR BAG MODULE CIRCUIT TO THE SEAT HARNESS

1



2



RCM C233

3



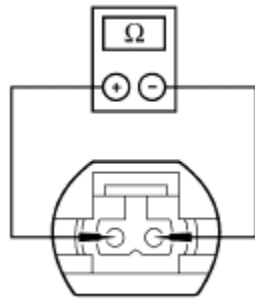
Seat Harness C307

4



Driver Side Air Bag C313

5



DR1608-A

5 Measure the resistance between driver side air bag C313, circuit 1257 (WH/LB), harness side and driver side air bag C313, circuit 1258 (BN/LB), harness side.

- Is the resistance greater than 10,000 ohms?

→ **Yes**
INSTALL a new driver side air bag. GO to [Y7](#).

→ **No**
REPAIR the circuit(s) between the driver side air bag connector C313 and the under-seat connector C307. GO to [Y7](#).

Y6 CHECK FOR AN INTERMITTENT FAULT

1 Refer to the continuous DTCs recorded

	during Step Y1. • Was the continuous DTC retrieved during Step Y1 an intermittent fault? → Yes CHECK for causes of intermittent low resistance on circuit 1257 (WH/LB) and circuit 1258 (BN/LB). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to Y7. → No GO to Y7.
Y7 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step Y1. • Was the continuous DTC retrieved during Step Y1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test Z: LFC 37/DTC B1997 — Passenger Side Air Bag Circuit Shorted to Ground

Normal Operation

The restraints control module (RCM) monitors the resistance to ground at RCM C1 pins 5 and 6. If the resistance is less than 1000 ohms at either pin, the RCM will interpret that as a ground short, store diagnostic trouble code (DTC) B1997 and flash lamp fault code (LFC) 37.

Possible Causes

A passenger side air bag circuit short to ground can be caused by:

- grounded wiring on circuit 1259 (WH/YE).
- damaged wiring on circuit 1260 (BN/YE).

- ground short in the passenger side air bag module.
- an RCM internal concern.

PINPOINT TEST Z: LFC 37/DTC B1997 — PASSENGER SIDE AIR BAG CIRCUIT SHORTED TO GROUND

CONDITIONS	DETAILS/RESULTS/ACTIONS
Z1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1997 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to Z2. → No This is an intermittent fault. The fault condition is not present at this time. GO to Z7.
Z2 CHECK THE PASSENGER SIDE AIR BAG MODULE	



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

• Was DTC B1997 retrieved?

→ Yes
GO to [Z5](#).

→ No
GO to [Z3](#).

Z3 CHECK THE PASSENGER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1259 (WH/YE) FOR A SHORT TO GROUND

1

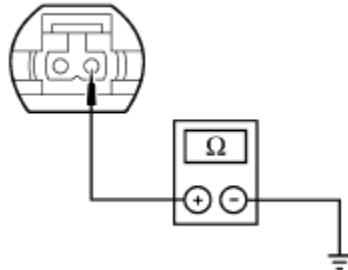


2



Passenger Side Air Bag Seat Harness C314

3



DR1006-A

3

Measure the resistance between passenger side air bag seat harness C314, circuit 1259 (WH/YE), harness side and ground.

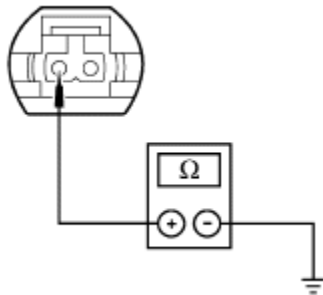
- Is the resistance less than 1,000 ohms?

→ **Yes**
REPAIR the circuit. GO to [Z8](#).

→ **No**
GO to [Z4](#).

Z4 CHECK THE PASSENGER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1260 (BN/YE) FOR A SHORT TO GROUND

1



DR1007-A

1

Measure the resistance between passenger side air bag seat harness C314, circuit 1260 (BN/YE), harness side and ground.

- Is the resistance less than 1,000 ohms?

→ **Yes**
REPAIR the circuit. GO to [Z8](#).

→ **No**
INSTALL a new passenger side air bag module. GO to [Z8](#).

Z5 CHECK THE PASSENGER SIDE AIR BAG MODULE CIRCUIT TO THE SEAT HARNESS

1



2



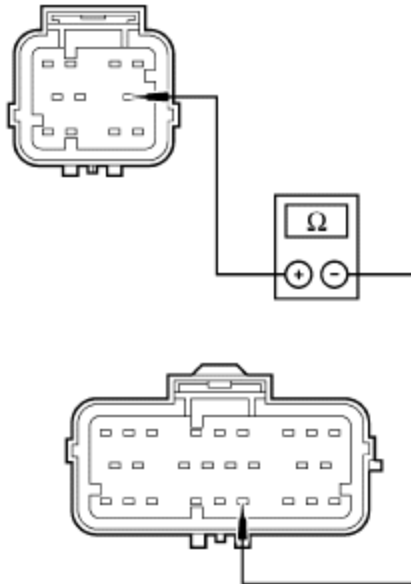
RCM C233

3



RCM 232

4



DR1051-A

4

NOTE: Do not separate or remove shorting bars from RCM C233.

Measure the resistance between RCM C233 pin 5, circuit 1259 (WH/YE), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.

- Is the resistance less than 10,000 ohms?

→ **Yes**
REPAIR the circuit(s) as necessary. GO to [Z8](#).

→ **No**
GO to [Z6](#).

Z6 CHECK THE PASSENGER SIDE AIR BAG MODULE WIRING TO THE SEAT HARNESS

1



Passenger Side Air Bag Module C314

- 2** Inspect all crimps, terminals, wires and connectors in circuit 1259 (WH/YE) between the seat harness C308 and RCM C233 pin 5 and circuit 1260 (BN/YE) between the seat harness C308 and RCM C233 pin 6. Check for pinched wires and damaged connector pin terminals.

- **Was any damage found?**

→ **Yes**
REPAIR as necessary. GO to [Z8](#).

→ **No**
INSTALL a new RCM GO to [Z8](#).

Z7 CHECK FOR AN INTERMITTENT FAULT

- 1** Refer to the continuous DTCs recorded during Step Z1.

- **Was the continuous DTC retrieved during Step Z1 an intermittent fault?**

→ **Yes**
CHECK for causes of intermittent short to ground on circuit 1259 (WH/YE) and circuit 1260 (BN/YE). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [Z8](#).

→ **No**
GO to [Z8](#).

Z8 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

- 1** Refer to the continuous DTCs recorded during Step Z1.

- **Were any continuous DTCs retrieved during Step Z1?**

→ **Yes**
Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control

	Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test AA: LFC 37/DTC B1996 — Passenger Side Air Bag Circuit Shorted to Battery or Ignition

Normal Operation

The restraints control module (RCM) monitors the passenger side air bag circuits at RCM C1 pins 5 and 6 for a short to battery or ignition. If battery or ignition voltage is detected, the RCM will store diagnostic trouble code (DTC) B1996 and flash lamp fault code (LFC) 37.

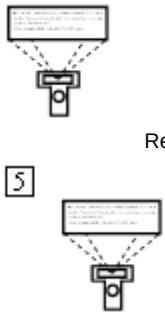
Possible Causes

A passenger side air bag circuit short to battery or ignition can be caused by:

- battery or ignition voltage on circuit 1259 (WH/YE).
- battery or ignition voltage on circuit 1260 (BN/YE).
- battery or ignition voltage short in the passenger side air bag module.
- an RCM internal concern.

PINPOINT TEST AA: LFC 37/DTC B1996 — PASSENGER SIDE AIR BAG CIRCUIT SHORTED TO BATTERY OR IGNITION

CONDITIONS	DETAILS/RESULTS/ACTIONS
AA1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  3  4	4 Retrieve and record any continuous DTCs for use later in this pinpoint test.

 Retrieve/Clear Continuous DTCs 5 On-Demand Self Test	• Was DTC B1996 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to AA2. → No This is an intermittent fault. The fault condition is not present at this time. GO to AA7.

AA2 CHECK THE PASSENGER SIDE AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1  3	2 Deactivate the system.



4



On-Demand Self Test

- Was DTC B1996 retrieved?

→ **Yes**
GO to [AA5](#).

→ **No**
GO to [AA3](#).

AA3 CHECK THE PASSENGER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1259 (WH/YE) FOR A SHORT TO BATTERY OR IGNITION

1



2

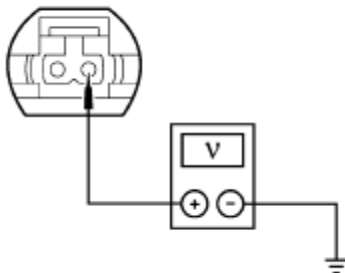


Passenger Air Bag Seat Harness C314

3



4



DR1046-A

- 4 Measure the voltage between passenger side air bag seat harness C314, Circuit 1259 (WH/YE) and ground.

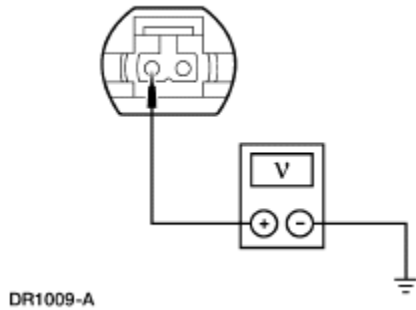
- Is the voltage greater than 10 volts?

→ **Yes**
REPAIR the circuit. GO to [AA8](#).

→ **No**
GO to [AA4](#).

AA4 CHECK THE PASSENGER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1260 (BN/YE) FOR A SHORT TO BATTERY OR IGNITION

1



1

Measure the voltage between passenger side air bag module connector C314, Circuit 1260 (BN/YE) and ground.

- Is the voltage greater than 10 volts?

→ **Yes**
REPAIR the circuit. GO to [AA8](#).

→ **No**
INSTALL a new passenger side air bag module. GO to [AA8](#).

AA5 CHECK THE PASSENGER SIDE AIR BAG MODULE CIRCUIT TO THE SEAT HARNESS

1



2



Battery Ground Cable

3



RCM C233

4

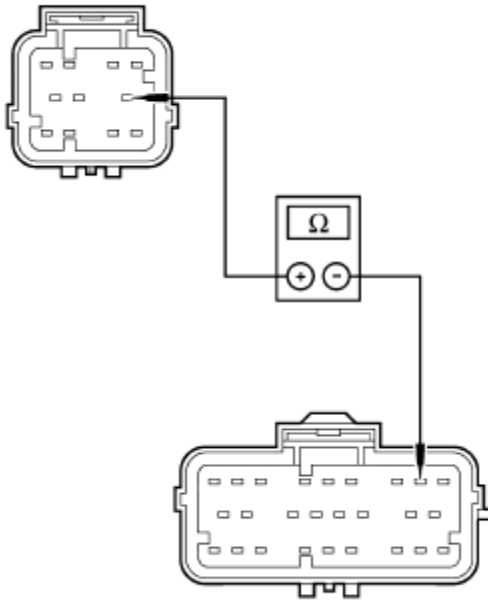


RCM 232

5



6



DR1206-A

6

NOTE: Do not separate or remove shorting bars from RCM C233.

Measure the resistance between RCM C233 pin 5, circuit 1259 (WH/YE), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side.

- Is the resistance less than 10,000 ohms?

→ **Yes**
REPAIR the circuit(s) as necessary. GO to [AA8](#).

→ **No**
GO to [AA6](#).

AA6 CHECK THE PASSENGER SIDE AIR BAG MODULE WIRING TO THE SEAT HARNESS

1



Passenger Side Air Bag Restraint System Diagnostic Tool

2

Inspect all crimps, terminals, wires and connectors in circuit 1259 (WH/YE) between the seat harness C308 and RCM C233 pin 5 and circuit 1260 (BN/YE) between the seat harness C308 and RCM C233 pin 6. Check for pinched wires and damaged connector pin terminals.

	• Was any damage found? → Yes REPAIR as necessary. GO to AA8. → No INSTALL a new RCM. GO to AA8.
AA7 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step AA1. • Was the continuous DTC retrieved during Step AA1 an intermittent fault? → Yes CHECK for causes of intermittent short to battery or ignition on circuit 1259 (WH/YE) and circuit 1260 (BN/YE). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to AA8. → No GO to AA8.
AA8 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step AA1. • Were any continuous DTCs retrieved during Step AA1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test AB LFC 37/DTC B1998 — Passenger Side Air Bag Circuit Resistance High

Normal Operation

The restraints control module (RCM) monitors the resistance of the passenger side air bag circuit loop and the air bag module igniter at RCM C1 pins 5 and 6. If the resistance is greater than 3.6 ohms, the RCM will store diagnostic trouble code (DTC) B1998 and flash lamp fault code (LFC) 37.

Possible Causes

A high resistance on the passenger side air bag circuit can be caused by:

- damaged wiring on circuit 1259 (WH/YE).
- damaged wiring on circuit 1260 (BN/YE).
- damaged passenger side air bag module.
- damaged RCM.

PINPOINT TEST AB: LFC 37/DTC B1998 — PASSENGER SIDE AIR BAG CIRCUIT RESISTANCE HIGH

CONDITIONS	DETAILS/RESULTS/ACTIONS
AB1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1998 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still

present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to [AB2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [AB7](#).

AB2 CHECK THE PASSENGER SIDE AIR BAG MODULE



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



4



On-Demand Self Test

2 Deactivate the system.

• Was DTC B1998 Retrieved?

→ **Yes**

GO to [AB5](#).

→ **No**

GO to [AB3](#).

AB3 CHECK THE PASSENGER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1259

(WH/YE) FOR HIGH RESISTANCE

1

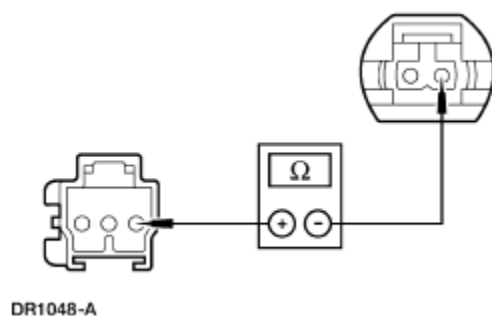


2



Passenger Side Air Bag Seat Harness C314

3



DR1048-A

3

Measure the resistance between passenger side air bag seat harness C308, circuit 1259 (WH/YE), harness side and passenger side air bag seat harness C314, circuit 1259 (WH/YE), harness side.

- Is the resistance greater than 1.0 ohms?

→ Yes

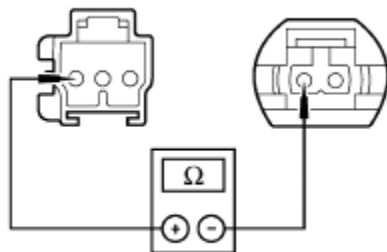
REPAIR the circuit. GO to [AB8](#).

→ No

GO to [AB4](#).

AB4 CHECK THE PASSENGER SIDE AIR BAG MODULE SEAT HARNESS CIRCUIT 1260 (BN/YE) FOR HIGH RESISTANCE

1



DR1049-A

1

Measure the resistance between passenger side air bag seat harness C308, circuit 1260 (BN/YE), harness side and passenger side air bag C314, circuit 1260 (BN/YE), harness side.

- Is the resistance greater than 1.0 ohms?

→ Yes

REPAIR the circuit. GO to [AB8](#).

→ **No**
INSTALL a new passenger side air bag module. GO to [AB8](#).

AB5 CHECK THE PASSENGER SIDE AIR BAG MODULE CIRCUIT

1



2



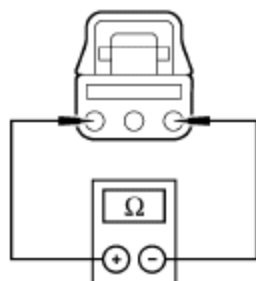
RCM C233

3



Passenger Side Air Bag Restraint System Diagnostic Tool

4



DR1050-A

4 **NOTE:** By disconnecting RCM C233, circuit 1259 (WH/YE) and circuit 1260 (BN/YE) of the RCM connector are shorted together with a shorting bar. Do not remove the shorting bar.

NOTE: Zero the multimeter prior to taking the measurement.

Measure the resistance between passenger side air bag C308, circuit 1259 (WH/YE), harness side and passenger side air bag C308, circuit 1260 (BN/YE), harness side.

- Is the resistance greater than 1.0 ohm?

→ **Yes**
REPAIR the circuit(s) as necessary. GO to [AB8](#).

→ **No**
INSTALL a new RCM. GO to [AB6](#).

AB6 CHECK THE PASSENGER SIDE AIR BAG MODULE WIRING TO THE SEAT HARNESS

1



Passenger Side Air Bag Restraint System Diagnostic Tool

2 Inspect all crimps, terminals, wires and

	connectors in circuit 1259 (WH/YE) between the seat harness C308 and RCM C233 pin 5 and circuit 1260 (BN/YE) between the seat harness C308 and RCM C233 pin 6. Check for pinched wires and damaged connector pin terminals. • Was any damage found? → Yes REPAIR as necessary. GO to AB8. → No INSTALL a new RCM. GO to AB8.
AB7 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step AB1. • Was the continuous DTC retrieved during Step AB1 an intermittent fault? → Yes CHECK for causes of intermittent high resistance on circuit 1259 (WH/YE) and circuit 1260 (BN/YE). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to AB8. → No GO to AB8.
AB8 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step AB1. • Were any continuous DTCs retrieved during Step AB1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all

DTCs.

Pinpoint Test AC: LFC 37/DTC B1999 — Passenger Side Air Bag Circuit Resistance Low**Normal Operation**

The restraints control module (RCM) monitors the resistance of the passenger side air bag circuit loop and the air bag module igniter at RCM C1 pins 5 and 6. If the resistance is less than 1.4 ohms, the RCM will store diagnostic trouble code (DTC) B1999 and flash lamp fault code (LFC) 37.

Possible Causes

A low resistance on the passenger side air bag circuit can be caused by:

- damaged wiring on circuit 1259 (WH/YE).
- damaged wiring on circuit 1260 (BN/YE).
- damaged passenger side air bag module.
- damaged RCM.
- damaged shorting bar or camming beam in C233 or C314.

PINPOINT TEST AC: LFC 37/DTC B1999 — PASSENGER SIDE AIR BAG CIRCUIT RESISTANCE LOW

CONDITIONS	DETAILS/RESULTS/ACTIONS
AC1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5	4 Retrieve and record any continuous DTCs for use later in this pinpoint test.



On-Demand Self Test

- Was DTC B1999 retrieved during the on-demand self test?

→ **Yes**

This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to [AC2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [AC6](#).

AC2 CHECK THE PASSENGER SIDE AIR BAG MODULE

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



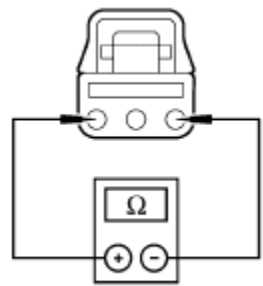
3



4



- 2 Deactivate the system.

On-Demand Self Test	• Was DTC B1999 Retrieved? → Yes GO to AC3. → No GO to AC5.
AC3 CHECK THE PASSENGER SIDE AIR BAG MODULE CIRCUIT	
1  2  RCM C233 3  Passenger Side Air Bag Restraint System Diagnostic Tool 4  DR1050-A	4 Measure the resistance between passenger side air bag C308, circuit 1259 (WH/YE), harness side and circuit 1260 (BN/YE), harness side. • Is the resistance greater than 10,000 ohms? → Yes INSTALL a new RCM. GO to AC4. → No REPAIR the circuit(s) as necessary. GO to AC4.
AC4 CHECK THE PASSENGER SIDE AIR BAG MODULE WIRING TO THE SEAT HARNESS	
1	1 Inspect all crimps, terminals, wires and connectors in circuit 1259 (WH/YE) between



Passenger Side Air Bag Seat Harness C314

the seat harness C314 and RCM C233 pin 5 and circuit 1260 (BN/YE) between the seat harness C314 and RCM C233 pin 6. Check for pinched wires and damaged connector pin terminals.

- **Was any damage found?**

→ **Yes**
REPAIR as necessary. GO to [AC7](#).

→ **No**
INSTALL a new RCM. GO to [AC7](#).

AC5 CHECK THE PASSENGER SIDE AIR BAG MODULE CIRCUIT TO THE SEAT HARNESS

1



2



RCM C233

3



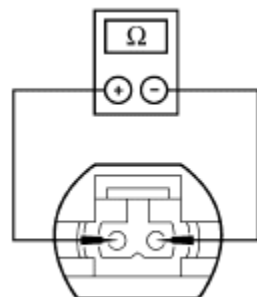
Seat Harness C308

4



Passenger Side Air Bag C314

5



DR1608-A

5 Measure the resistance between passenger side air bag C314, circuit 1259 (WH/YE), harness side and passenger side air bag C314, circuit 1260 (BN/YE), harness side.

- **Is the resistance greater than 10,000 ohms?**

	→ Yes INSTALL a new passenger side air bag. GO to AC7. → No REPAIR the circuit(s) between the passenger side air bag connector C314 and the under-seat connector C308. GO to AC7.
AC6 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step AC1. • Was the continuous DTC retrieved during Step AC1 an intermittent fault? → Yes CHECK for causes of intermittent low resistance on circuit 1259 (WH/YE) and circuit 1260 (BN/YE). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to AC7. → No GO to AC7.
AC7 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step AC1. • Were any continuous DTCs retrieved during Step AC1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test AD: B1892 — Air Bag Tone Warning Indicator Circuit Shorted to Ground or Open

Normal Operation

The restraints control module (RCM) monitors its connection to the generic electronic module (GEM) at C280 pin 20. This connection is used to signal a chime if the air bag indicator is inoperative and another SRS fault exists. If the RCM detects a short to ground or open on the connection to the GEM, it will store a diagnostic trouble code (DTC) B1892 in memory.

Possible Causes

An air bag tone warning indicator circuit short to ground or open can be caused by:

- a short to ground or open on circuit 1083 (LB/BK).
- a damaged or inoperative GEM.
- a damaged RCM.

PINPOINT TEST AD: DTC B1892 — AIR BAG TONE WARNING INDICATOR CIRCUIT SHORTED TO GROUND OR OPEN

CONDITIONS	DETAILS/RESULTS/ACTIONS
AD1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  3  4  5  Scan Tool Retrieve/Clear Continuous DTCs On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1892 retrieved during the on-demand self test? → Yes

This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to [AD2](#).

→ **No**

This is an intermittent fault. The fault condition is not present at this time. GO to [AD5](#).

AD2 CHECK THE AIR BAG TONE WARNING INDICATOR CIRCUIT



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



RCM C232

4



GEM

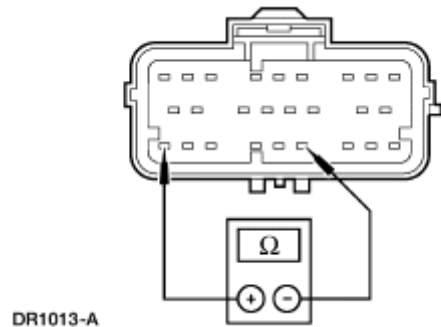
5

2

Deactivate the system.

5

Measure the resistance between RCM C232 pin 26, circuit 1083 (LB/BK), harness side and RCM C232 pin 21, circuit 649 (BK/OG), harness side.



DR1013-A

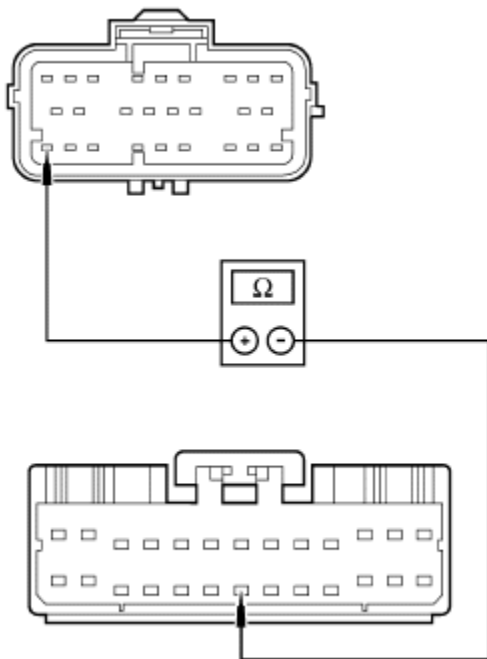
- Is the resistance less than 10,000 ohms?

→ **Yes**
REPAIR the circuit. GO to [AD6](#).

→ **No**
GO to [AD3](#).

AD3 CHECK THE AIR BAG TONE WARNING INDICATOR MODULE CIRCUIT

1



DR1399-A

1

Measure the resistance between RCM C232 pin 26, circuit 1083 (LB/BK), harness side and GEM C280 pin 20, circuit 1083 (LB/BK), harness side.

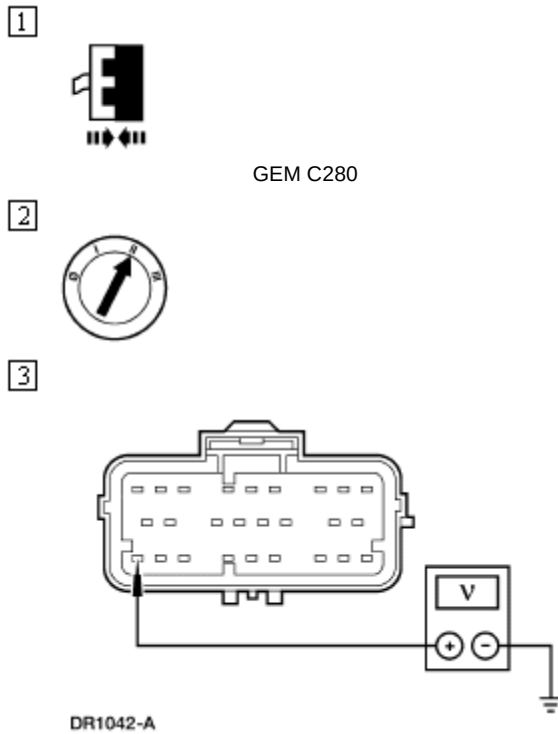
- Is the resistance greater than 10 ohms?

→ **Yes**
REPAIR the circuit. GO to [AD6](#).

→ **No**

GO to [AD4](#).

AD4 CHECK THE AIR BAG TONE WARNING INDICATOR



- 3 Measure the voltage between RCM C232 pin 26, circuit 1083 (LB/BK), harness side and ground.

- Is the voltage less than 1.0 volt?

→ **Yes**
INSTALL a new GEM. GO to [AD6](#).

→ **No**
INSTALL a new RCM. GO to [AD6](#).

AD5 CHECK FOR AN INTERMITTENT FAULT

- 1 Refer to the continuous DTCs recorded during Step AD1.

- Was the continuous DTC retrieved during Step AD1 an intermittent fault?

→ **Yes**
CHECK for causes of intermittent short to ground or open on circuit 1083 (LB/BK). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [AD6](#).

→ **No**
GO to [AD6](#).

AD6 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

	1 Refer to the continuous DTCs recorded during Step AD1. • Were any continuous DTCs retrieved during Step AD1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test AE: DTC B1891 — Air Bag Tone Warning Indicator Circuit Shorted to Battery or Ignition

Normal Operation

The restraints control module (RCM) monitors its connection to the generic electronic module (GEM) at pin 20. This connection is used to signal a chime if the air bag indicator is inoperative and another SRS fault exists. If the RCM detects a short to battery or ignition on the connection to the GEM, it will store a diagnostic trouble code (DTC) B1891 in memory.

Possible Causes

An air bag tone warning indicator circuit short to battery or ignition can be caused by:

- a short to battery or ignition on circuit 1083 (LB/BK).
- a damaged or inoperative GEM.
- a damaged RCM.

PINPOINT TEST AE: DTC B1891 — AIR BAG TONE WARNING INDICATOR CIRCUIT SHORTED TO BATTERY OR IGNITION

CONDITIONS	DETAILS/RESULTS/ACTIONS
AE1 CHECK FOR A HARD OR INTERMITTENT DTC 1 	

2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. Was DTC B1891 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to AE2. → No This is an intermittent fault. The fault condition is not present at this time. GO to AE4.

AE2 CHECK THE AIR BAG TONE WARNING INDICATOR CIRCUIT



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1



3



Battery Ground Cable

4



RCM C232

5

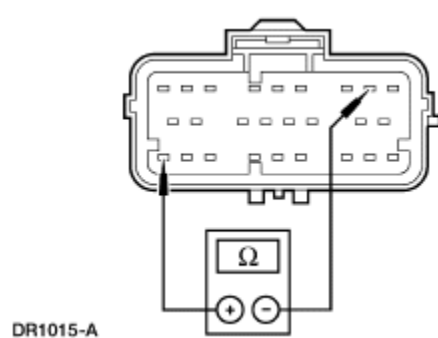


GEM C280

6



7



DR1015-A

2

Deactivate the system.

7

Measure the resistance between RCM C232 pin 26, circuit 1083 (LB/BK), harness side and RCM C232 pin 2, circuit 364 (BK/LG), harness side.

- Is the resistance less than 10,000 ohms?

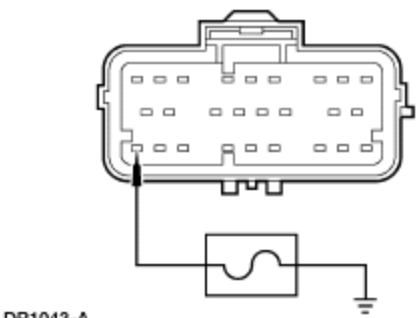
→ Yes

REPAIR the circuit. GO to [AE5](#).

→ No

GO to [AE3](#).

AE3 CHECK THE AIR BAG TONE WARNING INDICATOR

1  2  Battery Ground Cable 3  GEM C280 4  5  DR1043-A	5 Jumper RCM C232 pin 26, circuit 1083 (LB/BK), harness side to ground. Does the GEM generate a tone? → Yes INSTALL a new RCM. GO to AE5. → No INSTALL a new GEM. GO to AE5.
AE4 CHECK FOR AN INTERMITTENT FAULT	
	1 Refer to the continuous DTCs recorded during Step AE1. Was the continuous DTC retrieved during Step AE1 an intermittent fault? → Yes CHECK for causes of intermittent short to ground or open on circuit 1083 (LB/BK). ATTEMPT to recreate the hard fault by flexing

	the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to AE5. → No GO to AE5.
AE5 CHECK FOR ADDITIONAL DTCs	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step AE1. • Were any continuous DTCs retrieved during Step AE1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test AF: DTC B1869 — Air Bag Indicator Inoperative

Normal Operation

The air bag indicator is designed to illuminate for 6 (+/-2) seconds when the ignition switch is turned to the RUN position. This initial 6 seconds of illumination is considered normal operation and is called prove out of the air bag indicator. The air bag indicator is then used to warn the driver if there is a fault in the air bag supplemental restraint system (SRS).

The restraints control module (RCM) monitors the air bag indicator for open and short to ground conditions. If the RCM detects an open or short to ground condition on the air bag indicator circuit, it will store a diagnostic trouble code (DTC) B1869 in memory.

If the RCM detects an air bag indicator failure in addition to another SRS failure, the RCM will send a signal to the generic electronic module (GEM) to produce five sets of five tone bursts.

Possible Causes

An air bag indicator inoperative condition can be caused by:

- damaged wiring on circuit 608 (BK/YE).
- a damaged or burned out air bag indicator.
- an instrument cluster malfunction.

- a damaged RCM.

PINPOINT TEST AF: DTC B1869 — AIR BAG INDICATOR INOPERATIVE

CONDITIONS	DETAILS/RESULTS/ACTIONS
AF1 CHECK FOR A HARD OR INTERMITTENT DTC	
1  2  Scan Tool 3  4  Retrieve/Clear Continuous DTCs 5  On-Demand Self Test	4 Retrieve and record any continuous DTCs for use later in this pinpoint test. • Was DTC B1869 retrieved during the on-demand self test? → Yes This is a hard fault. The fault condition is still present. This fault cannot be cleared until it is corrected and the DTC is no longer retrieved during the on-demand self test. GO to AF2. → No This is an intermittent fault. The fault condition is not present at this time. GO to AF5.
AF2 CHECK THE RCM	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible	

violation of vehicle safety standards.

NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in [Section 501-20B](#) of the appropriate car/truck service manual.

NOTE: Airbag simulators (restraint system diagnostic tools) **MUST** be installed under the seats in the side airbag to floor connector.

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1

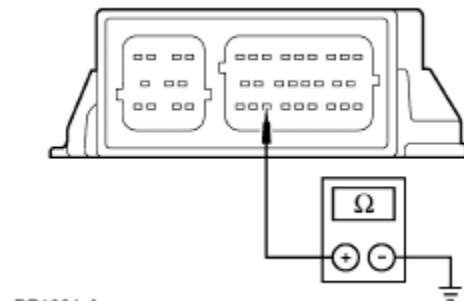


3



RCM C232

4



DR1034-A

2

Deactivate the system.

4

Measure the resistance between the RCM C232, pin 20, component side, and a known good chassis ground.

- Is the resistance less than 100 ohms?

→ Yes

INSTALL a new RCM. GO to [AF6](#).

→ No

GO to [AF3](#).

AF3 CHECK CIRCUIT 608 (BK/YE) FOR A SHORT TO GROUND

1



2



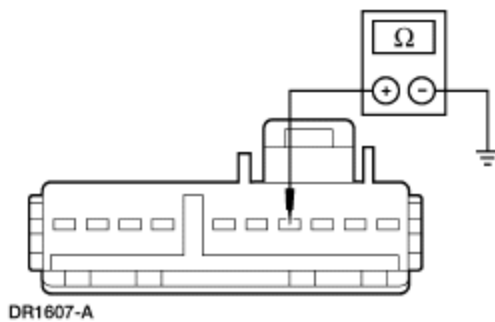
RCM C232

3



Instrument Cluster C288

4



DR1607-A

4

Measure the resistance to ground at instrument cluster C288 pin 7, circuit 608 (BK/YE), harness side.

- Is the resistance less than 100 ohms?

→ Yes

REPAIR the circuit. GO to [AF6](#).

→ No

GO to [AF4](#).

AF4 CHECK CIRCUIT 608 (BK/YE) FOR AN OPEN

1

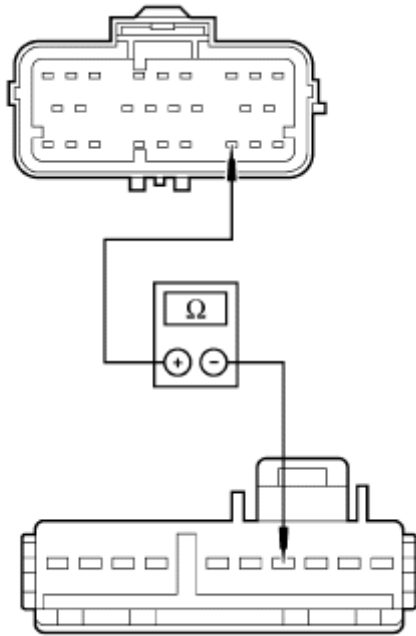


Instrument Cluster C288

2

2

Measure the resistance between RCM C232 pin 20, circuit 608 (BK/YE), harness side and instrument cluster C288 pin 4, circuit 608 (BK/YE), harness side.



DR1400-A

- Is the resistance greater than 10 ohms?

→ **Yes**

REPAIR the circuit. GO to [AF6](#).

→ **No**

REPAIR the instrument cluster. GO to [AF6](#).

AF5 CHECK FOR AN INTERMITTENT FAULT

- 1 Refer to the continuous DTCs recorded during Step AF1.

- Was the continuous DTC retrieved during Step AF1 an intermittent fault?

→ **Yes**

CHECK for causes of intermittent short to ground or open on circuit 608 (BK/YE). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [AF6](#).

→ **No**

GO to [AF6](#).

AF6 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible

violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step AF1. • Were any continuous DTCs retrieved during Step AF1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test AG: DTC B1870 — Air Bag Indicator Shorted to Battery

Normal Operation

The air bag indicator is designed to illuminate for 6 (+/-2) seconds when the ignition switch is turned to the RUN position. This initial 6 seconds of illumination is considered normal operation and is called prove out of the air bag indicator. The air bag indicator is then used to warn the driver that there is a fault in the air bag supplemental restraint system (SRS).

While the air bag indicator is activated, the restraints control module (RCM) monitors the air bag indicator for short to battery conditions. If the RCM detects a short to battery condition on the air bag indicator circuit, it will store a diagnostic trouble code (DTC) B1870 in memory.

If the RCM detects an air bag indicator failure in addition to another SRS failure, the RCM will send a signal to the generic electronic module (GEM) to produce five sets of five tone bursts.

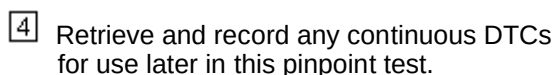
Possible Causes

An air bag indicator short to battery condition can be caused by:

- a short to battery on circuit 608 (BK/YE).
- a damaged or inoperative instrument cluster.
- an RCM internal concern.

PINPOINT TEST AG: DTC B1870 — AIR BAG INDICATOR SHORTED TO BATTERY

CONDITIONS	DETAILS/RESULTS/ACTIONS
AG1 CHECK FOR A HARD OR INTERMITTENT DTC	
1	



- Yes

→ No

This is an intermittent fault. The fault condition is not present at this time. GO to [AG4](#).

AG2 CHECK THE AIR BAG INDICATOR CIRCUIT



NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

1  3  RCM C232 4 	2 Deactivate the system. • Is the air bag indicator illuminated? → Yes INSTALL a new RCM. GO to AG3. → No CHECK the air bag indicator bulb. If the air bag indicator bulb is OK, REPAIR the circuit. GO to AG5.

AG3 CHECK AIR BAG INDICATOR CIRCUIT FOR SHORT TO BATTERY

1  2  RCM C232 3  Instrument Cluster C288 4	

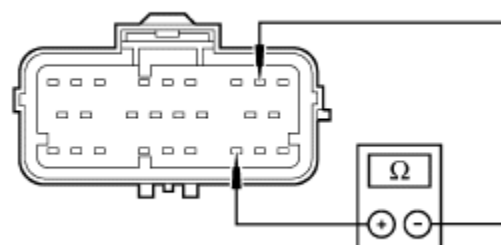


Battery Ground Cable

5



6



DR1033-A

6

Measure the resistance between RCM C232 pin 2, circuit 364 (BK/LG) and pin 20, circuit 608 (BK/YE).

- Is the resistance less than 10,000 ohms?

→ Yes

REPAIR the circuit. GO to [AG5](#).

→ No

REPAIR the instrument cluster. GO to [AG5](#).

AG4 CHECK FOR AN INTERMITTENT FAULT

1

Refer to the continuous DTCs recorded during Step AG1.

- Was the continuous DTC retrieved during Step AG1 an intermittent fault?

→ Yes

CHECK for causes of intermittent short to battery on circuit 608 (BK/YE). ATTEMPT to recreate the hard fault by flexing the wire harness and cycling the ignition key frequently. REPAIR any intermittent concerns found. GO to [AG5](#).

→ No

GO to [AG5](#).

AG5 CHECK FOR ADDITIONAL DTCs



WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible

violation of vehicle safety standards.	
	1 Refer to the continuous DTCs recorded during Step AG1. • Were any continuous DTCs retrieved during Step AG1? → Yes Do not clear any DTCs until all DTCs have been resolved. GO to the Restraints Control Module (RCM) Diagnostic Trouble Code (DTC) Priority Table in this section for pinpoint test direction. → No RECONNECT the system. REACTIVATE the system. PROVE OUT the system. CLEAR all DTCs.

Pinpoint Test AH: No Communication with the Restraints Control Module (RCM)

Normal Operation

The RCM communicates with the scan tool using ISO 9141 communication mode through the data link connector (DLC).

Possible Causes

A no communication condition can be caused by:

- damage to circuit 70 (LB/WH).
- a damaged DLC.
- a damaged scan too.
- an RCM internal concern.

PINPOINT TEST AH: NO COMMUNICATION WITH THE RESTRAINTS CONTROL MODULE (RCM)

CONDITIONS	DETAILS/RESULTS/ACTIONS
AH1 CHECK THE RCM CONNECTOR C232 AND CONNECTOR PIN 5 FOR DAMAGE	
 WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards. NOTE: If a seat equipped with a seat mounted side airbag system is being serviced the airbag system must be deactivated per the deactivation procedure contained in Section 501-20B of the appropriate car/truck service manual. NOTE: Airbag simulators (restraint system diagnostic tools) MUST be installed under the seats in the side airbag to floor connector.	

NOTE: Diagnostics or repairs are not to be performed on a side airbag system with the seat in the vehicle. Prior to attempting to diagnose/repair the side airbag system the seat must be removed from the vehicle and the restraint system diagnostic tool must be installed in side airbag connector at the floor connector. The restraint system diagnostic tool must be removed prior to operating the vehicle.

NOTE: Diagnostics may be performed on seat systems other than the side airbag system (lumbar, climate controlled, heated, power seat track) with the seat installed in the vehicle as long as the restraint system diagnostic tool is installed under the seat in the side airbag to floor connector.

NOTE: After diagnosing/repairing a seat system the restraint system diagnostic tool must be removed before operating the vehicle.

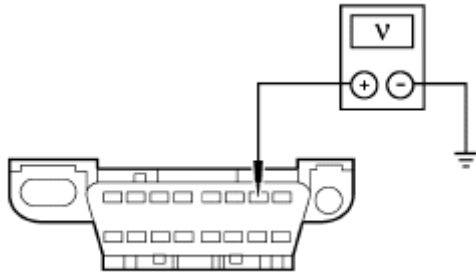
1  3  RCM C232	2 Deactivate the system. 4 Inspect RCM C232 and RCM C232 pin 5 for damage. • Are RCM C232 and RCM C232 pin 5 OK? → Yes GO to AH2. → No REPAIR RCM C232 or RCM C232 pin 5 as necessary. REACTIVATE the system.

AH2 CHECK THE DLC CONNECTOR C291 AND CONNECTOR PIN 7 FOR DAMAGE

	1 Inspect DLC C291 and DLC C291 pin 7 for damage. • Are DLC C291 and DLC C291 pin 7 OK? → Yes GO to AH3. → No REPAIR DLC C291 or DLC C291 pin 7 as necessary. REACTIVATE the system.

AH3 CHECK CIRCUIT 70 (LB/WH) FOR SHORT TO BATTERY

1	1 Measure the voltage to ground at DLC C291 pin 7, circuit 70 (LB/WH).



DR1546-A

- Can any voltage be measured?

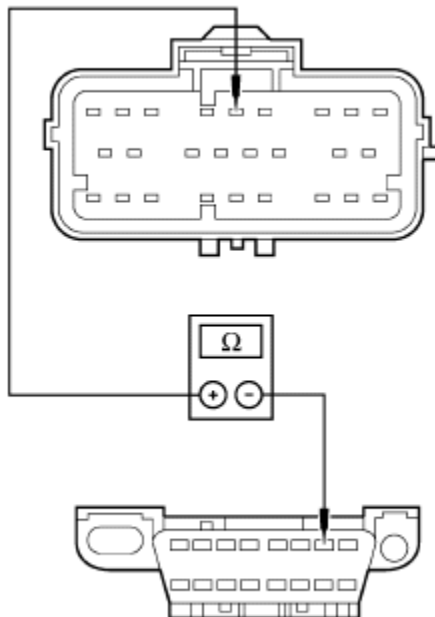
→ **Yes**
REPAIR the battery short. REACTIVATE the system.

→ **No**
GO to [AH4](#).

AH4 CHECK CIRCUIT 70 (LB/WH) FOR AN OPEN

⚠ WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1



DR1019-A

1

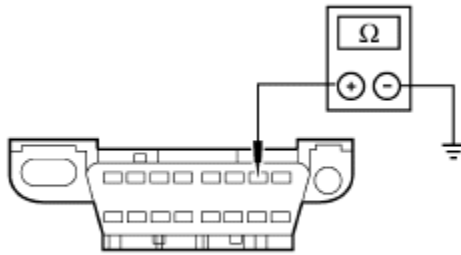
Measure the resistance between RCM C232 pin 5, circuit 70 (LB/WH), harness side and DLC C291 pin 7, circuit 70 (LB/WH), harness side.

- Is the resistance less than 5 ohms?

- **Yes**
GO to [AH5](#).
- **No**
REPAIR the circuit. REACTIVATE the system.

AH5 CHECK CIRCUIT 70 (LB/WH) FOR SHORT TO GROUND

WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

1

DR1547-A

1

Measure the resistance to ground at DLC C291 pin 7, circuit 70 (LB/WH).

- Is the resistance less than 10,000 ohms?

- **Yes**
REPAIR the circuit. REACTIVATE the system.
- **No**
INSTALL a new RCM. REACTIVATE the system.

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop
Manual

Air Bag Disposal —Deployed Air Bag

1.  **WARNING:** Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.

Dispose of the deployed air bag modules and safety belt pretensioners in the same manner as any other part to be scrapped.

Air Bag Disposal —Undeployed, Inoperative



WARNING: Carry a live air bag module with the air bag and trim cover or deployment door pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

NOTE: All inoperative air bag modules and safety belt pretensioners have been placed on the Mandatory Return List. All discolored or damaged air bag modules must be treated the same as any inoperative live air bag being returned.

1. Remove the inoperative component from the vehicle. For additional information, refer to the appropriate air bag procedure in this section or to [Section 501-20A](#) for the retractor/pretensioner assembly.

AIR BAG MODULE VERIFICATION

VEHICLE SERIAL NO.

This 17 digit number can be found (1) on your vehicle registration (2) on the dash panel at left side close to lower edge of windshield.

ATTENTION INSTALLER
 Please complete and mail this postcard with your New Air Bag Module Serial Number (see sample below) and the Vehicle Identification Number (VIN) of the vehicle in which you are installing this module.

LOOK FOR YOUR REPLACEMENT AIR BAG MODULE SERIAL NUMBER (SN) AT THE LOCATION SHOWN IN THIS SAMPLE AND ENTER IT IN THE SPACE PROVIDED BELOW

SAMPLE

REPLACEMENT AIR BAG MODULE SERIAL NO. SN

A0005406

2. **NOTE:** When installing a new air bag module, a prepaid return postcard is provided with the replacement air bag module. The serial number for the new part and the vehicle identification number (VIN) must be recorded and sent to Ford Motor Company.

If installing a new air bag module:

- Record the necessary information and return the inoperative air bag module to Ford Motor Company.

Air Bag Disposal —Driver, Undeployed, Scrapped Vehicle

Remote Deployment



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module or safety belt retractor/pretensioner assembly. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live air bag module with the air bag and trim cover or deployment door pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

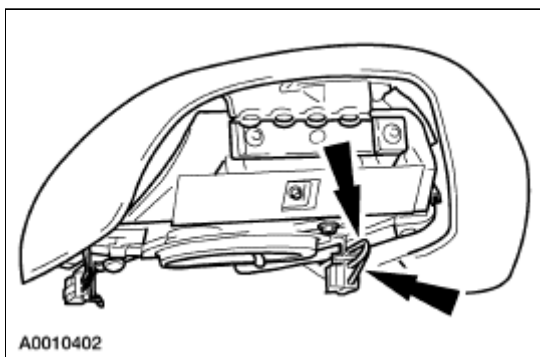


WARNING: Remote deployment is to be performed outdoors with all personnel at least 6.1 meters (20 feet) away to ensure personal safety. Due to the loud report which occurs when the air bag is deployed, hearing protection is required.

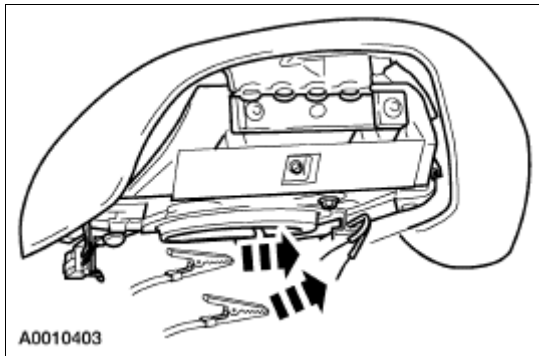


WARNING: Do not place the driver or passenger air bag module with the trim cover or deployment door facing down, as the forces of the deploying air bag can cause it to ricochet and cause personal injury.

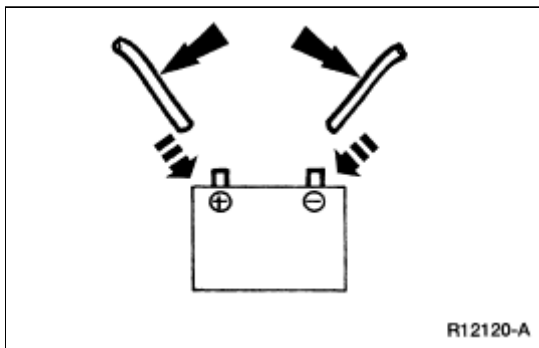
1. Remove the driver air bag from the vehicle. Refer to [Module—Driver Air Bag](#) in this section.
2. Cut and strip the wires near the electrical connector.



3. Obtain two wires (20 gauge minimum) at least 6.1 meters (20 feet) long and attach one end of each wire to the stripped ends of the air bag module wires.



4. Place the air bag module on a flat surface in an open outdoor area with the trim cover facing upward.
5. Remain at least 6.1 meters (20 feet) away from the air bag module.
6. Deploy the air bag module by touching the other ends of the two wires to the terminals of a 12-volt battery.



7. To allow for cooling, wait at least ten minutes before approaching the deployed air bag.
 8. Dispose of the deployed air bag module in the same manner as any other part to be scrapped.
-

Air Bag Disposal —Passenger, Undeployed, Scrapped Vehicle

Remote Deployment



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live air bag module with the air bag and trim cover or deployment door pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

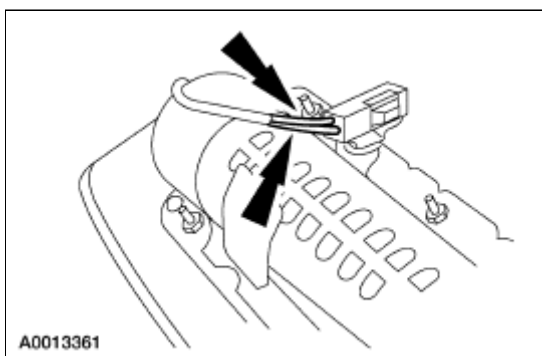


WARNING: Remote deployment is to be performed outdoors with all personnel at least 6.1 meters (20 feet) away to ensure personal safety. Due to the loud report which occurs when the air bag is deployed, hearing protection is required.

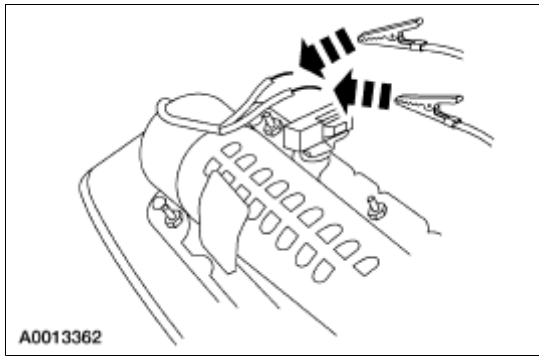


WARNING: Do not place the driver or passenger air bag module with the trim cover or deployment door facing down, as the forces of the deploying air bag can cause it to ricochet and cause personal injury.

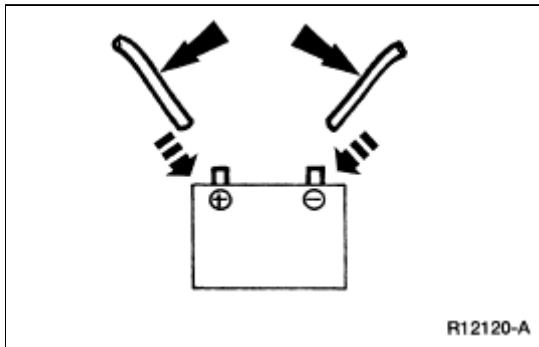
1. Remove the passenger air bag from the vehicle. Refer to [Module—Passenger Air Bag](#) in this section.
2. Cut and strip the wires near the electrical connector.



3. Obtain two wires (20 gauge minimum) at least 6.1 meters (20 feet) long and attach one end of each wire to the stripped wires on the air bag module.



4. Place the air bag module on a flat surface in an open outdoor area with the deflector can facing downward.
5. Remain at least 6.1 meters (20 feet) away from the air bag module.
6. Deploy the air bag module by touching the other ends of the two wires to the terminals of a 12-volt battery.



7. To allow for cooling, wait at least ten minutes before approaching the deployed air bag.
 8. Dispose of the deployed air bag module in the same manner as any other part to be scrapped.
-

Air Bag Disposal —Side, Undeployed, Scrapped Vehicle

Remote Deployment



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module or safety belt retractor/pretensioner assembly. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live air bag module with the air bag and trim cover or deployment door pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

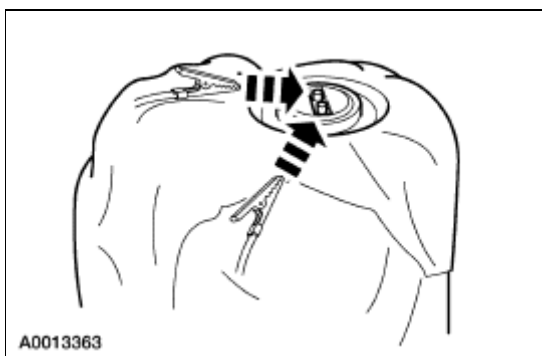


WARNING: Remote deployment is to be performed outdoors with all personnel at least 6.1 meters (20 feet) away to ensure personal safety. Due to the loud report which occurs when the air bag is deployed, hearing protection is required.

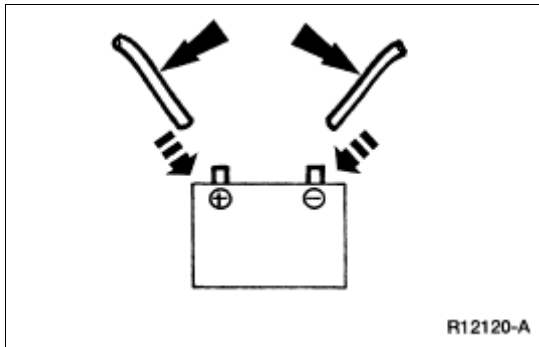


WARNING: Do not place the side air bag module with the tear seam facing down or the attaching studs facing upward, as the forces of the deploying air bag can cause it to ricochet and cause personal injury.

1. Remove the side air bag from the vehicle. For additional information, refer to [Module—Side Air Bag](#) in this section.
2. Obtain two wires (20 gauge minimum) at least 6.1 meters (20 feet) long and attach one end of each wire to the connector pins on the air bag module.



3. Place the air bag module on a flat surface in an open outdoor area with the tear seam facing upward and the attaching studs facing downward.
4. Remain at least 6.1 meters (20 feet) away from the air bag module.
5. Deploy the side air bag module by touching the other ends of the two wires to the terminals of a 12-volt battery.



6. To allow for cooling, wait at least ten minutes before approaching the deployed air bag.
 7. Dispose of the deployed side air bag module in the same manner as any other part to be scrapped.
-

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop
Manual

Wiring Repair

1. Inspect the supplemental restraint system (SRS) wiring and the wiring harness for any damage that may have occurred as a result of the accident. Inspect and repair or install new, as required, any damaged:
 - insulation.
 - terminal.
 - connectors.
 - splices.
 2. Splice damaged wires using the specified butt-splice connector or equivalent.
 - For splices required in adjacent wiring, stagger the splices 51 mm (2.04 in) apart from each other.
 - Use waterproof butt-splice type connectors.
 - Use the correct size heat shrink nylon tube to prevent water, salt, condensation, and heat from affecting the wiring repair. Make sure the tube extends 25 mm (1 in) each side of the repair.
 - Use a splice connector that is lined with a sealer that melts when heated with a heat gun and flows from the tubing, sealing the splice.
 - Use the correct gauge connector for the wire being repaired.
 - Use connectors that are transparent to allow inspection of the finished splice.
-

Weld Nut Repair — "J" Nut, Restraints Control Module (RCM), Front External Crash and Side Crash Sensor



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

NOTE: There are two procedures to repair a vehicle having missing air bag crash sensor attaching weld nut (s). Read both procedures before proceeding with the repair.

NOTE: If two or more weld nuts are missing, do not install the "J" nuts as outlined in this procedure. Weld nuts must be installed as outlined in Weld Nut Repair — Missing Weld Nut, Restraints Control Module (RCM), Front External Crash and Side Crash Sensor.

NOTE: The following procedure applies to vehicles that have a rectangular hole in the sheet metal that is in close proximity to the missing weld nut.

1. Obtain a "J" nut (part number N623332-S301) or any of the following optional "J" nuts (part numbers: N623342-S101, N800854-S100, N800925-S100).
2. Obtain a 6 mm (0.24 in) grounding screw (part number N806327-S190) or equivalent.
3. Install the "J" nut through the rectangular hole in the sheet metal.
4. **NOTE:** Be sure the threaded portion of the "J" nut is aligned with the clearance hole in the sheet metal.

Install the crash sensor.

5. Tighten the attaching screws to specification. Refer to Torque Specifications in this section.
-

Weld Nut Repair —Missing Weld Nut, Restraints Control Module (RCM), Front External Crash and Side Crash Sensor



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

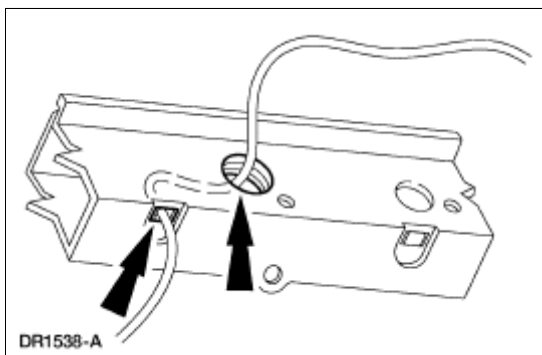
To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

NOTE: There are two procedures to repair a vehicle having missing air bag crash sensor attaching weld nut (s). Read both procedures before proceeding with the repair.

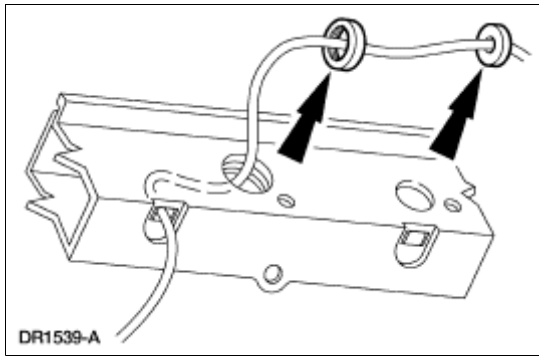
NOTE: If two or more weld nuts are missing, do not install the "J" nuts as outlined in Weld Nut Repair — "J" Nut, Restraints Control Module (RCM), Front External Crash and Side Crash Sensor. Weld nuts must be installed as outlined in this procedure.

NOTE: Radiator support repair shown, others are similar.

1. Obtain a 6 mm (0.24 in) weld nut (part number N806285-S190).
2. Obtain a 6 mm (0.24 in) grounding screw (part number N806327-S190).
3. Route a sufficient length of copper welding wire through the weld nut clearance hole and back out an adjacent access hole.



4. Feed the copper welding wire through the weld nut, then through a standard flatwasher.



5. Secure the flatwasher so that it cannot be pulled off the end of the copper welding wire.
 6. Pull the copper welding wire back through the clearance hole, allowing the weld nut and flatwasher to follow the copper welding wire through.
 7. Position the weld nut to the weld nut clearance hole, firmly pulling on the copper welding wire allowing the secured flatwasher to hold the weld nut in position.
 8. Holding the weld nut securely in place and using a MIG welder, weld in four places around the edge of the weld nut.
 9. Metal finish as required.
 10. Verify the nut is securely in place.
 11. Install the crash sensor.
 12. Tighten the attaching screws to specification. Refer to Torque Specifications in this section.
-

Weld Nut Repair —Stripped Weld Nut, Restraints Control Module (RCM), Front External Crash and Side Crash Sensor



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

1. Obtain an 8 mm (0.32 in) grounding screw (part number N802455-S190).
 2. Drill out the internal threads of the stripped-out weld nut to 7.37 mm (0.29 in) using a letter "L" size drill bit.
 3. Position the crash sensor to the vehicle.
 4. Install the 8 mm (0.32 in) grounding screw into the drilled-out weld nut.
 5. Install the remaining attaching screws.
 6. Tighten the attaching screws to specification. Refer to Torque Specifications in this section.
-

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop
Manual

Sensor —Front External Crash

Removal



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

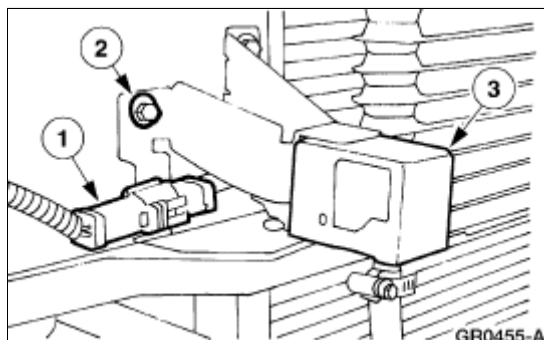
Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

NOTE: A repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Disconnect the battery ground cable (14301) and wait at least one minute. For additional information, refer to [Section 414-01](#).
2. Remove the radiator grill and radiator opening cover. For additional information, refer to [Section 501-02](#).
3. Remove the air bag sensor.
 1. Disconnect the air bag sensor electrical connector.
 2. Remove the three screws.
 3. Remove the air bag sensor.



Installation



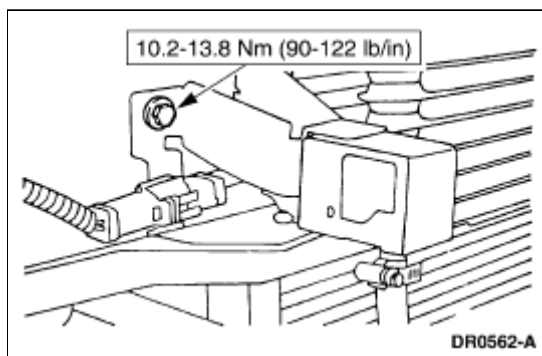
WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage can result.

NOTE: A repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Follow the removal procedure in reverse order.



2.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Prove out the air bag system.

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop
Manual

Sensor —Side Crash

Removal



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

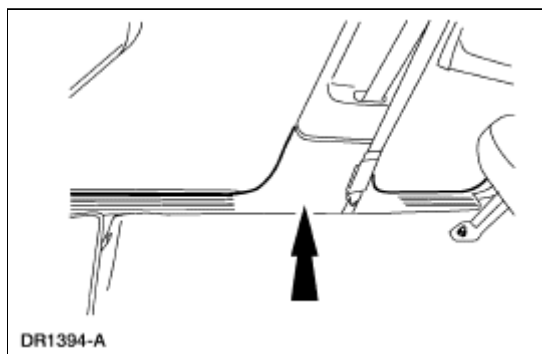
NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

NOTE: Right side is shown, left side is similar.

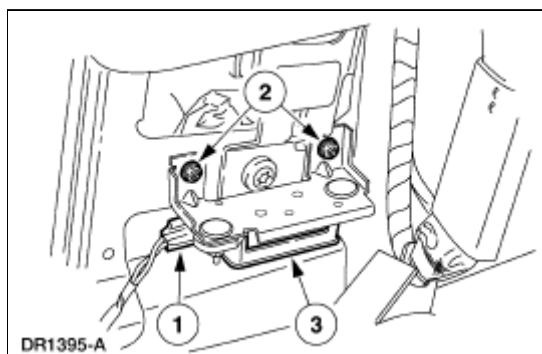
1. Disconnect the battery ground cable (14301) and wait at least one minute. For additional information, refer to [Section 414-01](#).
2. **NOTE:** Four door is shown, two door is similar.

NOTE: The front seat has been removed for clarity.

Remove the B-pillar lower trim panel with scuff plates.



3. Remove the side crash sensor.
 1. Disconnect the side crash sensor electrical connector.
 2. Remove the two retaining bolts.
 3. Remove the side crash sensor with bracket.



Installation



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



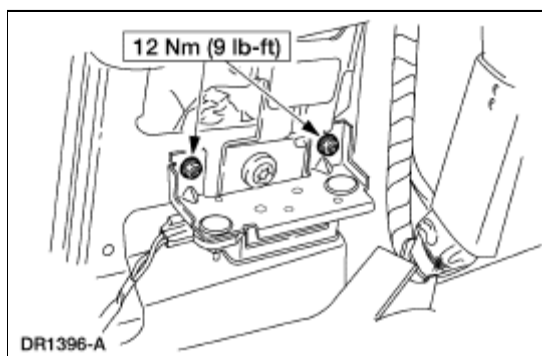
WARNING: The tightening torque of the air bag side crash sensor retaining bolts is critical for proper system operation.



CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage can result.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Follow the removal procedure in reverse order.



2.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Prove out the air bag system.

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop
Manual

Module —Restraints Control

Removal



WARNING: The restraints control module (RCM) orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) has been involved in a collision in which the right cowl A-pillar area has been damaged, inspect the mounting and bracket for deformation. If damaged, the RCM must be replaced whether or not the air bags have deployed. In addition, make sure the area of the RCM mounting is restored to its original condition.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).



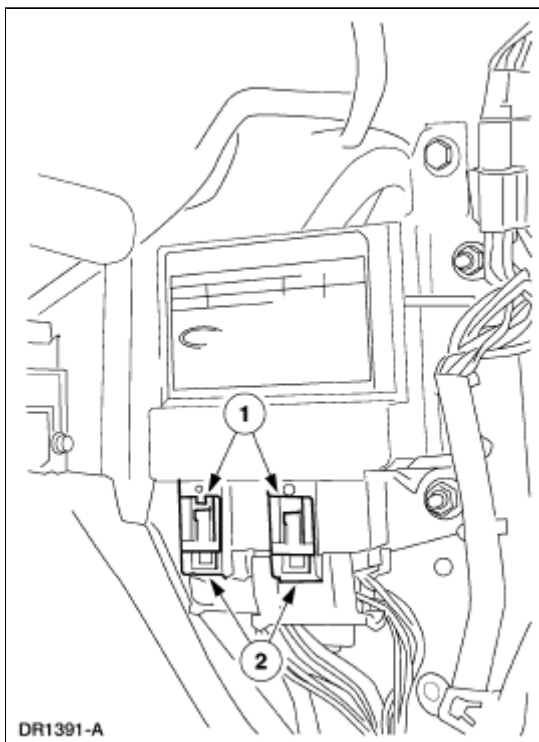
CAUTION: Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage can result.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Disconnect the battery ground cable (14301) and wait at least one minute. For additional information, refer to [Section 414-01](#).
2. Remove the right hand cowl side trim panel (02345). For additional information, refer to [Section 501-05](#).

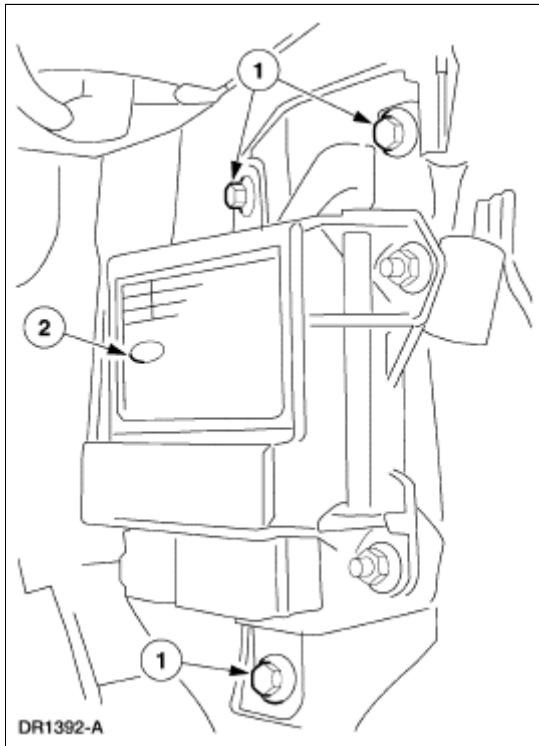


3. Disconnect the restraints control module (RCM).
 1. Slide the two RCM electrical connector locking clips down to disengage them.
 2. While squeezing the locking clip area to pivot the latch, disconnect the two RCM electrical connectors.



4. Remove the RCM with bracket.
 1. Remove the three RCM bracket retaining bolts.

2. Remove the RCM with bracket.



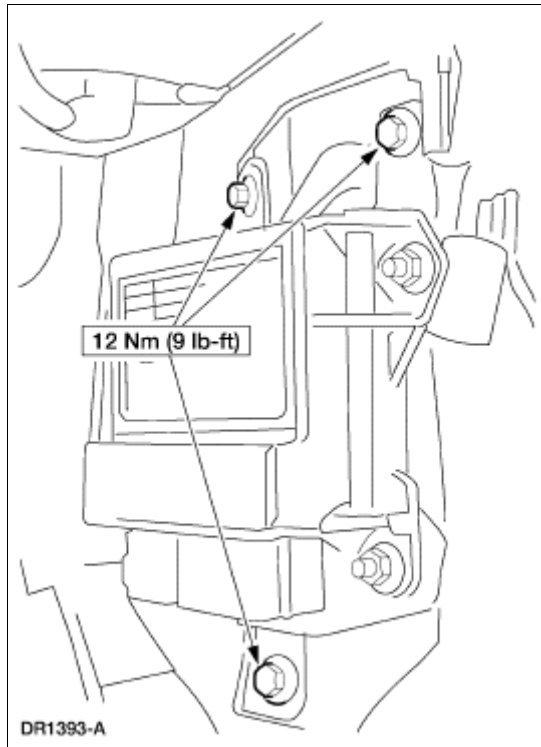
Installation

1.  **WARNING:** The tightening torque of the restraints control module (RCM) retaining bolts is critical for proper system operation.

 **CAUTION:** Electronic modules are sensitive to static electrical charges. If exposed to these charges, damage can result.

NOTE: A repair is made by installing a new part only. If the part does not correct the condition, install the original part and perform the diagnostic procedure again.

Follow the removal procedure in reverse order.



2.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Prove out the air bag system.

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop
Manual

Module —Driver Air Bag

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live air bag module with the air bag and trim cover pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live air bag module down with the trim cover face down. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterwards.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Air bag modules with discolored or damaged trim covers must be installed new, not repainted.



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

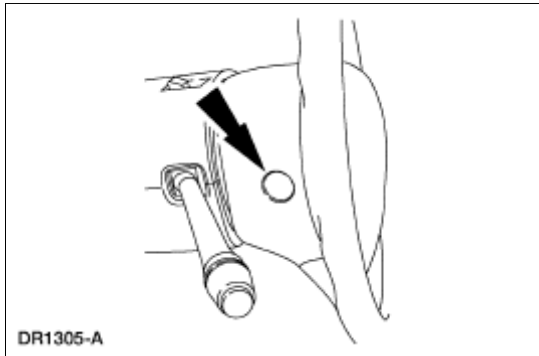
Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

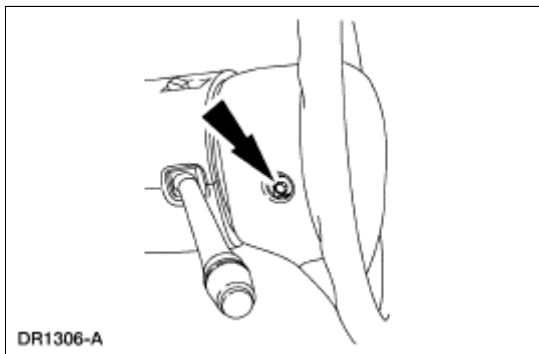
To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

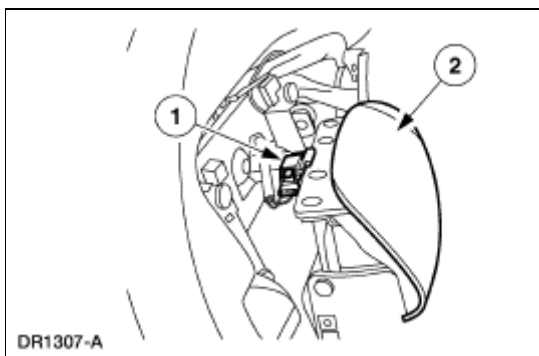
1. Disconnect the battery ground cable (14301) and wait at least one minute. For additional information, refer to [Section 414-01](#).
2. Remove the two steering wheel back cover plugs.



3. Remove the two driver side air bag module retaining bolts.



4. Remove the driver air bag module.
 1. Disconnect the driver air bag module electrical connector.
 2. Remove the driver air bag module.



Installation



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the

event of an accidental deployment.



WARNING: Carry a live air bag module with the air bag and trim cover pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

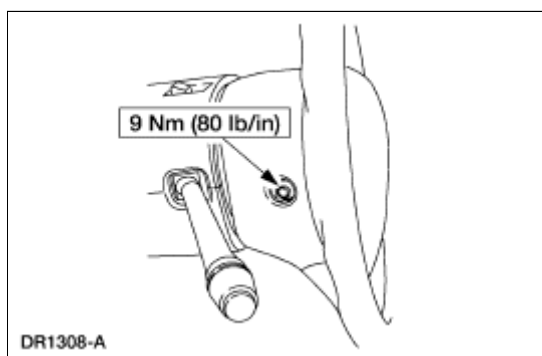


WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

NOTE: Make sure to tighten the retaining bolts to specification.

1. Follow the removal procedure in reverse order.



2.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Prove out the air bag system.

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop
Manual

Module —Passenger Air Bag

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live air bag module down with the deployment door face down. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterwards.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Air bag modules with discolored or damaged deployment doors must be installed new, not repainted.



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

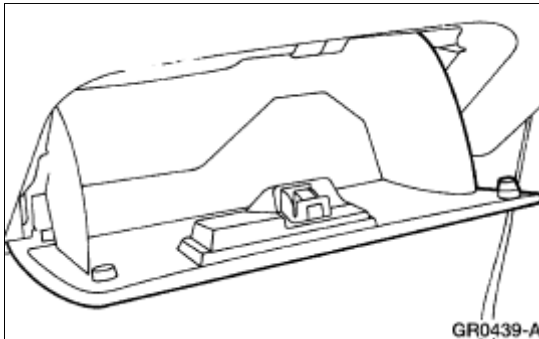
Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

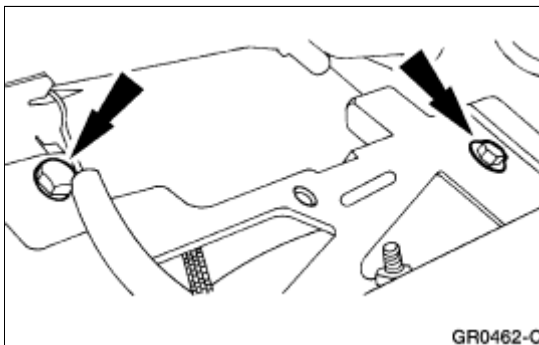
To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

NOTE: A repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Disconnect the battery ground cable (14301) and wait at least one minute. For additional information, refer to [Section 414-01](#).
2. Open the glove compartment door to access the mounting screws.

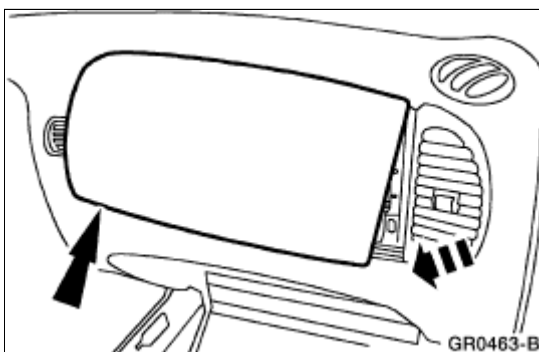


3. Remove the two screws.

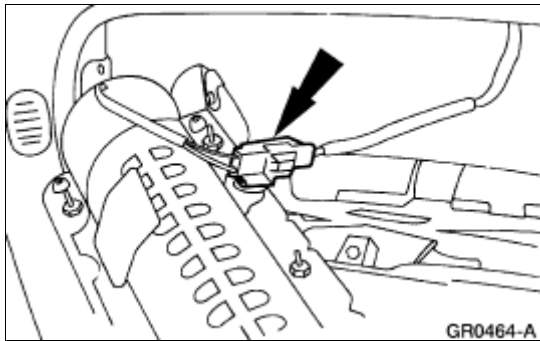


4.  **CAUTION:** Do not handle the passenger air bag module by grabbing the edges of the deployment door.

Reaching one hand into the glove box opening, push out on the passenger air bag module and separate it from the instrument panel.



5. Disconnect the electrical connector and remove the passenger air bag module.



Installation



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



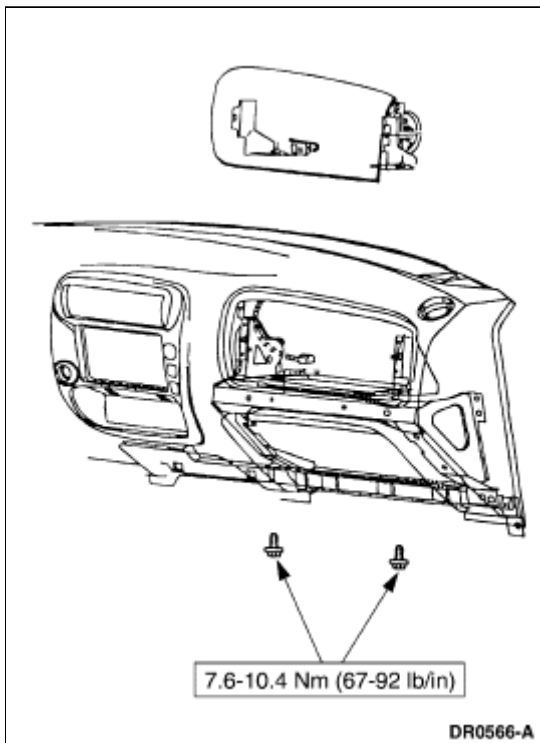
WARNING: Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.

NOTE: A repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Follow the removal procedure in reverse order.



2.  **WARNING: The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.**

Prove out the air bag system.

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop
Manual

Module —Side Air Bag

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live side air bag module down on cover tear seam. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterwards.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

NOTE: When replacing the side air bag after deployment, refer to [Section 501-10](#) for additional information concerning the installation of a new side air bag.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

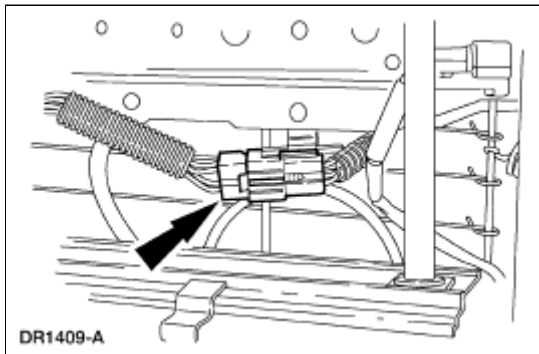
NOTE: Front driver seat is shown, passenger seat is similar.

1. Disconnect the battery ground cable (14301) and wait at least one minute. For additional information, refer to [Section 414-01](#).
2. Remove the seat from the vehicle. For additional information, refer to [Section 501-10](#).

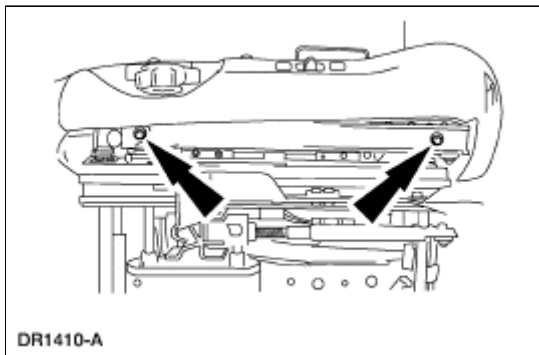


WARNING: Front seat back trim covers installed on seats equipped with side air bags cannot be repaired; they are to be replaced (cleaning is permissible).

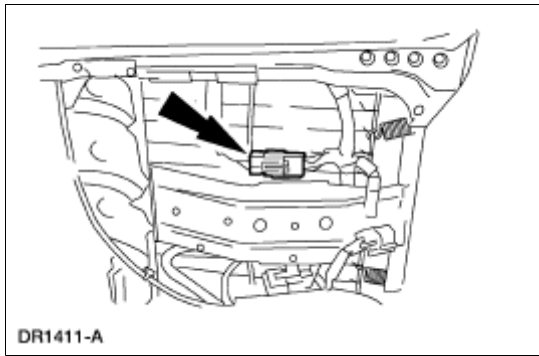
3. Disconnect the seat motor electrical connector.



4. Remove the four bolts (two shown) and the seat track from the seat bottom.

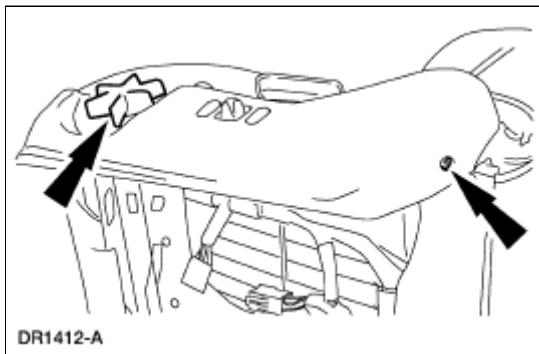


5. Disconnect the power seat switch electrical connector.

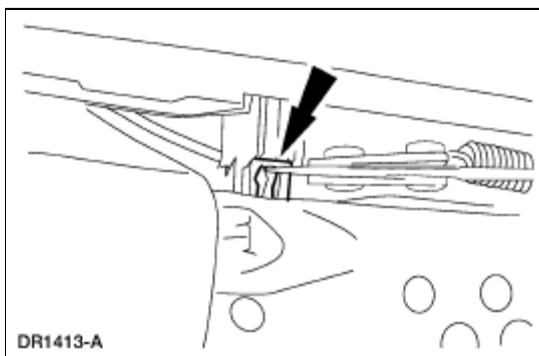


6. **NOTE:** Release all tension from the manual lumbar support cable.

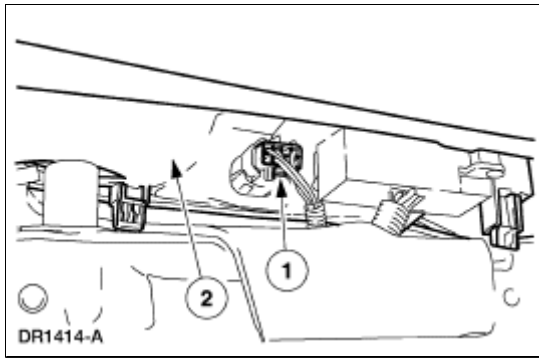
Pull and remove the manual lumbar support adjustment handle and remove the lower seat trim panel retaining screw.



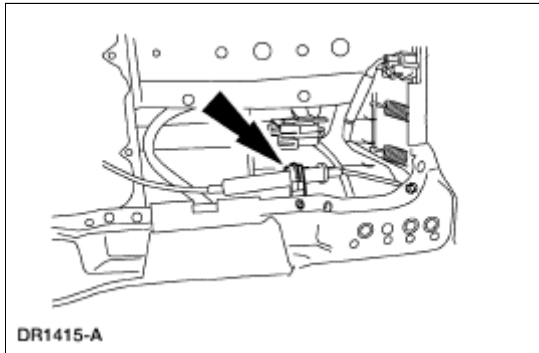
7. Press the tabs in on the two retaining clips (one shown) and separate the lower seat trim panel from the seat bottom frame.



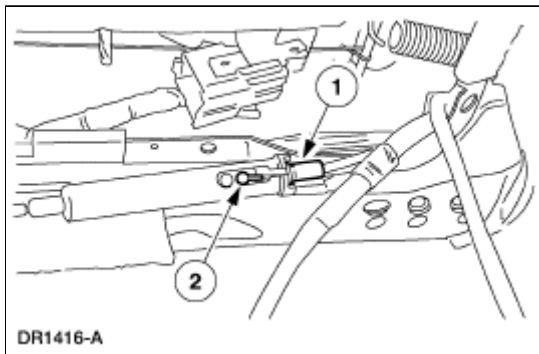
8. Remove the lower seat trim panel.
1. Disconnect the heated seat switch (if equipped).
 2. Remove the lower seat trim panel.



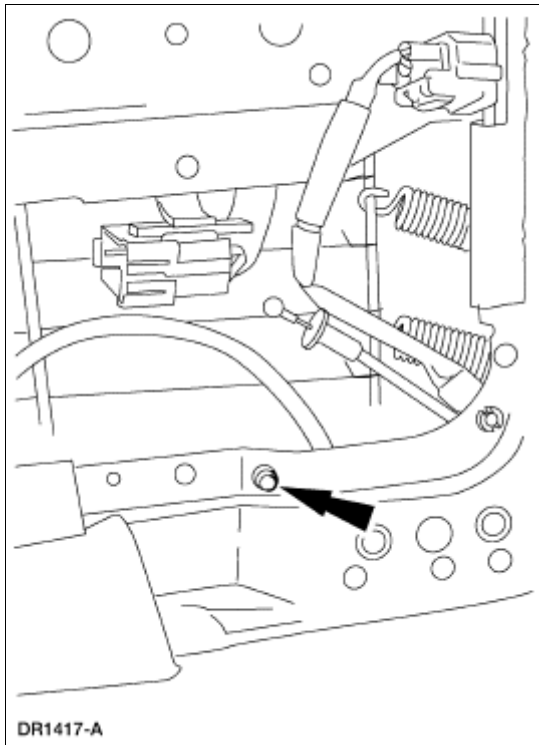
9. Remove the push pin holder from the seat bottom frame for the lumbar support cable.



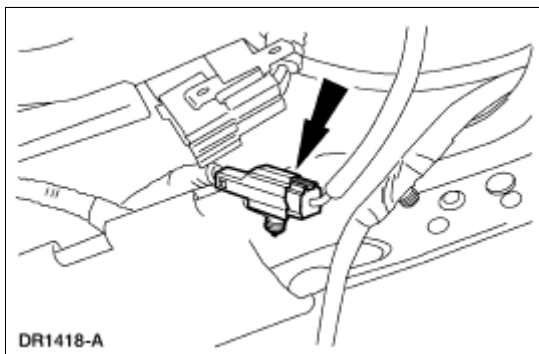
10. Separate the lumbar support cable assembly.
1. Separate the lumbar support case assembly by sliding apart.
 2. Remove the cable end ball from the cable end retainer and separate.



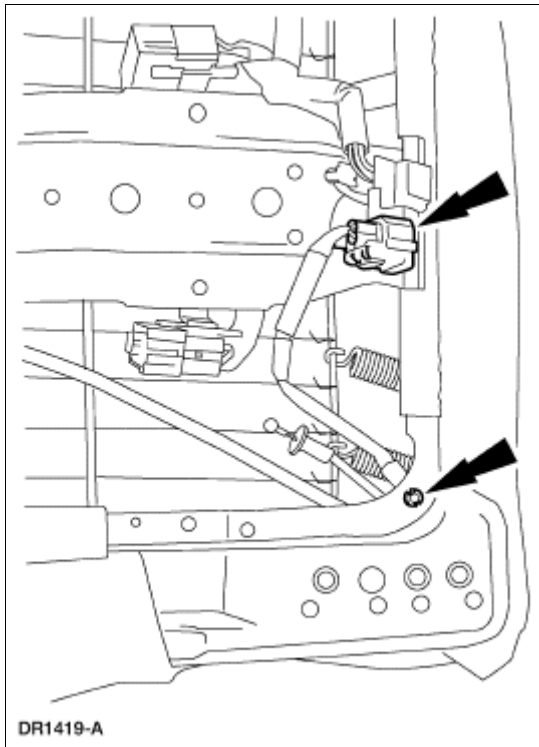
11. Remove the push pin retaining the heated seat back electrical connector to the seat bottom frame.



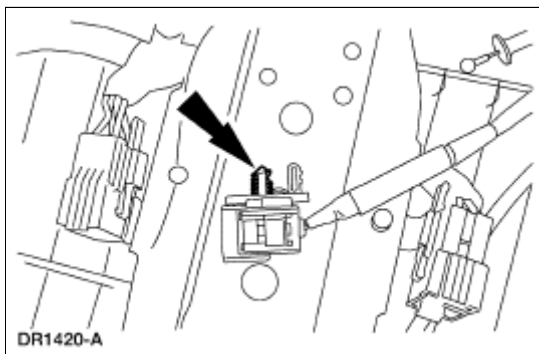
12. Disconnect the heated seat back electrical connector.



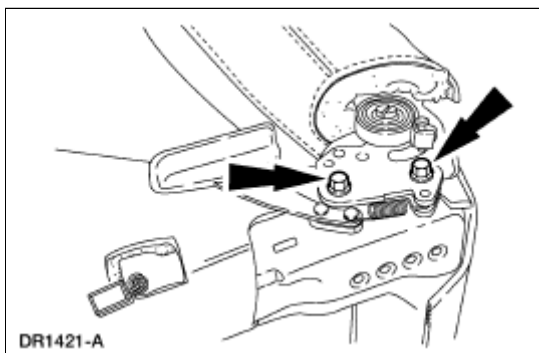
13. Remove the side air bag electrical connector and wire harness push pins from the seat bottom frame.



14. Remove the push pin from the side air bag electrical connector.



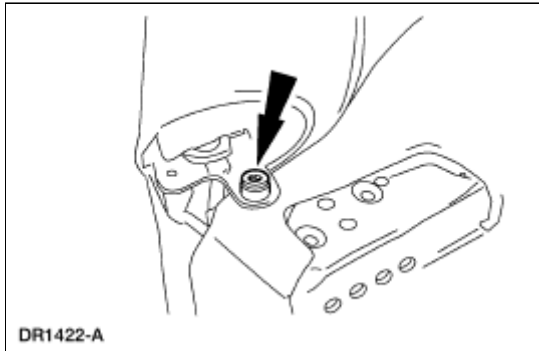
15. Remove the two retaining bolts.



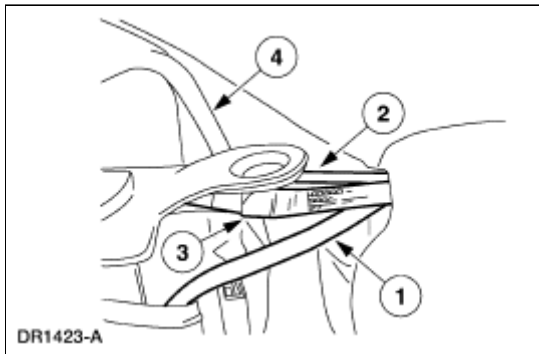
16.  **CAUTION:** When positioning the seat or separating the seat bottom from the back, be careful not to damage the seat back pivot and any of the wires or cables from the seat back to

the seat bottom. This can cause damage to one of the seat components.

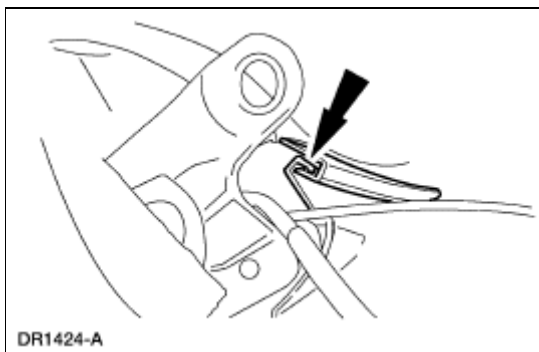
Laying the seat on its other side, remove the retaining bolt for the seat pivot, being careful not to damage the seat pivot, cable or any of the wires.



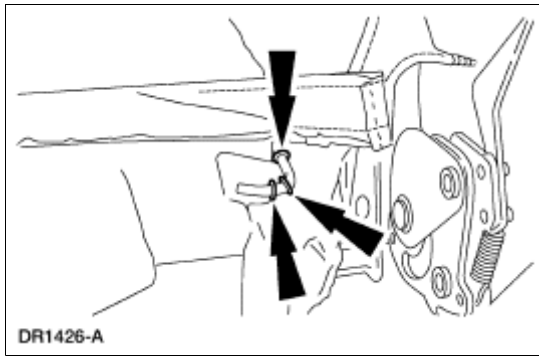
17. Remove the seat back from the seat bottom.
1. Pull the heated seat wire harness through the seat bottom.
 2. Pull the lumbar support cable through the seat bottom.
 3. Pull the side air bag module wire harness through the seat bottom.
 4. Remove the seat back from the seat bottom.



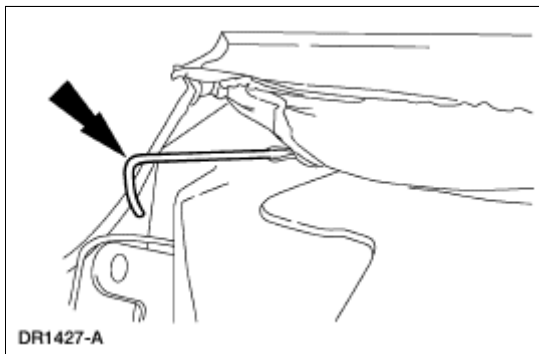
18. Separate the seat back trim cover lower J-clip.



19. Remove and discard the hog rings from the two swing rods (one shown).

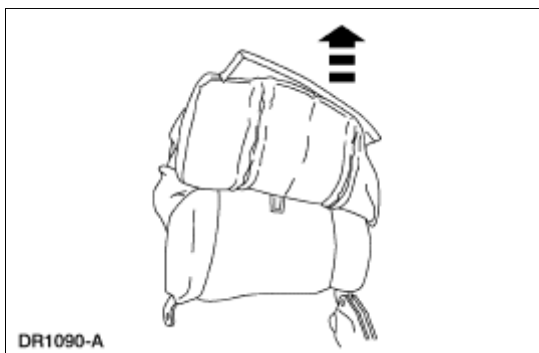


20. Slide the swing rods out of the seat back trim cover.

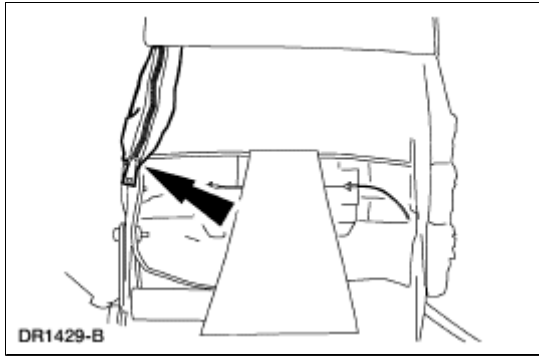


21.  **CAUTION:** Use care when separating the seat cushion trim cover from the hook and loop strip. The hook and loop strip can be torn from the seat cushion foam.

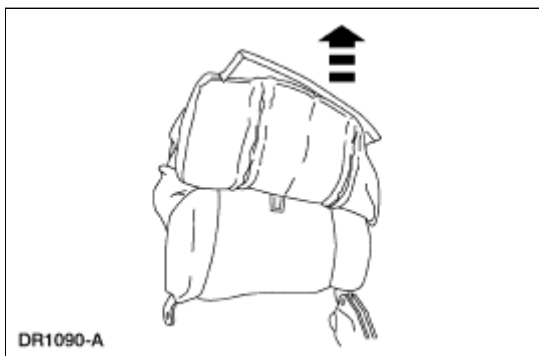
Roll the seat back trim cover, in an inside out fashion, to the side air bag deployment chute.



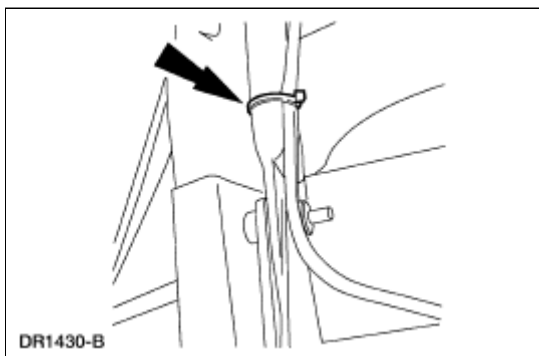
22. Unzip the side air bag deployment chute.



23. Roll the seat back cover and side air bag deployment chute to completely expose the side air bag module and mounting bracket.



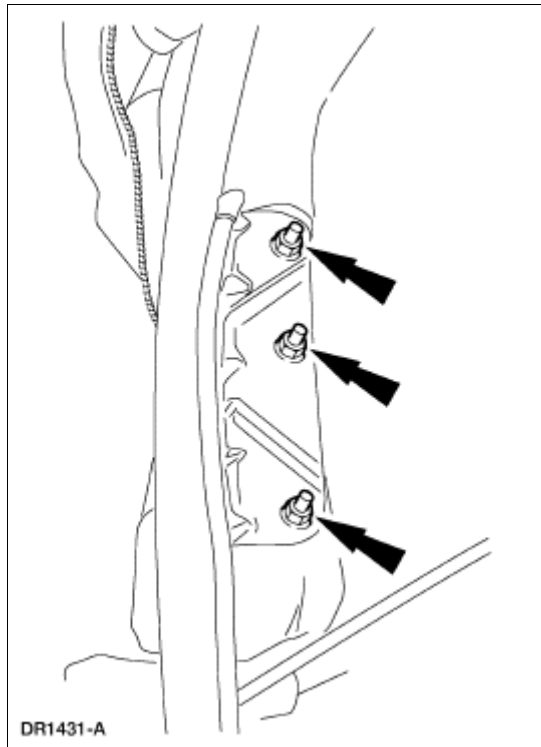
24. Remove the side air bag wire harness tie strap retainer.



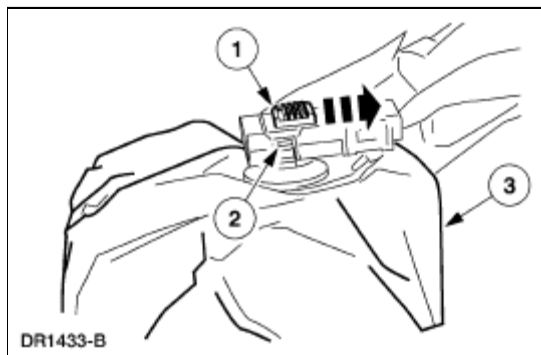
25. **NOTE:** If installing a new side air bag module, use new retaining nuts. If the same side air bag module is to be reused, then reuse the side air bag module retaining nuts.

Position the side air bag module aside, through the seat back cushion opening.

- Remove the retaining nuts.



26. Remove the side air bag module.
1. Slide the side air bag module electrical connector locking clip to disengage it.
 2. Release the connector tabs by pushing in on them, then disconnect the side air bag module electrical connector.
 3. Remove the side air bag module.



Installation



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live side air bag module with the air bag and tear seam pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.

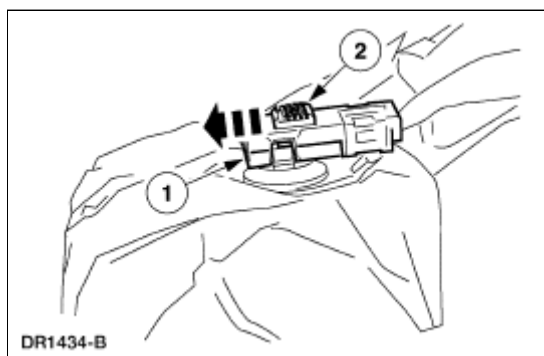


WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag

deployment, which can result in personal injury.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Connect the side air bag module electrical connector.
 1. Install the connector to the side air bag module.
 2. Slide the side air bag module electrical connector locking clip to secure the connector to the side air bag module.



2. Make sure the electrical connector is securely fastened to the side air bag module.



WARNING: Inspect the mounting surfaces of the side air bag module and the seat back frame mounting bracket for any foreign objects before installing the side air bag module. If any foreign objects are found, remove them. Failure to do so may result in personal injury, in the event of an air bag deployment.



WARNING: Inspect the side air bag deployment chute and the side air bag cavity in the seat back pad for any foreign objects. If any foreign objects are found, remove them. Failure to do so may result in personal injury in the event of an air bag deployment.



WARNING: Before installing the side air bag module, check it for damage and foreign objects. If the air bag module is damaged, replace it. If any foreign objects are found, remove them. Failure to do so may result in personal injury, in the event of an air bag deployment.



WARNING: If the air bag cover has separated or the air bag material has been exposed, install a new side air bag module. Do not attempt to repair the air bag module. Failure to do so may result in personal injury in the event of an air bag deployment.



WARNING: Check the side air bag deployment chute and zipper for damage. The deployment chute and zipper must not be repaired. If there is any damage to the deployment chute or zipper, the seat back trim cover and deployment chute must be replaced as a unit. Failure to do so may result in personal injury.

3.  **CAUTION:** The retaining nuts of the side air bag module must be tightened in the sequence described.

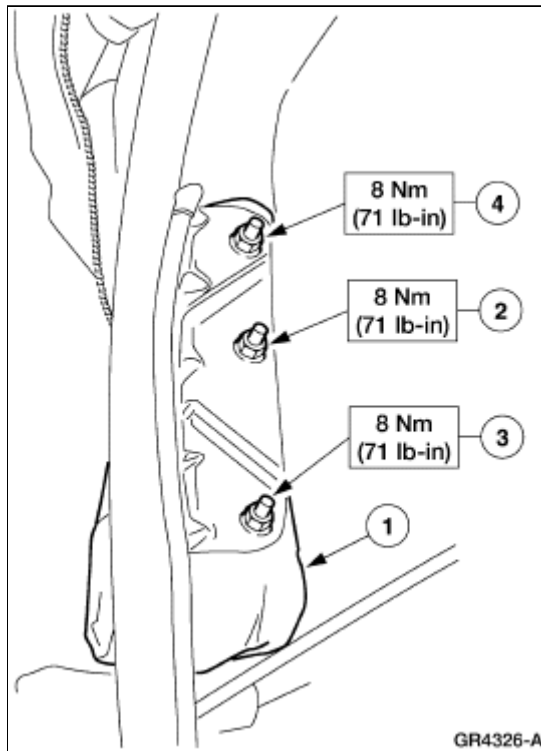


CAUTION: Make sure the side air bag wiring harness is not pinched between the side air

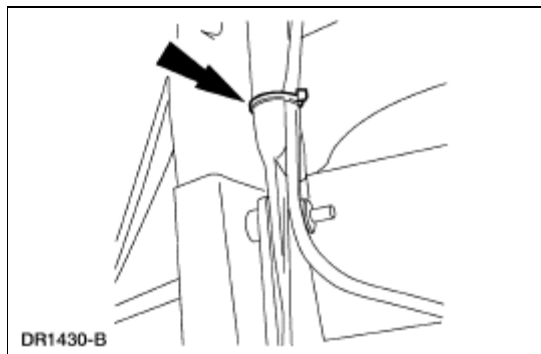
bag module and the mounting bracket.

Install the side air bag module onto the front seat back frame mounting bracket, making sure the side air bag wiring harness is located behind the seat backrest frame and side air bag module mounting bracket.

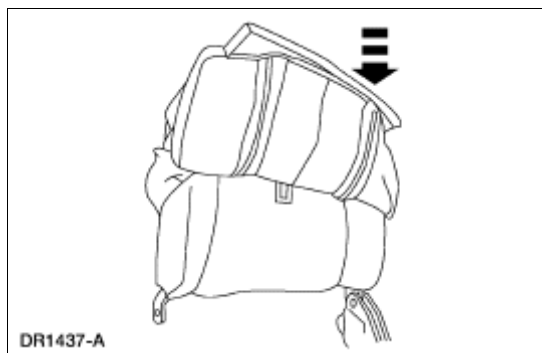
1. Position the side air bag module onto the front seat back mounting bracket.
2. Install the side air bag module retaining nut.
3. Install the side air bag module retaining nut.
4. Install the side air bag module retaining nut.



4. Tie-strap the side air bag module wire harness to the seat back frame.



5. Unroll the seat back trim cover, to position the deployment chute around the side air bag module.

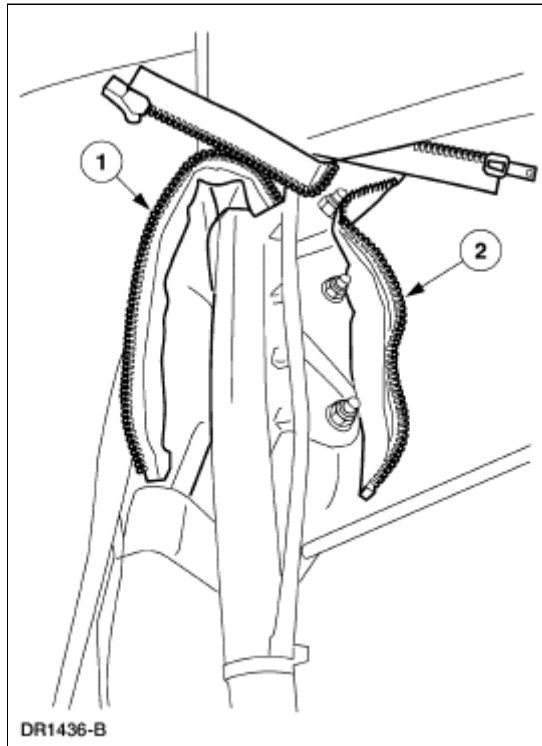


6.  **WARNING:** Check the side air bag deployment chute and zipper for damage. The deployment chute and zipper must not be repaired. If there is any damage to the deployment chute or zipper the seat back trim cover and deployment chute must be installed new as a unit.

 **WARNING:** If the air bag deployment chute is not properly positioned and completely zipped, the side air bag may not deploy properly.

Position the air bag deployment chute.

1. Insert the outboard side of the air bag deployment chute between the seat back pad and the side air bag module, pulling it around the outboard side of the seat back frame.
2. Insert the inboard side of the air bag deployment chute between the seat back pad and the side air bag module from the inboard side of the seat back.

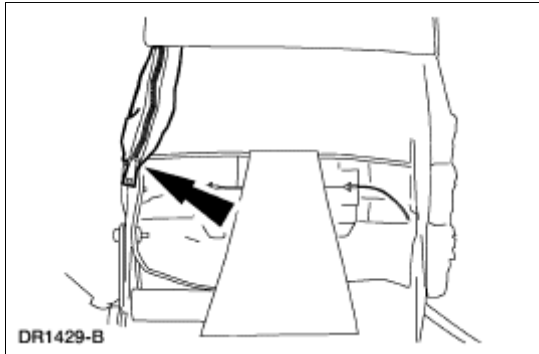


7. **NOTE:** Be sure the side air bag deployment chute is properly positioned, before proceeding.

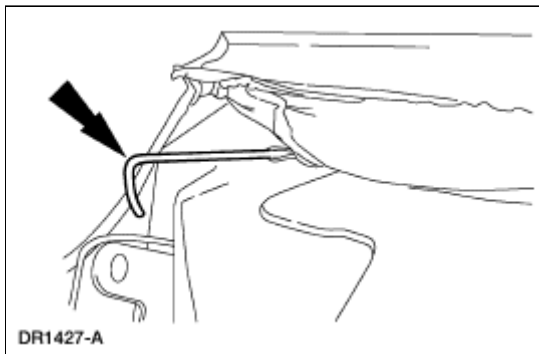
Zip the air bag deployment chute completely closed, then position the zipper tail at the top and bottom

of the deployment chute, into the seat back opening.

- The side air bag deployment chute must encircle the side air bag module, going completely around the side air bag module and the side of the seat back frame.
- Align the side air bag deployment chute to the side air bag module, making sure it covers the length of the side air bag module.

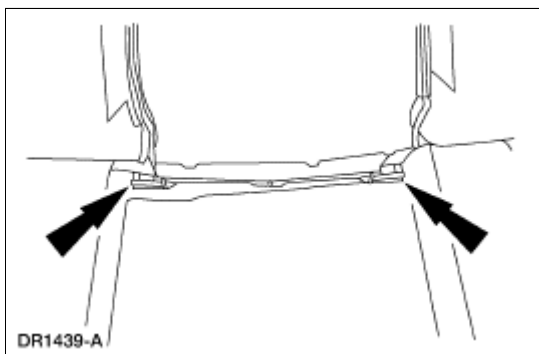


8. Unroll the seat back trim cover to the bottom row of hog rings.
9. Install the swing rods back into the seat back trim cover sleeves.

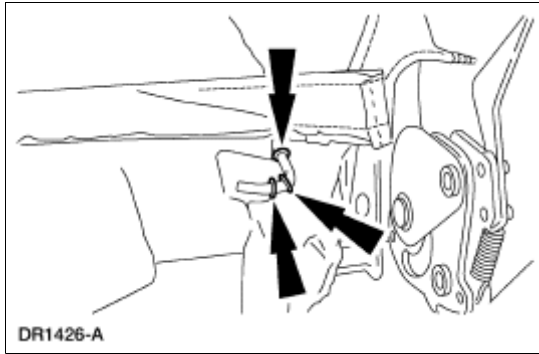


10. **NOTE:** The seat back trim cover has been inverted for clarity.

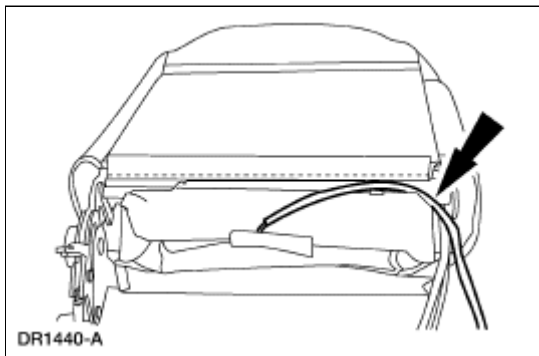
Reaching between the seat back trim cover and the seat back pad, at the middle row of hog rings, position the top of the swing rods under the listing wire in the seat back pad.



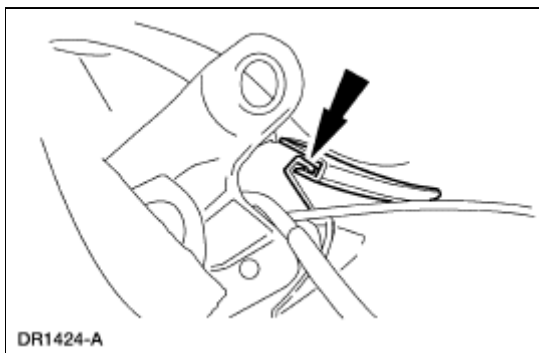
11. Install new hog rings onto the swing rods (one shown).



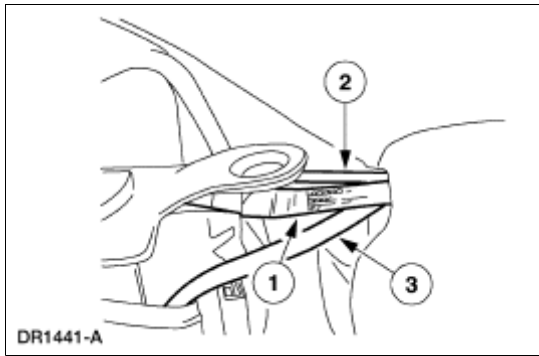
12. Pull the seat back rest trim cover completely down and connect the hook and loop fastener to the seat back cushion.
13. Route the seat back heating element wire harness (if equipped).



14. Reattach the seat back trim cover lower J-clips.

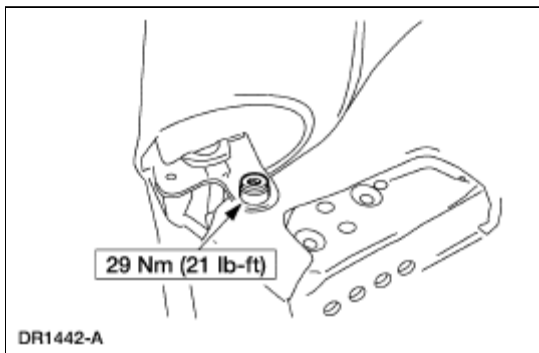


15. Position the seat back to the seat bottom and route the wires and cables.
 1. Pull the side air bag module wire harness through the seat bottom.
 2. Pull the lumbar support cable through the seat bottom.
 3. Pull the heated seat wire harness through the seat bottom.

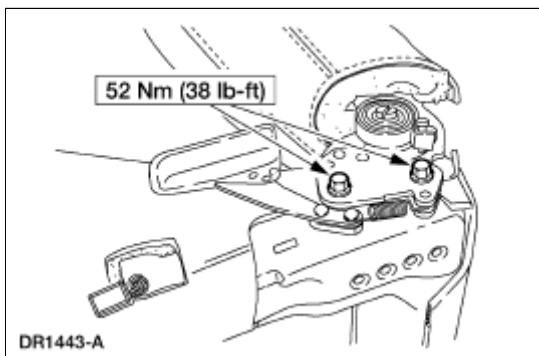


16.  **CAUTION:** When positioning the seat or installing the bottom to the seat back, be careful not to damage the seat back pivot and any of the wires or cables from the seat back to the seat bottom. This can cause damage to one of the seat components.

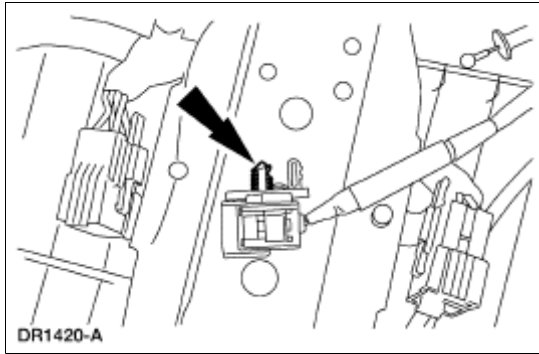
Align the seat back to the seat bottom. Install the bolt and tighten to specification.



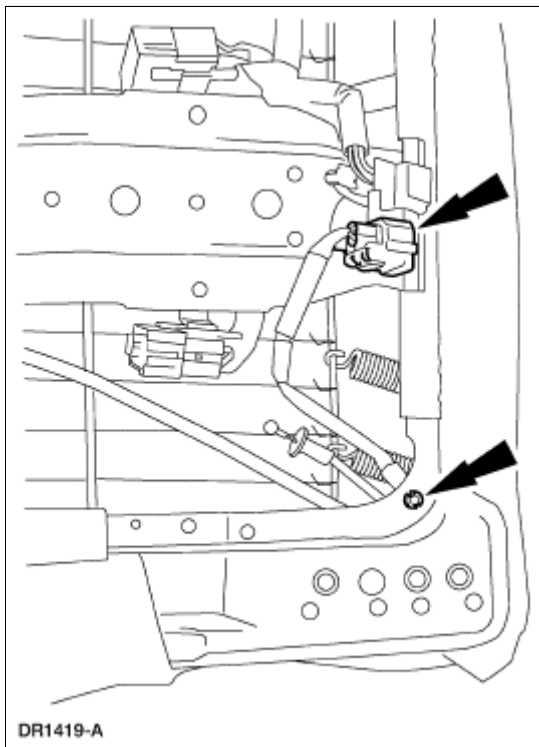
17. Install the two bolts and tighten to specification.



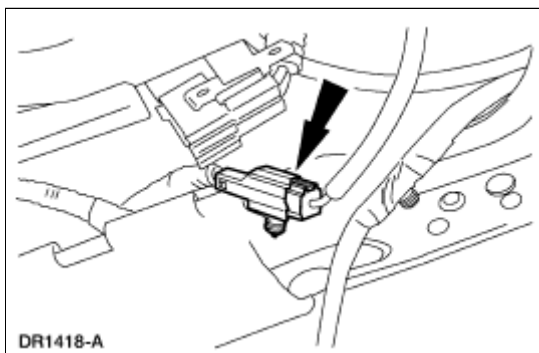
18. Install the push pin onto the side air bag electrical connector.



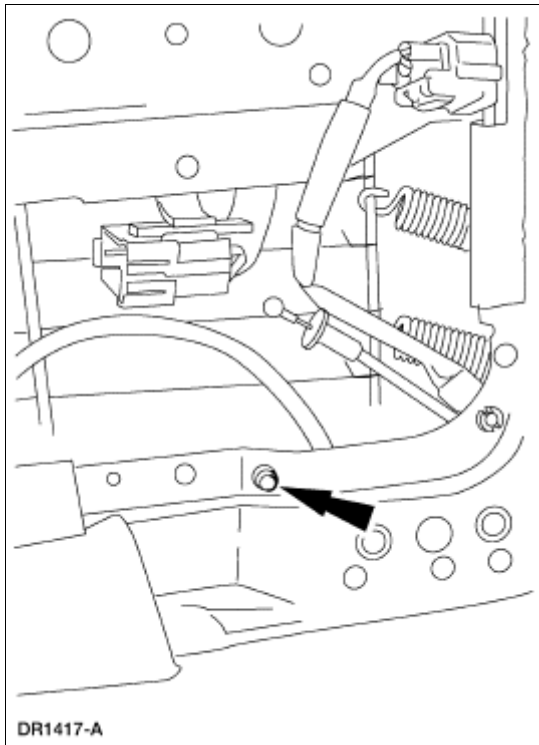
19. Route the side air bag module electrical connector and wire harness, then install the push pins.



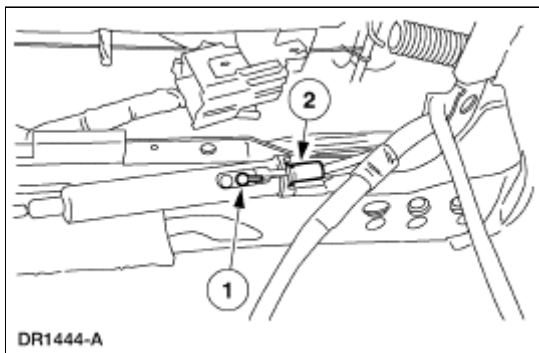
20. Connect the heated seat wire connector.



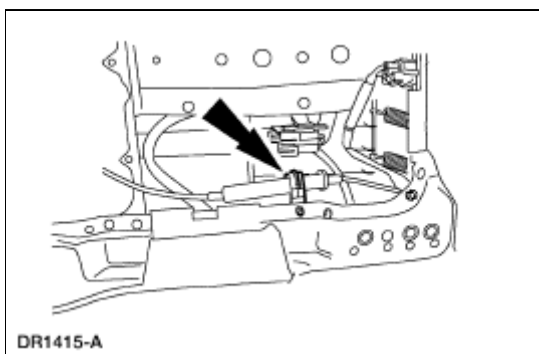
21. Route the heated seat wire harness and install the push pin.



22. Connect the lumbar support cable assembly.
1. Install the cable end ball to the cable end retainer.
 2. Insert the lumbar cable sleeve into the adjustment cable sleeve slot.

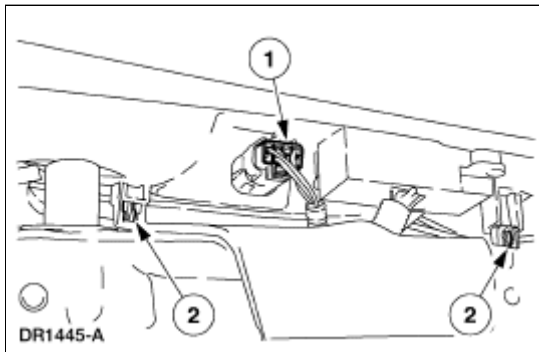


23. Install the push pin holder to the seat bottom frame for the lumbar support cable.

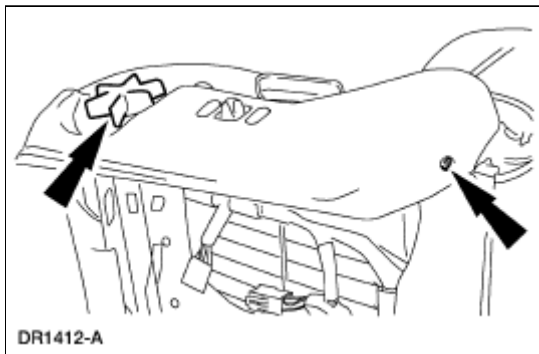


24. Install the seat bottom lower side shield into the seat bottom frame.

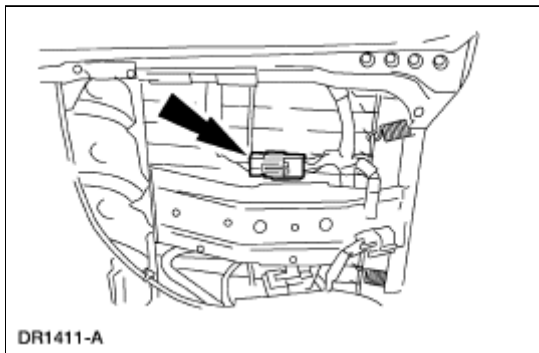
1. Connect the heated seat switch (if equipped).
2. Insert the lower side shield clips into the seat bottom frame.



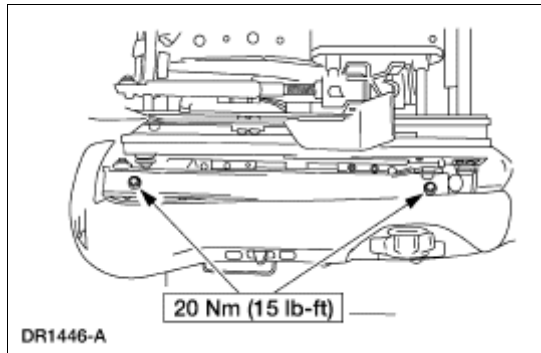
25. Install the seat bottom lower side shield retaining screw and the lumbar support handle.



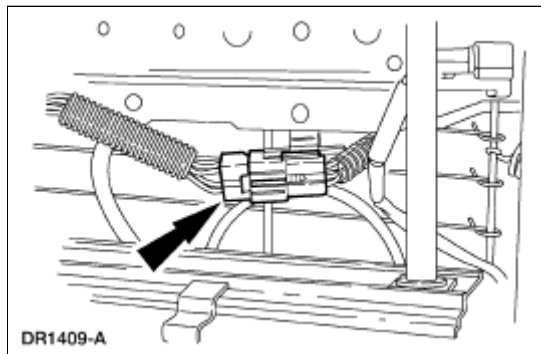
26. Connect the power seat switch electrical connector.



27. Position the seat track to the seat bottom frame. Install the four bolts (two shown) and tighten to specification.



28. Connect the seat motor electrical connector.



29. Install the seat into the vehicle. For additional information, refer to [Section 501-10](#).
30. Connect the battery ground cable (14301). For additional information, refer to [Section 414-01](#).
31.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Prove out the air bag system.

SECTION 501-20B: Occupant Restraints — Passive — Supplemental
Air Bag System
REMOVAL AND INSTALLATION

2000 Explorer/Mountaineer Workshop
Manual

Air Bag Sliding Contact

Removal



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Carry a live air bag module with the air bag and trim cover pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Do not set a live air bag module down with the trim cover face down. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: After deployment, the air bag surface can contain deposits of sodium hydroxide, a product of the gas generant combustion that is irritating to the skin. Wash your hands with soap and water afterwards.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.



WARNING: Air bag modules with discolored or damaged trim covers must be replaced, not repainted.



WARNING: Vehicle sensor orientation is critical for proper system operation. If a vehicle equipped with an air bag supplemental restraint system (SRS) is involved in a collision, inspect the sensor mounting bracket and wiring pigtail for deformation. Replace and properly position the sensor or any other damaged supplemental restraint system (SRS) components whether or not the air bag is deployed.



WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side air bag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side air bag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

Please refer to the appropriate vehicle shop manual to determine location of the front air bag sensors.

The side air bag sensors are located at or near the base of the B-pillar.

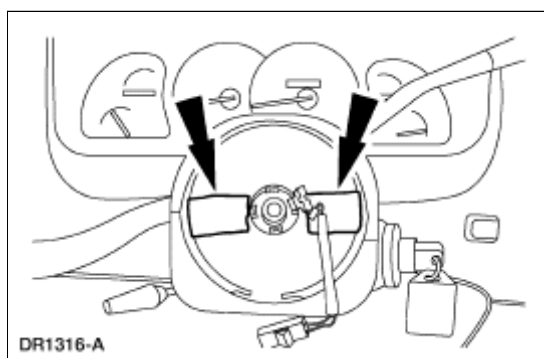
To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

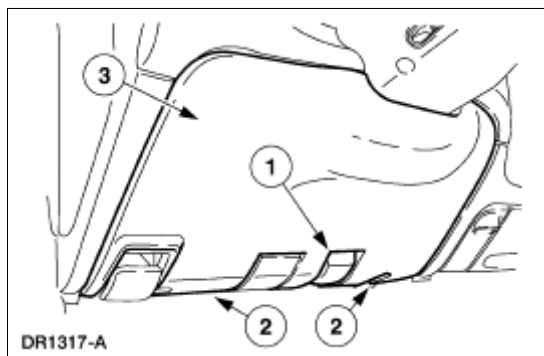
1. Disconnect the battery ground cable (14301) and wait at least one minute. For additional information, refer to [Section 414-01](#).
2. Remove the driver air bag module. For additional information, refer to [Module—Driver Air Bag](#) in this section.
3. **NOTE:** Make sure the wheels (1007) are in the straight-ahead position.

Remove the steering wheel (3600). For additional information, refer to [Section 211-04](#).

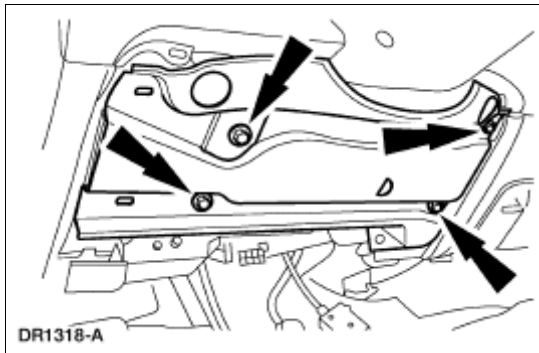
4. Apply two strips of masking tape across the air bag sliding contact (14A664) to prevent accidental rotation when the air bag sliding contact is removed.



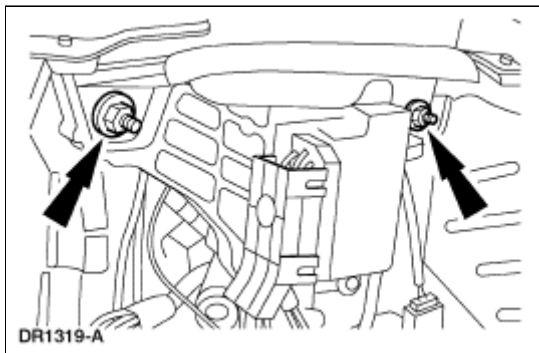
5. Remove the lower steering column opening finish panel.
 1. Remove the retaining screws and position the hood release handle out of the way.
 2. Remove the two retaining screws from the lower steering column opening finish panel.
 3. Pull out to release the retaining clips and remove the lower steering column opening finish panel.



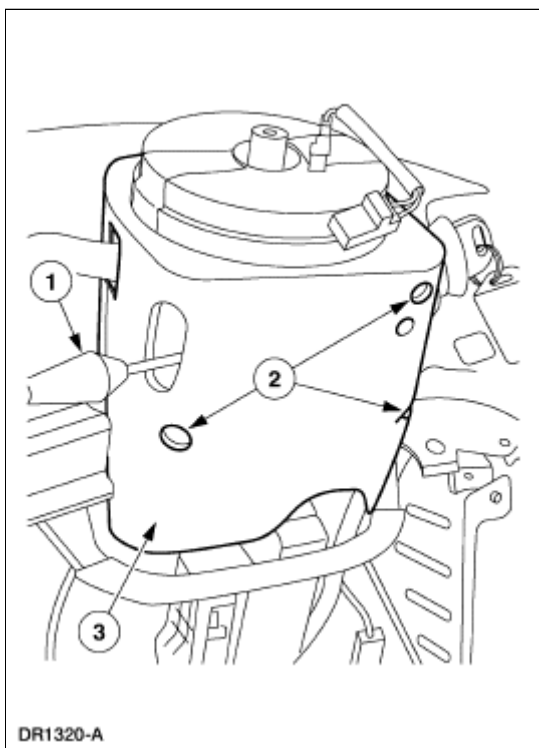
6. Remove the four retaining bolts and remove the lower steering column opening finish panel reinforcement.



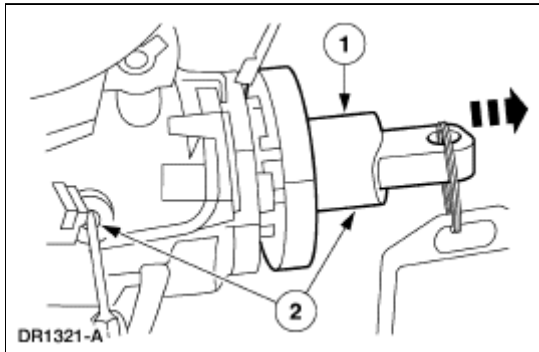
7. Loosen, but do not remove, the four steering column to instrument panel retaining bolts enough to remove the upper steering column shroud (two shown).



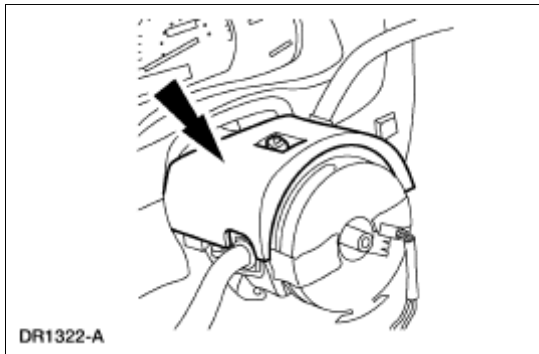
8. Remove the lower steering column shroud (3530).
 1. If equipped, remove the tilt wheel handle and shank (3F609).
 2. Remove the three screws.
 3. Remove the lower steering column shroud.



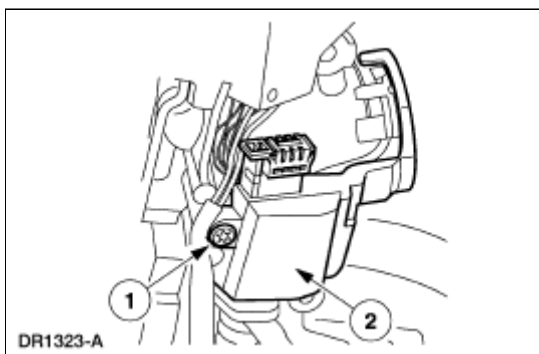
9. Remove the ignition switch lock cylinder (11582).
 1. Position the ignition switch lock cylinder to the RUN position.
 2. Using the suitable tool, push upward on the cylinder release tab while pulling the ignition switch lock cylinder outward.



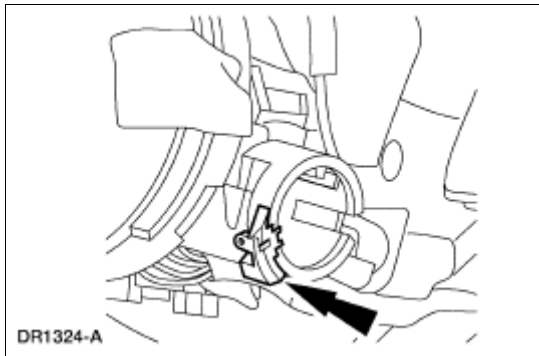
10. Remove the upper steering column shroud.



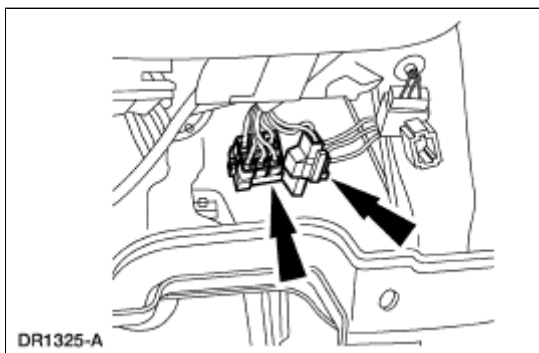
11. Remove the passive anti-theft system (PATS) transmitter.
 1. Remove the PATS transmitter retaining screw.
 2. Position the PATS transmitter out of the way.



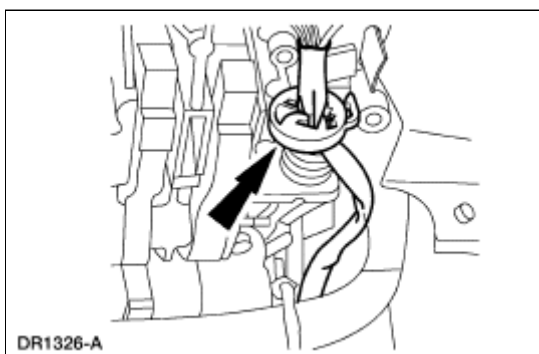
12. Remove the key-in-ignition warning indicator switch.



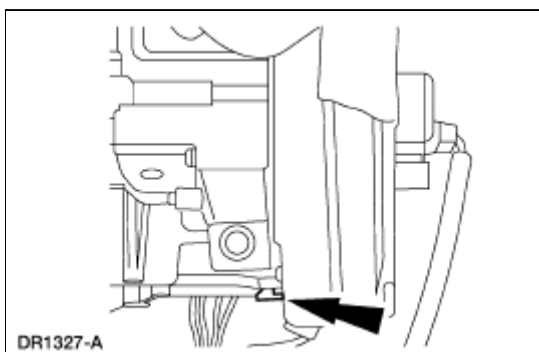
13. Remove the two air bag sliding contact wire connectors from the wire connector bracket and disconnect them.



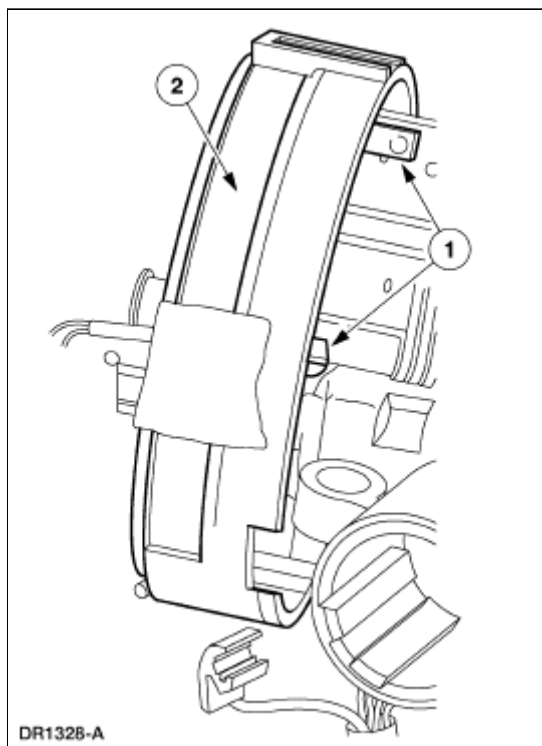
14. Remove the wire harness from the two holders (one shown).



15. Release the lower air bag sliding contact retaining clip.



16. Remove the air bag sliding contact.
 1. Release the remaining two air bag sliding contact retaining clips.
 2. Remove the air bag sliding contact.



Installation



WARNING: Always wear safety glasses when repairing an air bag supplemental restraint system (SRS) vehicle and when handling an air bag module. This will reduce the risk of injury in the event of an accidental deployment.



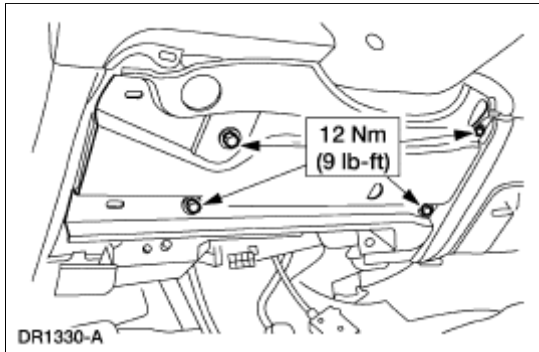
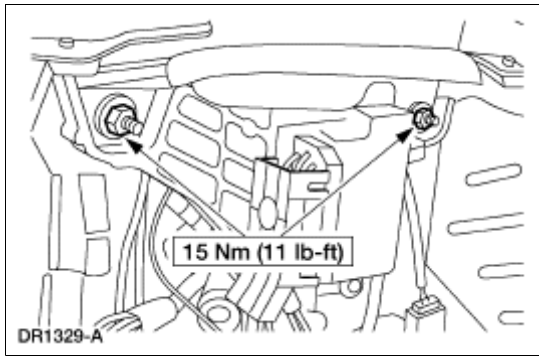
WARNING: Carry a live air bag module with the air bag and trim cover pointed away from your body. This will reduce the risk of injury in the event of an accidental deployment.



WARNING: Never probe the connectors on the air bag module. Doing so can result in air bag deployment, which can result in personal injury.

NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Follow the removal procedure in reverse order.



2.  **WARNING:** The restraint system diagnostic tool is for restraint system service only. Remove from vehicle prior to road use. Failure to remove could result in injury and possible violation of vehicle safety standards.

Prove out the air bag system.

SECTION 502-02: Full Frame and Body Mounting
SPECIFICATIONS

2000 Explorer/Mountaineer Workshop Manual

General Specifications

Item	Specification
Drill Bit For Rivet Replacement	3.17 mm (1/8 in)
Drill Bit For Rivet Replacement	8.73 mm (11/32 in)

Torque Specifications

Description	Nm	lb-ft
Radiator Insulator Bolts	68-92	50-68
Radiator Insulator Nuts	46-64	34-47
Transmission Support Insulator Nuts	98-132	73-97
Transmission Crossmember to Frame Bolts	70	52
Transmission Crossmember Bolts and Nuts	127	94

SECTION 502-02: Full Frame and Body Mounting
DESCRIPTION AND OPERATION

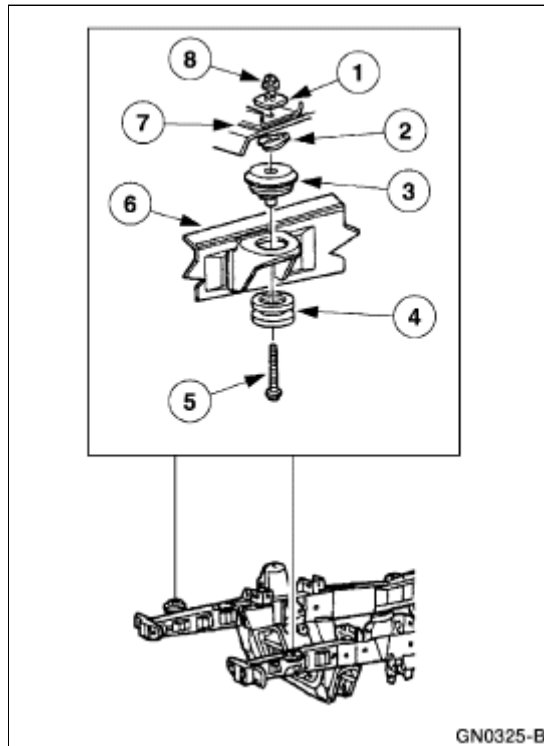
2000 Explorer/Mountaineer Workshop Manual

Frame and Body Mounting

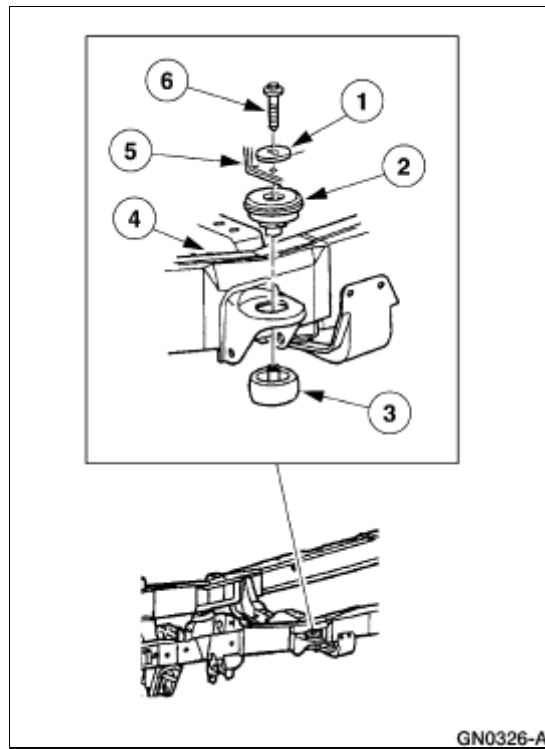
The frame (5005) consists of two steel channel rails, a rear crossmember, four additional support crossmembers and a front crossmember.

The rails and crossmembers are not replaced separately.

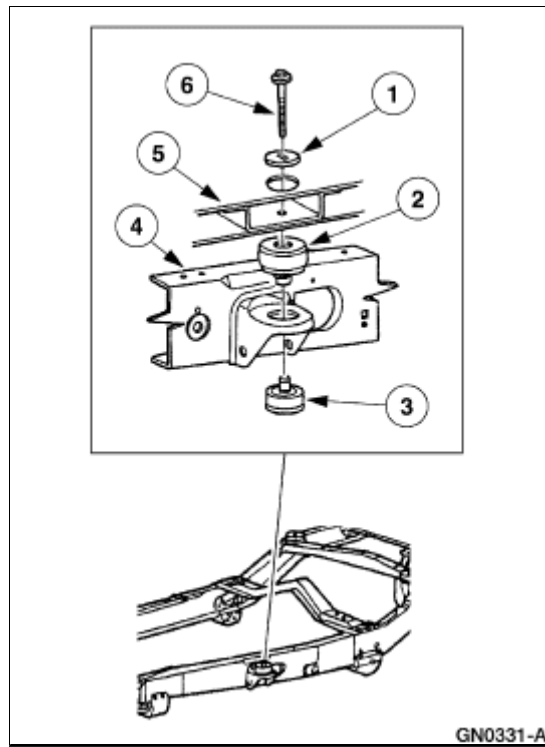
Frame and Body Mounting



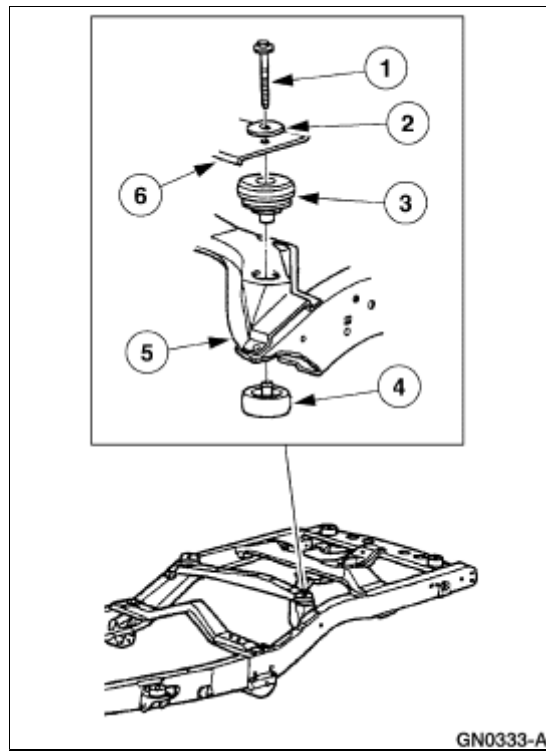
Item	Part Number	Description
1	N802289	Spacer
2	1000145	Split Shim
3	1000192	Upper Insulator Assembly
4	1000193	Lower Insulator Assembly
5	N800442-S428	Bolt
6	—	Frame Rail (Part of 5005)
7	8A297	Radiator Support
8	N621946-S2	Nut and Washer



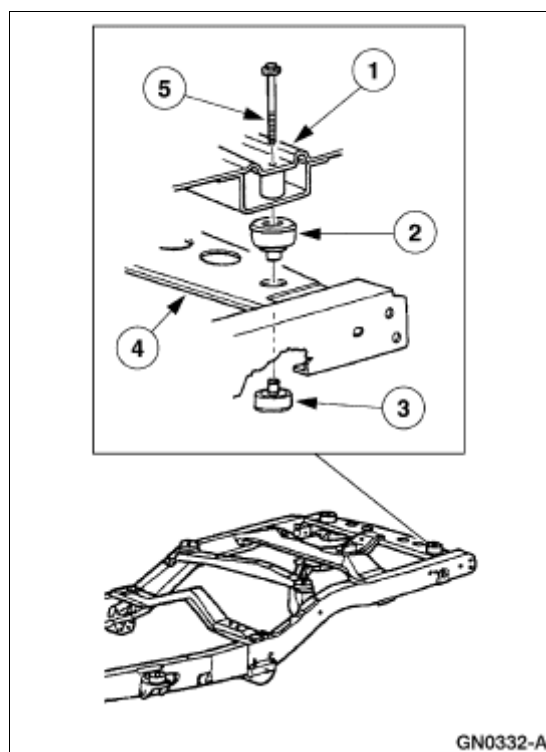
Item	Part Number	Description
1	N802289-S2	Spacer/Washer
2	1000192	Upper Insulator Assembly
3	1000193	Lower Insulator Assembly
4	—	Frame Rail (Part of 5005)
5	11135	Front Floor Panel
6	N808698-S100	Bolt



Item	Part Number	Description
1	N808698-5100	Spacer/Washer
2	1000192	Upper Insulator Assembly
3	1000193	Lower Insulator Assembly
4	—	Frame Rail (Part of 5005)
5	11135	Front Floor Panel
6	N808698-S100	Bolt



Item	Part Number	Description
1	N808698-S100	Bolt
2	N802289-S2	Spacer/Washer
3	1000192	Upper Insulator Assembly
4	1000193	Lower Insulator Assembly
5	—	Frame Rail (Part of 5005)
6	11215	Rear Floor Panel



Item	Part Number	Description
1	11215	Rear Floor Panel
2	1000192	Upper Insulator Assembly
3	1000193	Lower Insulator Assembly
4	—	Frame Rail (Part of 5005)
5	N808699-S100	Bolt

SECTION 502-02: Full Frame and Body Mounting
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop Manual

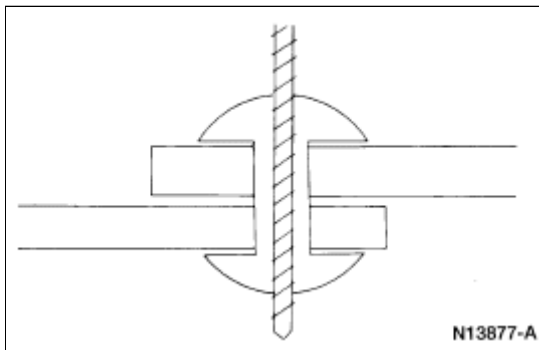
Frame Maintenance —Rivet Removal



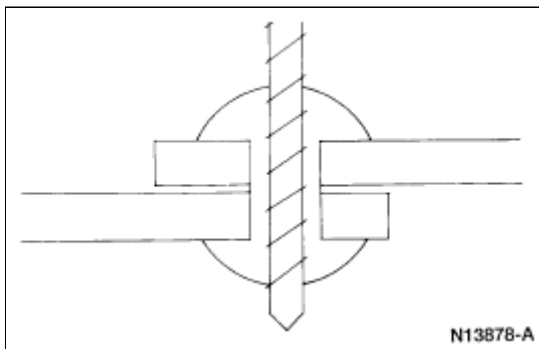
CAUTION: Do not drill outside the rivet into the frame as that will weaken the frame.

NOTE: Rivets that are removed will be replaced with the next larger size bolts.

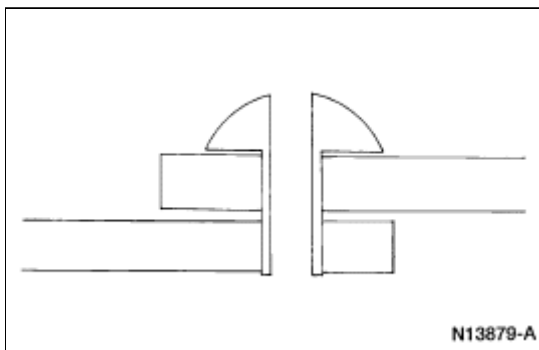
1. Drill a 3.17 mm (1/8 in) pilot hole through the rivet.



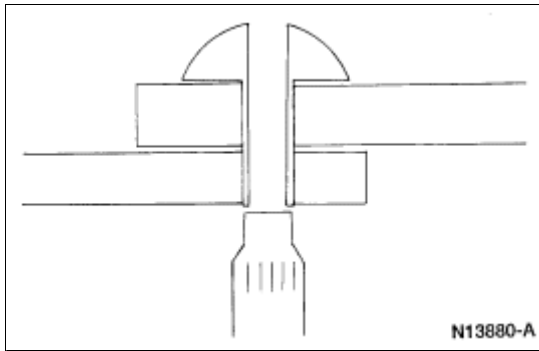
2. Drill a 8.73 mm (11/32 in) hole through the rivet.



3. Remove the rivet head.



4. Drive out the rivet with a punch.



5. Remove the support.
-

Frame Maintenance —Rivet Replacement

NOTE: Rivets that are removed will be replaced with the next larger size bolts.

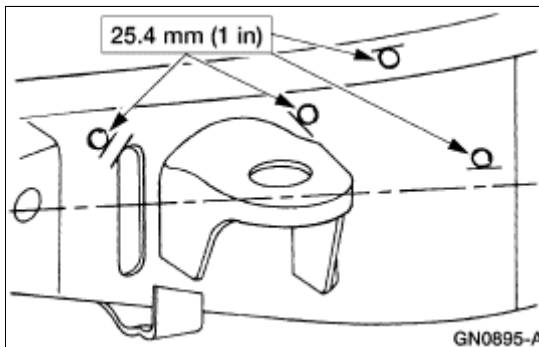
1.  **CAUTION: Drill only where a rivet was removed.**

Drill a bolt hole in the support and the frame.

- Line drill a hole the size of the bolt through the old rivet hole (that is, for 11.1 mm [7/16 in] diameter rivets, use a 12.7 mm [1/2 in] drill).
2. Position the support.
 3. Insert the bolts, nuts and washers (Property Class 9.8 metric [Grade 8]) in the drilled holes.
 4. Tighten the bolts.
-

Frame Maintenance —Drilling Precautions

1. If a hole must be drilled in the frame, make sure the hole meets the following requirements:
 - The hole is at least the specified distance from the edge of the nearest hole.
 - The edge of the drilled hole is at least the specified distance from the edge of the flange.
 - The hole is at least the specified distance above the frame centerline.
 - The drilled hole is at least the specified distance from any other existing bracket or component of the frame.



Frame Maintenance —Welding Precautions

1. If welding must be done on a frame, make sure the following requirements are met:
 - If the frame is attached to the vehicle, the battery ground cable (14301) must be disconnected before using any electrical welding equipment. For additional information, refer to 414-01.
 - Do not use gas welding equipment; arc welding is the only approved method.
 - Use a temperature-indicating crayon to make sure that the temperature does not exceed 750° C (1,400°F).
 - Install new spot-welded components by spot welding where possible. If spot welding is not possible, use puddle welding.
-

Frame Maintenance —Frame Straightening

1.  **WARNING:** Straightening of front frame rail convolute is prohibited. Failure to follow these instructions may result in personal injury.

When straightening the frame, make sure the following requirements are met:

-  **CAUTION:** Reposition and/or shield any fuel lines, brake lines, or wiring harness or component in the heated area.

If heat is needed to straighten a frame member, keep the temperature below 650° C (1,200° F) (a dull red glow). A temperature sensitive thermal melt crayon should be used to monitor heat buildup.

- Heat should be kept to a minimum area so that the hardness of the metal will not be affected.
 - Straightening should only be attempted on frames that fail to meet specifications of the diagonal checking method or where damage is apparent.
 - Straightening should be limited to parts which are not severely bent.
 - Reposition and/or shield any fuel lines, brake lines, or wiring harnesses or components in heated area.
-

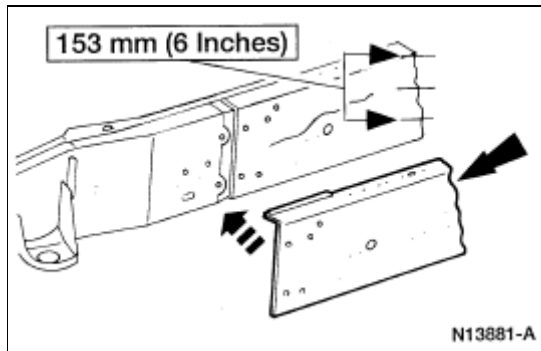
SECTION 502-02: Full Frame and Body Mounting
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop Manual

Frame Maintenance —Frame Reinforcing

NOTE: The frame must be straightened before any reinforcing can be started.

1. After a bent frame member has been straightened, inspect the frame member closely for cracks. If any cracks show, the frame member should be reinforced or replaced. Reinforcements should be made from angle or flat stock of the same material and thickness as the frame member being reinforced, and should extend to either side of the crack. Ideally, the reinforcement should be cut from the corresponding area of a similar frame.

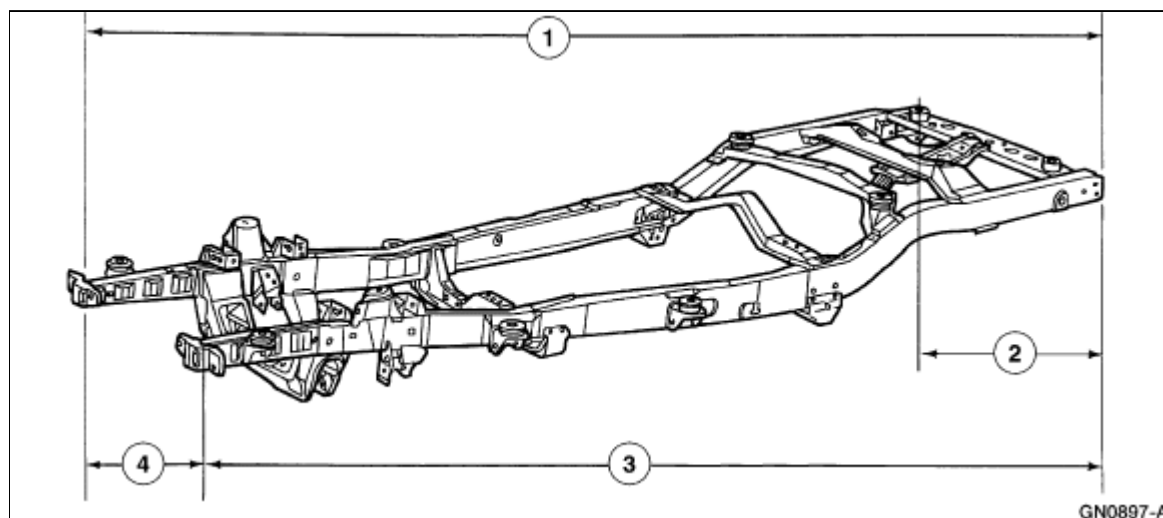


SECTION 502-02: Full Frame and Body Mounting
GENERAL PROCEDURES

2000 Explorer/Mountaineer Workshop Manual

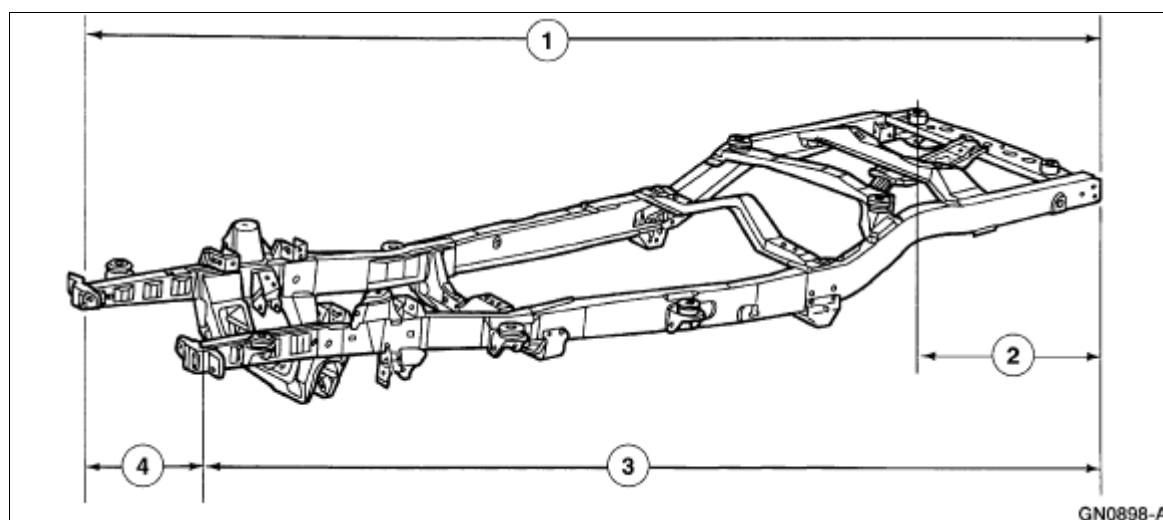
Underbody Misalignment Check

Two Door Frame Dimensions



Item	Part Number	Description
1	—	4392.18 mm (172.9 in)
2	—	1029.6 mm (40.5 in)
3	—	4306.9 mm (169.56 in)
4	—	792.96 mm (31.2 in)

Four Door Frame Dimensions



Item	Part Number	Description
1	—	4601.3 mm (181.2 in)
2	—	1029.6 mm (40.5 in)

3	—	4529.7 mm (178.3 in)
4	—	792.96 mm (31.2 in)

1.  **CAUTION:** Do not correct serious misalignment with one jacking operation. Align each section proportionately until the proper dimensions are obtained.

NOTE: To ensure accurate measurements, remove all trim from the reference points to expose bare metal.

To align or square a body, take two opposite diagonal measurements between pillars. Take measurements between reference points such as crease lines or weld joints which are diagonally opposite each other on the two pillars being measured.

2. When repairing a vehicle with damage on both sides, take horizontal and vertical measurements from an intact Explorer or Mountaineer vehicle and transfer the dimensions to the damaged vehicle. Alignment can be made by diagonal measurements taken from points on two pillars.
 3. The dimensions of the underbody must be restored in repairing major body damage to provide correct front and rear wheel geometry. Once the frame and suspension members are aligned, other repair operations can be performed.
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SECTION 502-02: Full Frame and Body Mounting
REMOVAL AND INSTALLATION

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Support

Removal and Installation

For additional information, refer to [Frame Maintenance—Rivet Replacement](#) in this section.
