SECTION 01-20B Restraints, Passive—Supplemental Air Bag System

VEHICLE APPLICATION

Taurus / Sable.

DESCRIPTION

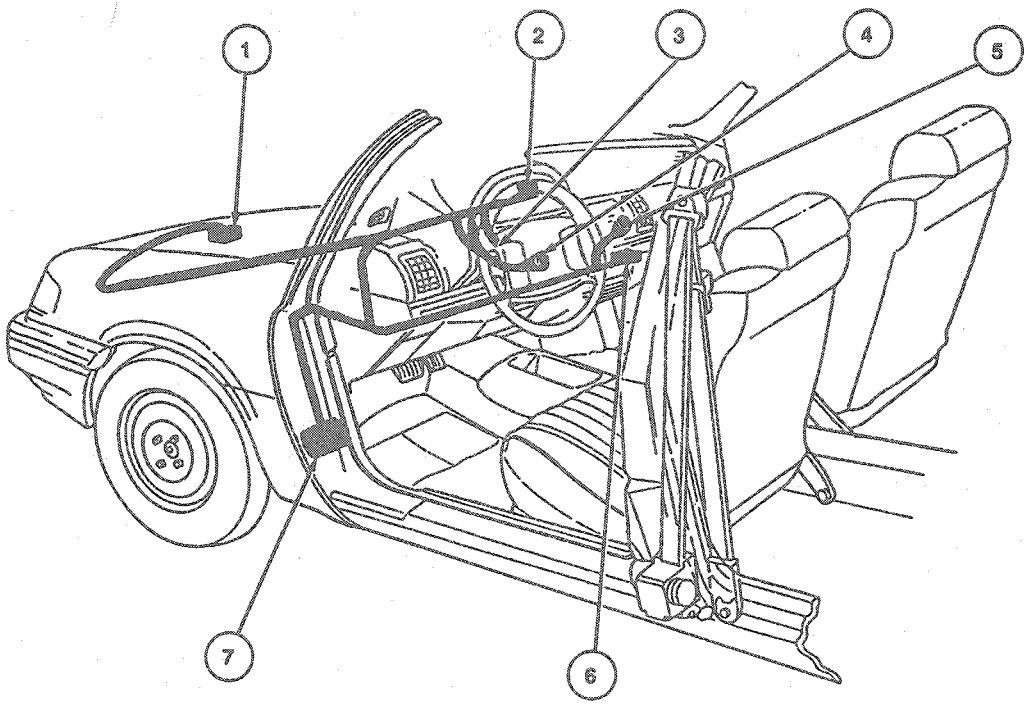
The Supplemental Air Bag Restraint System is designed to provide increased collision protection for the driver **IN ADDITION TO** that provided by the driver three point safety belt system. Safety belt use is necessary to obtain the best occupant protection and to receive the full advantages of the supplemental air bag. **FORD RECOMMENDS THE USE OF SAFETY BELT SYSTEMS FOR ALL VEHICLE OCCUPANTS.**

Refer to Section 01-20A for information on the Safety Belt Restraint system.

The Supplemental Air Bag Restraint System consists of two basic subsystems:

DESCRIPTION (Continued)

- Driver and optional passenger air bag
- Electrical system including impact sensors, backup power supply and electronic monitor assembly



R6761-D

Item	Part Number	Description	Location
1	14B005	Center Radiator Crash Sensor	Center Radiator
2	14B004	Center Cowl Crash Sensor	Center Cowl
3	—	Air Bag Readiness Indicator	Instrument Panel
4	043B13	Driver Side Air Bag Assy	Center of Steering Wheel
5	044A74	Passenger Side Air Bag Assy	Instrument Panel, Passenger Side
6	14B056	Diagnostic Monitor	Passenger Side Below Glove Compartment
7	14B007	LH Kick Panel Safing Sensor	Behind LH Kick Panel

Driver Air Bag

CAUTION: The driver air bag module is serviced as a complete assembly.

The driver air bag is mounted in the center of the steering wheel. The module consists of the following components:

- Inflator
- Mounting plate and retainer ring
- Bag assembly
- Steering wheel trim cover

Inflator

The inflator assembly is not a serviceable item. When the sensors close, signaling a crash, electrical energy flows to the air bag inflator. Inside the inflator, an igniter converts the electrical signal to thermal (heat) energy, causing the ignition of the inflator gas generant. This ignition reaction combusts the sodium azide / copper oxide gas generant in the inflator, producing nitrogen gas, which inflates the air bag.

Air Bag

The air bag is constructed of neoprene coated nylon, is 711 mm (28 inch) in diameter and fills to a volume of about 0.065 m (2.3 cubic ft) in approximately 40 milliseconds. It is not a serviceable item.

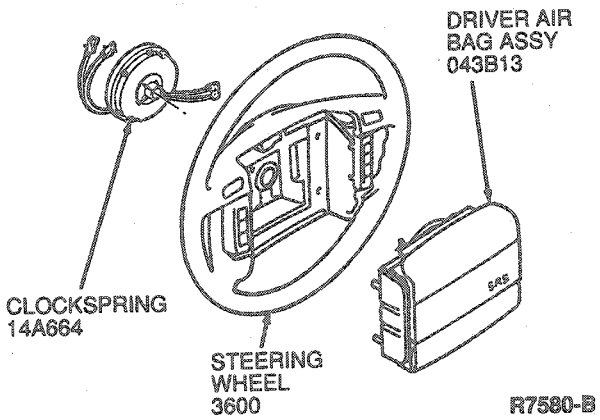
DESCRIPTION (Continued)

Mounting Plate and Retainer Ring

The mounting plate and retainer ring attach and seal the bag assembly to the inflator. The mounting bracket is also used to attach the trim cover and to mount the entire module to the wheel. These items are components of the air bag module and cannot be serviced.

Steering Wheel Trim Cover

The cover encases the air bag assembly. When the air bag is activated, tear seams moulded into the steering wheel trim cover separate to allow inflation of the bag assembly. The cover is a component of the air bag module and is not serviceable.



Passenger Air Bag, Optional

NOTE: Vehicles that have the letters SRS located above the glove compartment come equipped with a passenger air bag. For vehicles without a passenger air bag, refer to Section 01-12 for instrument panel cover description.

CAUTION: The passenger air bag is serviced as a complete assembly.

The passenger air bag is mounted in the RH position of the instrument panel above the glove compartment. The air bag assembly consists of the following components:

- Inflator
- Bag Assembly
- Reaction housing with mounting hardware
- Trim cover

Inflator

The passenger air bag inflator is not a serviceable item. As with the driver air bag, an igniter inside the inflator converts to electrical energy to thermal (heat) energy, causing ignition of the gas generant. The ignition reaction causes combustion of the sodium azide / iron oxide gas generant producing nitrogen to fill the bag. Since the passenger air bag is much larger than the driver air bag, it contains more gas generant in a different inflator configuration to produce more nitrogen gas.

Passenger Air Bag Assembly

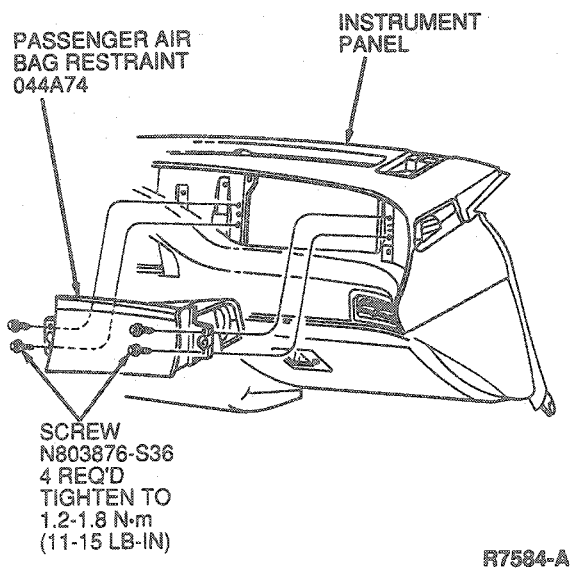
The passenger air bag is constructed of ripstop nylon. The bag fills to a volume of approximately 8 cubic ft. It is not a serviceable item.

Reaction Housing

The steel housing supplies support for the inflator, a reaction surface for the air bag is used to attach the trim cover. It contains mounting brackets that attach the air bag to the instrument panel and is not a serviceable item.

Trim Cover

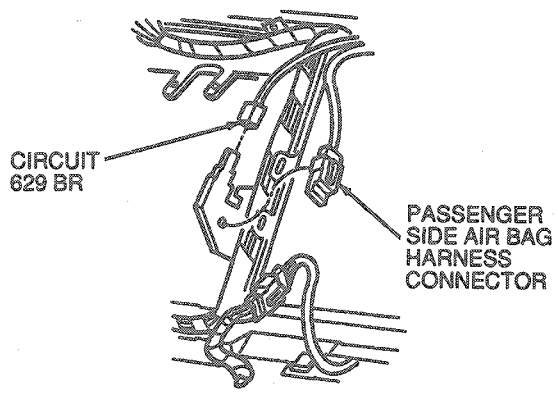
The thermo-plastic trim cover is textured and pained to match the surface of the instrument panel. It is constructed with a moulded-in tear seam that separates when the air bag inflates, and hinges out of the way during deployment. Its main function is to retain the air bag in the reaction housing during vehicle operation. It is not a serviceable item.



DESCRIPTION (Continued)

Passenger Air Bag Delete Bracket

Vehicles which are not equipped with the optional passenger air bag will have the passenger air bag delete bracket. Circuit 629 (BR) from diagnostic monitor Pin 7, is the optional passenger air bag signal and is grounded for driver only air bag systems. Circuit 629 (BR) goes to a one way connector near the passenger air bag harness connector. For driver only air bag systems, this connector is secured to the passenger air bag delete bracket which is located behind the finish panel above the glove compartment. Circuit 629 (BR) is left unconnected if the vehicle is equipped with a passenger side air bag.



WITHOUT PASSENGER AIR BAG

R7585-B

Diagnostic Monitor

WARNING: THE BACK UP POWER SUPPLY ENERGY MUST BE DEPLETED BEFORE ANY AIR BAG COMPONENT SERVICE IS PERFORMED. TO DEPLETE BACK UP POWER SUPPLY ENERGY, DISCONNECT THE POSITIVE BATTERY CABLE AND WAIT ONE MINUTE.

The air bag diagnostic monitor continually monitors all air bag system components and wiring connections for possible faults in the system. If the diagnostic monitor detects a fault in the air bag system when the ignition switch is in the ON position, a diagnostic trouble code will be displayed on the air bag indicator. Performing system diagnostics is the main purpose of the diagnostic monitor. THE DIAGNOSTIC MONITOR DOES NOT DEPLOY THE AIR BAGS IN THE EVENT OF A CRASH! The crash sensors are "hard wired" to the air bags, and therefore, determine when to deploy the air bags.

Several important features of the air bag diagnostic monitor and its functions within the system are described below. It is necessary that you understand these key features and functions. They will enable you to better understand and perform more efficient air bag system diagnostics.

Features and Functions

- **The diagnostic monitor illuminates the air bag indicator for approximately 6 seconds when the ignition switch is turned to the ON position and then turns it off.** This indicates that the air bag indicator is operational. If the air bag indicator does not illuminate or stays on or flashes at any time, a fault has been detected by the diagnostic monitor.
- **Diagnostic trouble codes may not be displayed for approximately 30 seconds after the ignition switch has been switched to the ON position.** This is the amount of time it takes the monitor to perform all tests and verify system faults, if present.
- **Diagnostic trouble codes are displayed as a series of flashes and pauses of the air bag lamp.** Each diagnostic trouble code, or series of flashes represent a two digit number. For example, a Diagnostic Trouble Code 32 is displayed as follows:

  Flash flash flash - (one second pause) - flash flash - (three second pause)...

  flash flash flash - (one second pause) - flash flash - (three second pause)...

- **If a system fault exists and the Air Bag Indicator is malfunctioning, an audible tone will be heard indicating the need for service.** The tone is a series of five sets of five beeps. This DOES NOT indicate a diagnostic trouble code 55. It means that the indicator is out and a system fault exists that requires service.
- **If a fault exists that makes unwanted air bag deployment possible, the air bag diagnostic monitor has an internal thermal fuse that will blow automatically.** This removes all power to the air bag deployment circuit. The air bag indicator will flash the appropriate code to indicate the suspect circuit.

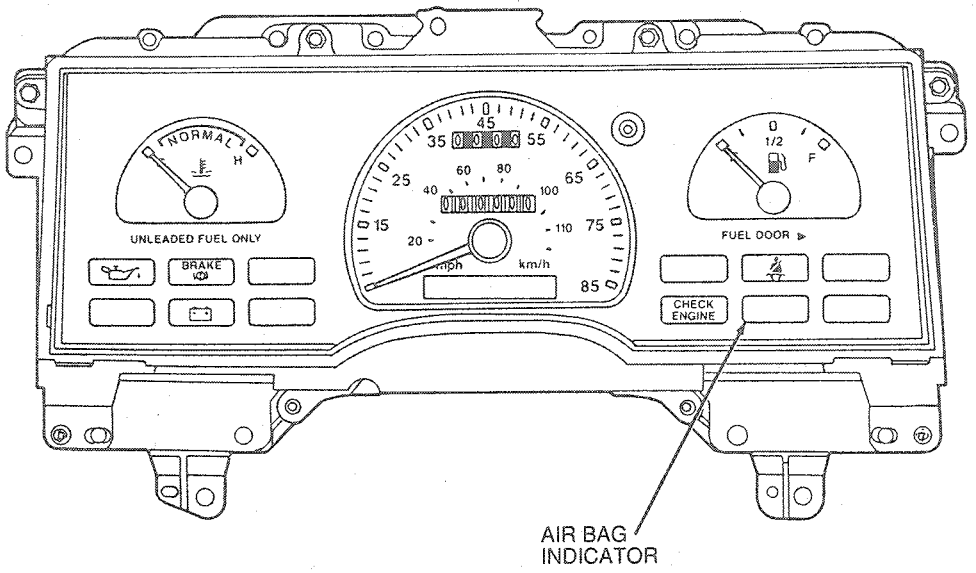
The thermal fuse is controlled by a microprocessor inside the diagnostic monitor and is not serviceable.

NOTE: The thermal fuse does not blow because of excessive current flowing through it. DO NOT attempt to jumper out the thermal fuse with a circuit breaker of any other type of fuse.

- **Diagnostic trouble codes are prioritized numerically so that if two or more different faults occur at the same time, the fault having the highest priority will be displayed first.** The highest priority fault will be displayed until it is corrected. After if has been corrected, the next highest priority fault will be displayed.
- **The air bag diagnostic monitor includes an internal back up power supply.** This feature provides sufficient back up power to deploy the air bags in the event that the battery or battery cables are damaged in an collision before the crash sensors close. The back up power supply will deplete its stored energy approximately one minute after the positive battery cable is disconnected.

DESCRIPTION (Continued)

Taurus Standard



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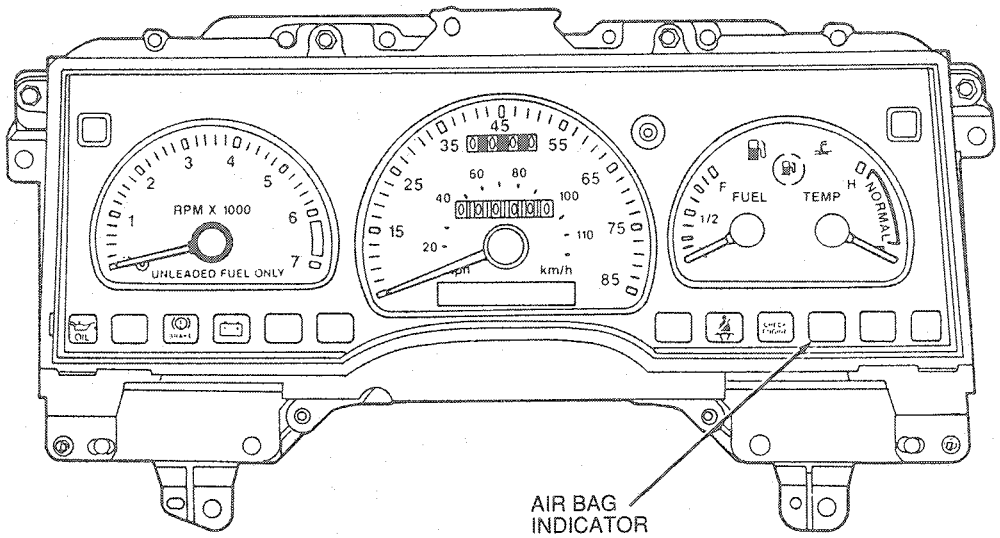
Sable Standard and Taurus/Sable Optional Cluster



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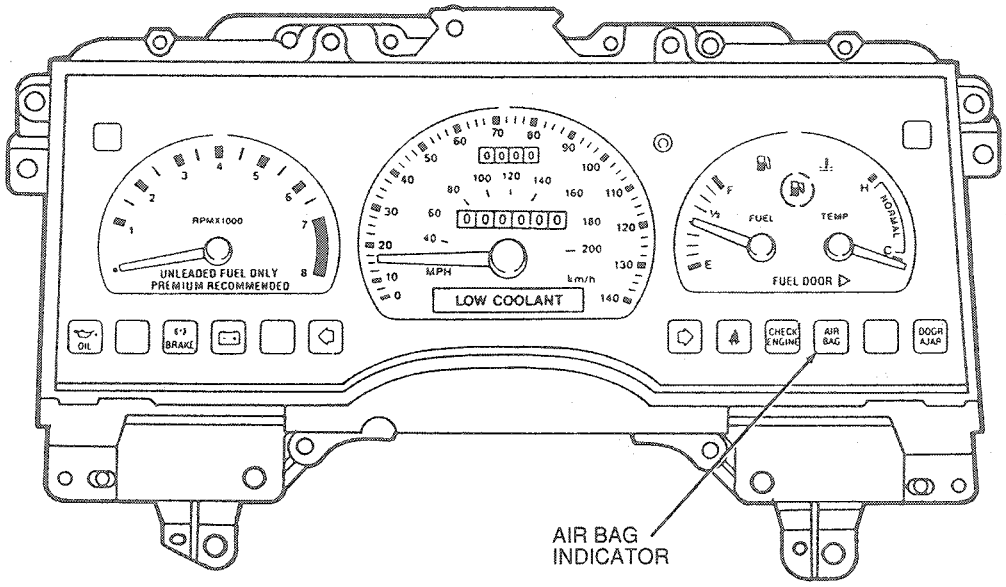
DESCRIPTION (Continued)

Taurus SHO



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Steering Column Wheel and Clockspring

The steering column has a clockspring assembly to carry electrical signals from the steering column through the steering wheel and to the driver air bag, horn, and speed control (if equipped). Refer to Section 11-04.

The steering wheel has a stepped, four spoke design to accommodate the air bag module assembly.

Electrical System

The air bag system is powered directly from the battery. The system can function with the ignition switch in any position, including OFF and LOCK. The system can also function when the driver's seat is unoccupied. The electrical system performs three main functions:

- Detects an impact
- Switches electric power to the igniter
- Monitors the system to determine readiness

The electrical system components include:

- Electronic diagnostic monitor with integrated backup power supply
- Air bag system readiness indicator
- Wiring harness and contact clockspring assembly
- Sensors
- Igniter assembly

Sensors

The primary crash sensor assembly is an electrical switch which reacts to impacts according to direction and force. It discriminates between impacts that require air bag inflation and impacts that do not require air bag inflation. When an impact occurs that requires air bag inflation, the sensor contacts close, completing the electrical circuit necessary for system operation.

The air bag system is designed to operate in frontal or front-angled collisions. The air bag(s) should activate in a crash with severe frontal deceleration, more severe than hitting a parked car of similar size and weight head-on at about 45 km/h (28 mph). Because the system senses the severity of the crash rather than vehicle speed, some frontal collisions at speeds above 28 mph may not be severe enough to require air bag inflation.

The sensors in the vehicle determine if air bag inflation is required in the following manner:

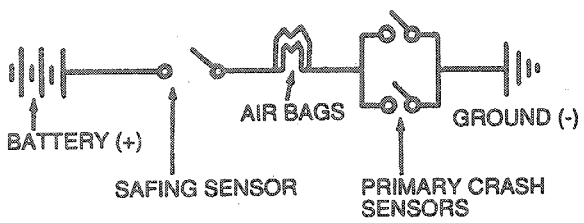
1. During severe frontal deceleration caused by an impact that decelerates the vehicle in the forward direction, both a primary crash sensor and a safing sensor will activate.

DESCRIPTION (Continued)

2. When a primary and safing sensor are closed at the same time, electrical current will flow, igniting the air bag(s).

The primary sensors measure the crash severity, while the safing sensor confirms the crash and is used to prevent inadvertent deployments possibly caused by a malfunction in the primary crash sensor circuits or crash sensors.

AIR BAG FIRING CIRCUIT DIAGRAM



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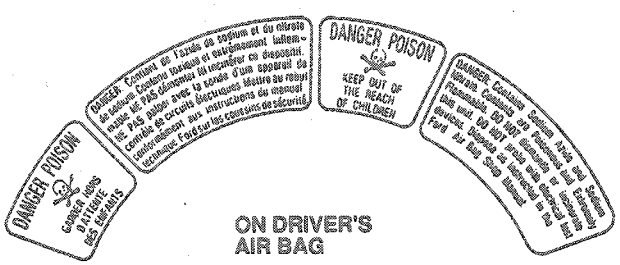
DESCRIPTION (Continued)

Warning Labels



ON DRIVER'S AIR BAG

WARNING

DO NOT TAMPER WITH OR DISCONNECT THE AIR BAG SYSTEM WIRING. You could inflate the bag(s) or make it inoperative which may result in injury. See Shop Manual.

AVERTISSEMENT

NE PAS MANIPULER NI DÉBRANCHER LE CADLAGE ÉLECTRIQUE DU DISPOSITIF D'UN COUSSIN DE SÉCURITÉ. Cela pourrait gonfler le coussin de sécurité ou le mettre hors service et entrainer des blessures. Voir le manual de réparation. F00B-6400014-AA

LABEL 00014
ON HOOD LATCH SUPPORT

Un *système de retenue supplémentaire* (SRS) protège le conducteur. Ce COUSSIN DE SÉCURITÉ complète la ceinture de sécurité en se gonflant lors d'un choc frontal moyen ou violent. Comme il ne se déploie pas lors d'un impact latéral ou arrière, d'un capotage ou d'un faible choc frontal, IL FAUT TOUJOURS BOUCLER SA CEINTURE

ATTENTION—COUSSIN DE SECURITE DU PASSAGER

Si le sigle "SRS" figure en haut de la boite à gants, un coussin de sécurité protège aussi le passager avant droit. Pour éviter d'etre blessé par le gonflage du coussin lors d'un accident:

- Utiliser AUSSI sa ceinture de sécurité ou un siège pour enfant.

Selon le sens de pose du siège pour enfant:

- Face vers l'avant: reculer completement le siège passager.
- Face vers l'arriere: n'ancrer qu'au siège ARRIERE.

Le témoin«AIR BAG »s'allume brièvement quand on met le contact. AUCUN ENTRETIEN NE S'IMPOSE, sauf si:

- Le témoin clignote ou reste allumé.
- Le témoin reste éteint quand on met le contact.
- Des séries de 5 «bip »se font entendre.

POUR PLUS DE DETAILS, VOIR LE *GUIDE DU PROPRIÉTAIRE.*

LABEL ON HEADLINER ABOVE
DRIVER'S SUN VISOR —
CANADA ONLY

This vehicle has a DRIVER AIR BAG Supplemental Restraint System (SRS). The SRS supplements the front seat belt by inflating in moderate or severe frontal collisions. It is not designed to inflate in side or rear crashes, rollovers, or minor front collisions, so ALWAYS WEAR YOUR SEAT BELT.

PASSENGER AIR BAG WARNING

If the letters "SRS" are above the glove box, this vehicle has a right front passenger air bag. To reduce risk of injury from an inflating air bag in an accident:

- Always use seat belts or child seat.

For Child Seats in vehicles with a passenger air bag:

- Forward facing—move passenger seat as far from dash as possible.
- Rear facing—use ONLY in rear seat.

"AIR BAG" lamp normally lights briefly when ignition key is turned on. NO SRS MAINTENANCE IS NEEDED unless:

- "AIR BAG" lamp flashes or stays lit.
- "AIR BAG" lamp does not light when key is turned on.
- Groups of five beeps are heard.

SEE OWNER GUIDE FOR MORE AIR BAG INFORMATION.

LABEL ON BACK SIDE
OF DRIVER'S SUN VISOR

PASSENGER
AIR BAG WARNING

To reduce risk of injury from an inflating air bag in an accident, front occupants must:

- Always use seat belts.

CHILD SEATS:

- Forward facing—move passenger seat as far from dash as possible.
- Rear facing—use ONLY in rear seat.

SEE OWNER GUIDE.

AVERTISSEMENT
COUSSIN DE SECURITÉ DU PASSAGER

Aux places avant, pour éviter d'être blessé par le gonflage du coussin lors d'un accident:

- Toujours boucler sa ceinture de sécurité.

SIEGE POUR ENFANT:

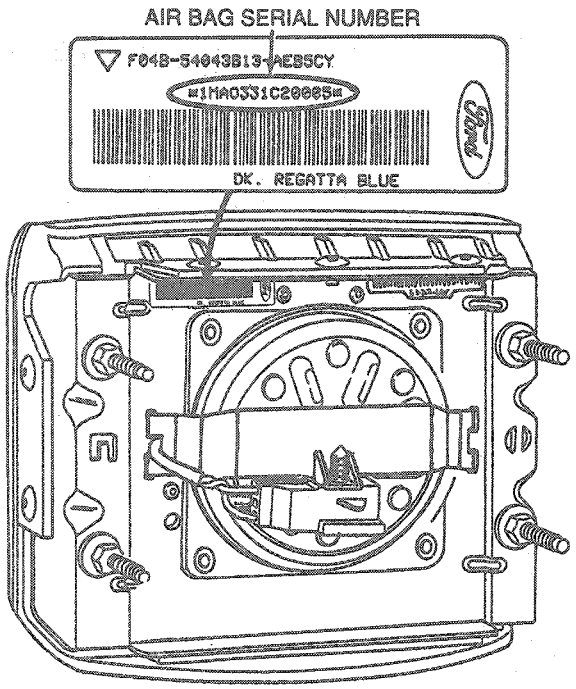
- Face vers l'avant: reculer completement la siege passager.
- Face vers l'arriere: n'ancrer qu'au siége ARRIERE.

VOIR LE *GUIDE DU PROPRIÉTAIRE.*

LABEL ON BACK SIDE
OF PASSENGER'S SUN VISOR

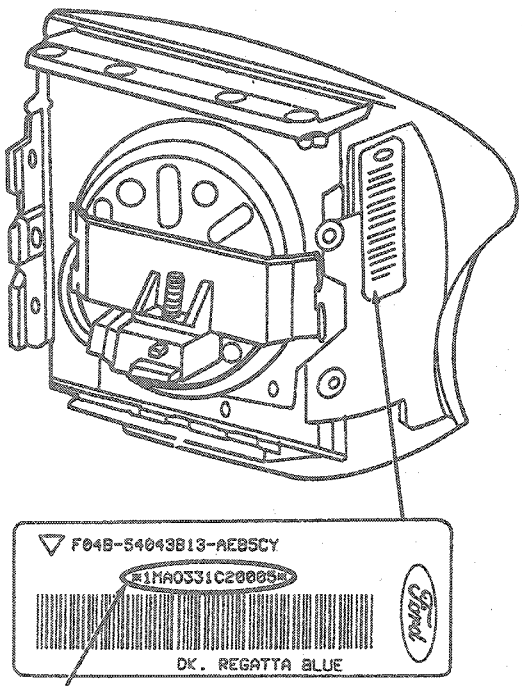
R7588-A

DESCRIPTION (Continued)



R7586-B

SHO



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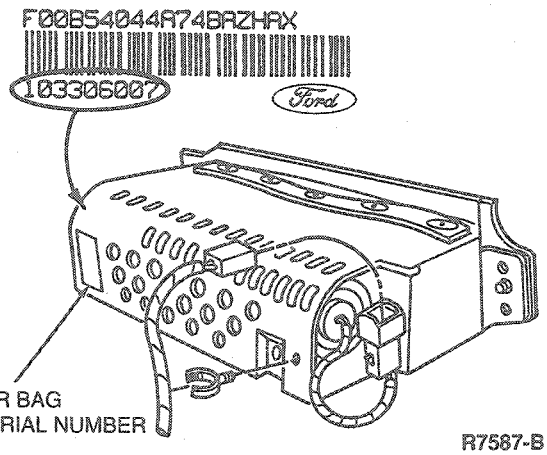
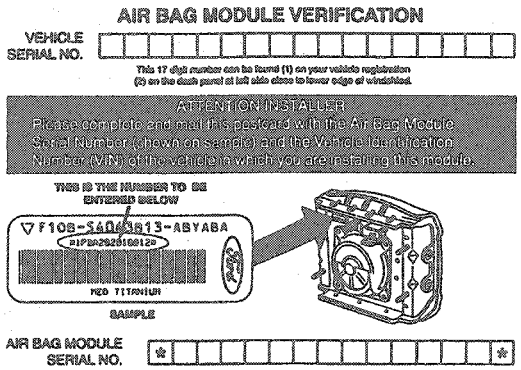


R7587-B

PARTS REPLACEMENT

Air Bag Modules

NOTE: When replacing an air bag, a prepaid return postcard is provided with the replacement air bag module. The serial number for the new part and vehicle identification number (VIN) must be recorded and sent to Ford Motor Company.



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The various major assemblies in the air bag system have been designed to be tamper-resistant and are not to be disassembled for service.

WARNING: DO NOT ATTEMPT TO REPLACE AIR BAG COVER WITH A RH FINISH PANEL ASSEMBLY.

CAUTION: Component may be removed and replaced as directed by the Diagnosis and Testing section.

Information on proper handling, storage, and disposal of the air bag inflator assemblies is provided in this section. Refer to Removal and Installation.

PARTS REPLACEMENT (Continued)

Service of Air Bag Equipped Vehicles Involved in Collisions

While servicing an air bag equipped vehicle that has been involved in an collision, check sensors and wiring.

Crash Sensors

Vehicle sensor orientation is critical for proper system operation. An arrow indicating the forward direction is located on each sensor. If a vehicle equipped with an air bag system is involved in a crash where the fenders or grille area have been damaged, ensure that body structure in the area of the sensor mounting is restored to its original condition. Inspect the sensor mounting brackets and sensor pigtail for damage.

- If damaged, the sensor should be replaced whether or not the air bag is deployed.
- Undamaged sensors will reset automatically after an collision and can be reused.

Damaged Wiring

CAUTION: Before attempting diagnostic prove out, check for wiring shorts that could cause the diagnostic monitor thermal fuse to open, to avoid unnecessary replacement.

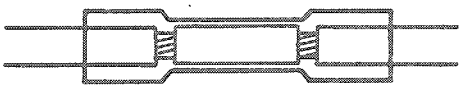
Inspect the sensor wiring and the wiring harness for any damage that may have occurred due to the accident. Replace any damaged wiring, terminals, insulation or connectors, as required.

Splices are required in adjacent wiring, the splices should be staggered 50mm (2 inch) apart from each other. Service as follows:

A waterproof butt splice connector should be used on all wiring service in the engine compartment. A heat shrink nylon splice prevents water, salt, condensation and heat from affecting the wiring service.

The inner wall of the splice connector is lined with an adhesive that melts when heated with a heat gun and flows under pressure from the tubing, sealing the splice. The connectors can be crimped with a standard insulated connector crimping tool. The splices are color coded for gauge identification, and are transparent to allow inspection of the finished splice.

INSTALLATION INSTRUCTIONS



1. STRIP WIRES 7.6mm (0.3")
INSERT INTO CRIMP BARREL

2. CRIMP USING CRIMP TOOL FOR
PREINSUALATED CRIMPS.

3. HEAT SPLICE WITH HEAT GUN UNTIL
TUBING SHRINKS AND ADHESIVE
FLOWS FROM EACH END.

R6719-A

Part Number	Part Name	Class
E6FZ-14488-A	Butt Connector Gauge: 18-22, Color: Red	C
E6FZ-14488-B	Butt Connector Gauge: 14-16, Color: Blue	C
E6FZ-14488-C	Butt Connector Gauge: 10-12, Color: Yellow	C

CR6720-A

Steering Column and Clockspring

If the collision involved an air bag deployment, the steering column may have been loaded sufficiently to deform steering column mounting brackets or damage column wiring. An inspection should be made of the column structure and clockspring wiring to ensure that any damaged components are replaced. Refer to Section 11-04.

Air Bag System

After all service, verify the air bag indicator. This means turn the ignition switch to RUN and count the flashes only after the code (series of flashes) has cycled twice. If the air bag indicator comes on continuously for six seconds and then goes out, the system is functioning properly and all faults have been serviced. Refer to Diagnosis and Testing.

SERVICE PRECAUTIONS

WARNING: ALWAYS WEAR SAFETY GLASSES WHEN SERVICING AN AIR BAG VEHICLE AND WHEN HANDLING AN AIR BAG.

Safe handling of air bag requires following the procedures described below for both live and deployed air bags.

Live Air Bags

CARRY A LIVE AIR BAG WITH THE BAG AND TRIM COVER POINTED AWAY FROM YOUR BODY. AN ACCIDENTAL DEPLOYMENT WILL THEN DEPLOY WITH A MINIMAL CHANCE OF INJURY.

PLACE A LIVE AIR BAG ON A BENCH OR OTHER SURFACE WITH THE TRIM COVER UP, AWAY FROM THE SURFACE. THIS WILL REDUCE THE MOTION OF THE MODULE IF IT IS ACCIDENTALLY DEPLOYED.

Deployed Air Bags

SAFETY PRECAUTIONS MUST ALSO BE OBSERVED WHEN HANDLING A DEPLOYED AIR BAG.

WASH YOUR HANDS WITH MILD SOAP AND WATER AFTERWARDS.

THE AIR BAG SURFACE MAY CONTAIN DEPOSITS OF SODIUM HYDROXIDE, A PRODUCT OF THE GAS GENERANT COMBUSTION THAT IS IRRITATING TO THE SKIN.

WEAR GLOVES AND SAFETY GLASSES WHEN HANDLING A DEPLOYED AIR BAG.

General Instructions

WARNING: SERVICE IS MADE BY REPLACEMENT ONLY. DO NOT ATTEMPT REPAIR OF:

- CRASH SENSORS
- CLOCKSPRING
- DIAGNOSTIC MONITOR
- AIR BAG MODULE

WARNING: AIR BAG MODULES WITH DISCOLORED OR DAMAGED COVER DEPLOYMENT DOORS MUST BE REPLACED, NOT REPAINTED.

IF EVER A PART IS REPLACED AND THE NEW PART DID NOT CORRECT THE CONDITION, REINSTALL THE ORIGINAL PART AND PERFORM THE DIAGNOSTIC PROCEDURE AGAIN.

WARNING: NEVER PROBE THE CONNECTORS ON THE AIR BAG. DOING SO MAY RESULT IN AIR BAG DEPLOYMENT WHICH COULD RESULT IN PERSONAL INJURY.

ALL COMPONENT REPLACEMENTS AND WIRING SERVICE MUST BE MADE WITH THE POSITIVE BATTERY CABLE. DISCONNECTED FOR A MINIMUM OF ONE MINUTE BEFORE SERVICE OR REPLACEMENT IS ATTEMPTED.

WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY AND BACK-UP POWER SUPPLY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY POSITIVE CABLE MUST BE DISCONNECTED FOR A MINIMUM OF ONE MINUTE TO DE-ENERGIZE THE BACK-UP POWER SUPPLY PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.

THE INSTRUCTIONS "DISCONNECT" ALWAYS REFERS TO A CONNECTOR. NEVER DETACH A COMPONENT FROM THE VEHICLE WHEN INSTRUCTED TO "DISCONNECT".

WARNING: VEHICLE SENSOR ORIENTATION IS CRITICAL FOR PROPER SYSTEM OPERATION. IF A VEHICLE EQUIPPED WITH AN AIR BAG SYSTEM IS INVOLVED IN A CRASH WHERE THE AREA NEAR THE SENSORS HAS BEEN DAMAGED, INSPECT THE SENSOR MOUNTING BRACKETS FOR DEFORMATION. IF DAMAGED, THE SENSOR SHOULD BE REPLACED WHETHER OR NOT THE AIR BAG IS DEPLOYED. IN ADDITION, ENSURE THAT BODY STRUCTURE IN THE AREA OF SENSOR MOUNTING IS RESTORED TO ITS ORIGINAL CONDITION.

DIAGNOSIS AND TESTING

Diagnosing Customer Concerns Without Hard Diagnostic Trouble Codes

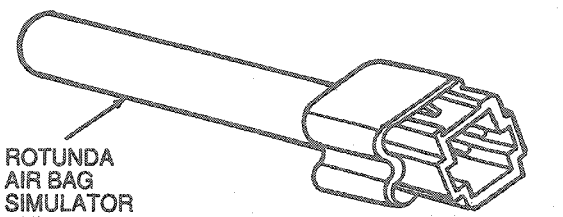
If a diagnostic trouble code is reported by the customer but is not present when the car comes in for service, pinpoint diagnostics cannot be used. **Following the pinpoint tests or fault tree diagnosis when the code is not flashing will result in needless replacement of the air bag system components and repeat service.** The diagnostic monitor does not contain any memory of the diagnostic trouble code after the key is turned off. If the diagnostic trouble code is unknown, instruct the customer on how to count a code. Demonstrate a diagnostic trouble code by disconnecting a primary crash sensor, turn the key to the ON position, and allow customer to count diagnostic trouble code. Reconnect the primary crash sensor and instruct customer to return when the code is known. **Once the code is known, read the "Normal Operation" section for the diagnostic trouble code involved. Study the circuit diagram and determine the location of components that are involved in creating that diagnostic trouble code. Do a thorough visual inspection of components, connectors, splices and wiring harnesses, looking for pinched wires, worn insulation on conductors, opens, shorts, or loosely mounted sensors.** The section "Possible Causes" lists the common concerns that relate to each diagnostic trouble code. Concerns are listed in the order that they are most likely to occur.

Diagnosing Customer Concerns With Hard Diagnostic Trouble Codes

Most air bag system diagnostic procedures will require the use of the System Deactivation and System Reactivation Procedures outlined below. These procedures allow the removal of the air bags from the vehicle thereby removing the risk of air bag deployment while diagnostics are performed.

Rotunda Air Bag Simulator 105-00010 or equivalent is required to perform diagnosis and testing of the air bag system. The air bag simulator is a 2 ohm resistor used to simulate an air bag connection to the system. It is not acceptable to jump out the air bag connection with a zero ohm jumper wire. If a zero ohm jumper wire is used to jumper out the air bag connection, a system fault may be displayed (Diagnostic Trouble Code 34 or 35) according to the priority scheme.

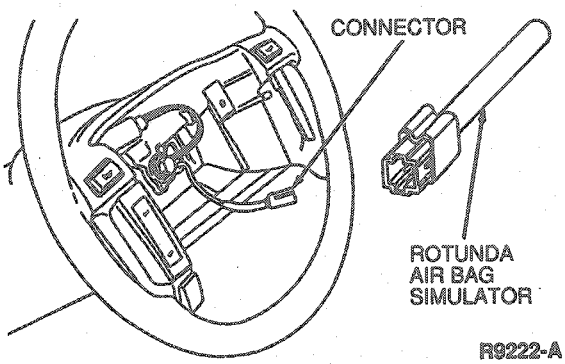
NOTE: The air bag simulator 105-00010 for 1993 vehicles has a different connector than previous simulators. The new simulator will only mate with 1993 vehicles and beyond. Likewise, the old simulator 105-00008 will only mate with 1992 and previous model year vehicles.



R9217-A

Deactivation Procedure

1. Disconnect battery positive cable.
2. Remove four nut and washer assemblies retaining driver air bag to steering wheel.



R9222-A

3. Disconnect driver air bag connector.
4. Attach Rotunda Air Bag Simulator 105-00010 or equivalent on clockspring to simulate the air bag.
5. If the vehicle is equipped with a passenger side air bag, remove the passenger side air bag as outlined. After disconnecting the air bag connector, connect Rotunda Air Bag Simulator 105-00010 to the wiring harness.
6. Connect positive battery cable.

To Reactivate System:

WARNING: THE AIR BAG SIMULATOR(S) MUST BE REMOVED AND THE AIR BAG(S) RECONNECTED WHEN THE SYSTEM IS REACTIVATED.

1. Disconnect battery positive cable.
2. Remove Rotunda Air Bag Simulator 105-00010 or equivalent from air bag terminals on clockspring assembly, if connected.
3. Reconnect driver air bag module connector.
4. Position driver air bag module on steering wheel and secure with four nut and washer assemblies (10mm). Tighten nut and washer assemblies to 4-5.6 N·m (36-49 lb-in).
5. If vehicle is equipped with a passenger side air bag, remove Rotunda Air Bag Simulator 105-00010 from the wiring harness, reconnect passenger side air bag and install.
6. Connect battery positive cable.
7. Verify air bag indicator.

DIAGNOSIS AND TESTING (Continued)

Glossary

Air Bag Simulator

Rotunda Air Bag Simulator 105-00010 or equivalent is used to simulate air bag connection to system.

Disconnect Component

Disconnect component means disconnect component connector and vehicle harness connector. It does not mean remove component. Also, a disconnected part should not be reconnected unless instructed to do so.

Deactivate System

Deactivate system means to perform the Deactivation Procedure outlined under Diagnostic Procedures.

Prove Out System

Prove out system means to turn the ignition switch from OFF to RUN and visually monitor the air bag indicator. The air bag indicator will light continuously for approximately six seconds and then turn off. If an air bag system fault is present, the indicator will either fail to light, remain lit continuously or flash. The flashing may not occur until approximately 30 seconds after the ignition switch has been turned from OFF to RUN. This is the time required for the diagnostic monitor to complete testing of the air bag system. If the air bag indicator is inoperative and an air bag system fault exists, a tone will sound in a pattern of five sets of five beeps. If this occurs, the air bag indicator will need to be serviced before further diagnosis can be done.

Reactivate System

WARNING: WHEN THE SYSTEM IS REACTIVATED, THE AIR BAG SIMULATORS MUST BE REMOVED AND THE AIR BAGS RECONNECTED.

Reactivate system means to perform the Reactivation Procedure outlined under Diagnostic Procedures.

Reconnect System

Reconnect system means to reconnect all system components. Refer to Air Bag System Reconnect Check List.

Replace Component

Replace component means to remove the existing component and replace it with an authorized replacement part obtained from Ford Parts and Service Division. Also, the replacement component should be installed on vehicle and all necessary electrical connections should be completed.

Verify System

Verify System means to prove out system with air bag simulator in place of the air bags.

Air Bag System Reconnect Check List

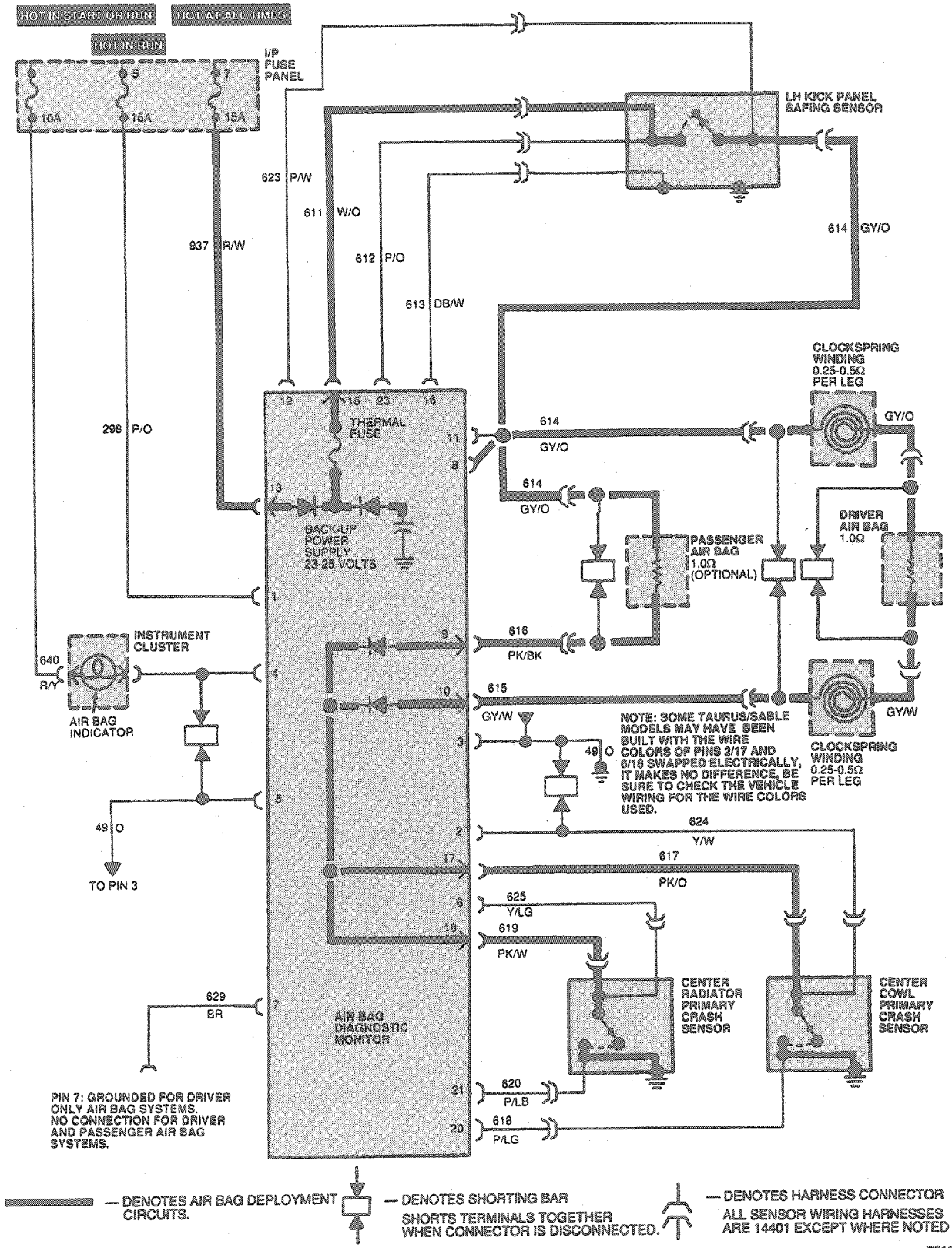
1. Are all crash sensors connected and mounted to vehicle?
2. Is LH kick panel safing sensor connected and mounted to vehicle?
3. Is black 3-way connector at base of steering column connected?
4. Are air bag(s) or Rotunda Air Bag Simulator 105-00010 or equivalent connected?
5. Is diagnostic monitor connected?
6. Is vehicle battery connected?

Location of Air Bag System Components

1. Center Radiator Crash Sensor—Center of radiator support
2. Center Cowl Crash Sensor—Center cowl top in engine compartment
3. LH Kick Panel Safing Sensor—LH cowl panel behind trim panel
4. Driver Air Bag—Steering wheel
5. Passenger Air Bag (Optional)—Above glove compartment
6. Clockspring—Behind steering wheel
7. Diagnostic Monitor—Behind glove compartment

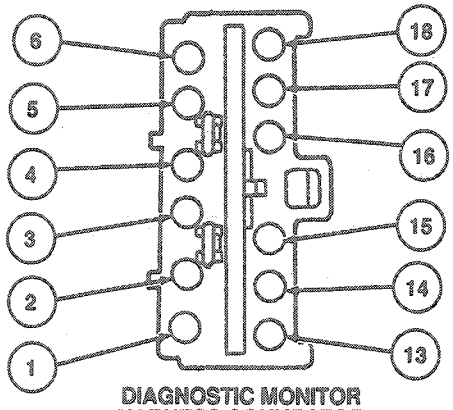
DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Air Bag System

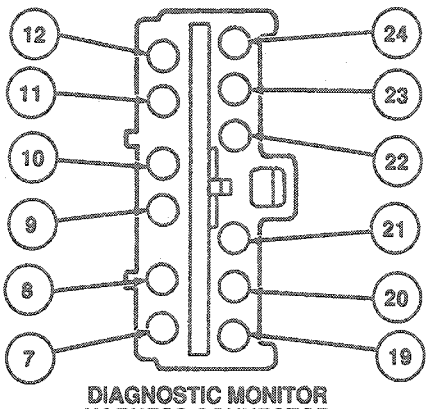


DIAGNOSIS AND TESTING (Continued)

Air Bag Diagnostic Module Connectors



DIAGNOSTIC MONITOR HARNESS CONNECTOR GRAY



DIAGNOSTIC MONITOR HARNESS CONNECTOR BLACK

R9236-A

PIN NUMBER	CIRCUIT	CIRCUIT FUNCTION
1	298 (P/O)	Power Input-Hot in Run
2	624 (Y/W)	Cowl Sensor Monitor
3	57 (BK)	Ground
4	608 (BK/Y)	Air Bag Indicator Control
5	57 (BK)	Ground
6	625 (Y/LG)	Radiator Sensor Monitor
7	49 (O)	Passenger Side Air Bag Delete
8	614 (GY/O)	Passenger Side Air Bag Monitor
9	616 (PK/BK)	Passenger Air Bag Return
10	615 (GY/W)	Driver Air Bag Return
11	614 (GY/O)	Driver Air Bag Monitor

(Continued)

PIN NUMBER	CIRCUIT	CIRCUIT FUNCTION
12	623 (P/W)	Safing Sensor Output Monitor
13	937 (R/W)	Battery Feed
14	—	Not Used
15	611 (W/O)	Safing Sensor Input Feed
16	613 (DB/W)	Safing Sensor Ground Monitor
17	617 (PK/O)	Cowl Sensor Feed
18	619 (PK/W)	Radiator Sensor Feed
19	—	Not Used
20	618 (P/LG)	Cowl Forward Sensor Ground Monitor
21	620 (P/LB)	Radiator Forward Sensor Ground Monitor
22	—	Not Used
23	612 (P/O)	Safing Sensor Feed Monitor
24	—	Not Used

AIR BAG DIAGNOSTIC MONITOR TYPICAL PIN VOLTAGES WITH SYSTEM CONNECTED AND ENGINE RUNNING

VEHICLE CHARGING SYSTEM VOLTAGE	PIN NUMBER											
	1	2	3	4	5	6	7	8	9	10	11	12
9.0	9.0	8.6	0.0	9.0	0.0	8.6	*	2.3	●	2.3	2.3	2.3
9.5	9.5	9.1	0.0	9.5	0.0	9.1	*	2.4	●	2.4	2.4	2.4
10.0	10.0	9.6	0.0	10.0	0.0	9.6	*	2.5	●	2.5	2.5	2.5
10.5	10.5	9.9	0.0	10.5	0.0	9.9	*	2.7	●	2.7	2.7	2.7
11.0	11.0	10.0	0.0	11.0	0.0	10.0	*	2.8	●	2.8	2.8	2.8
11.5	11.5	10.0	0.0	11.5	0.0	10.5	*	3.0	●	3.0	3.0	3.0
12.0	12.0	10.0	0.0	12.0	0.0	10.0	*	3.1	●	3.1	3.1	3.1
12.5	12.5	10.1	0.0	12.5	0.0	10.1	*	3.2	●	3.2	3.2	3.2

(Continued)

DIAGNOSIS AND TESTING (Continued)

AIR BAG DIAGNOSTIC MONITOR
TYPICAL PIN VOLTAGES WITH SYSTEM CONNECTED AND ENGINE RUNNING (Cont'd)

VEHICLE CHARGING SYSTEM VOLTAGE	PIN NUMBER											
	1	2	3	4	5	6	7	8	9	10	11	12
13.0	13.0	10.1	0.0	13.0	0.0	10.1	*	3.4	●	3.4	3.4	3.4
13.5	13.5	10.2	0.0	13.5	0.0	10.2	*	3.5	●	3.5	3.5	3.5
14.0	14.0	10.2	0.0	14.0	0.0	10.2	*	3.7	●	3.7	3.7	3.7
14.5	14.5	10.3	0.0	14.5	0.0	10.3	*	3.8	●	3.8	3.8	3.8
15.0	15.0	10.3	0.0	15.0	0.0	10.3	*	4.0	●	4.0	4.0	4.0
15.5	15.5	10.4	0.0	15.5	0.0	10.4	*	4.1	●	4.1	4.1	4.1
16.0	16.0	10.4	0.0	16.0	0.0	10.4	*	4.3	●	4.3	4.3	4.3

* Vehicles with passenger bag: 5.0 Volts
Vehicles without passenger bag: 0.0 Volts

● Vehicles with passenger bag: same as Pin 8
Vehicles without passenger bag: 0.0 volts

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AIR BAG DIAGNOSTIC MONITOR
TYPICAL PIN VOLTAGES WITH SYSTEM CONNECTED AND ENGINE RUNNING

VEHICLE CHARGING SYSTEM VOLTAGE	PIN NUMBER											
	13	14	15	16	17	18	19	20	21	22	23	24
9.0	9.0	NC	24.0	0.0	8.5	8.5	NC	0.0	0.0	NC	24.0	NC
9.5	9.5	NC	24.0	0.0	9.0	9.0	NC	0.0	0.0	NC	24.0	NC
10.0	10.0	NC	24.0	0.0	9.5	9.5	NC	0.0	0.0	NC	24.0	NC
10.5	10.5	NC	24.0	0.0	10.0	10.0	NC	0.0	0.0	NC	24.0	NC
11.0	11.0	NC	24.0	0.0	10.0	10.0	NC	0.0	0.0	NC	24.0	NC
11.5	11.5	NC	24.0	0.0	10.0	10.0	NC	0.0	0.0	NC	24.0	NC
12.0	12.0	NC	24.0	0.0	10.0	10.0	NC	0.0	0.0	NC	24.0	NC
12.5	12.5	NC	24.0	0.0	10.1	10.1	NC	0.0	0.0	NC	24.0	NC
13.0	13.0	NC	24.0	0.0	10.1	10.1	NC	0.0	0.0	NC	24.0	NC
13.5	13.5	NC	24.0	0.0	10.2	10.2	NC	0.0	0.0	NC	24.0	NC
14.0	14.0	NC	24.0	0.0	10.2	10.2	NC	0.0	0.0	NC	24.0	NC
14.5	14.5	NC	24.0	0.0	10.3	10.3	NC	0.0	0.0	NC	24.0	NC
15.0	15.0	NC	24.0	0.0	10.3	10.3	NC	0.0	0.0	NC	24.0	NC
15.5	15.5	NC	24.0	0.0	10.4	10.4	NC	0.0	0.0	NC	24.0	NC
16.0	16.0	NC	24.0	0.0	10.4	10.4	NC	0.0	0.0	NC	24.0	NC

NC = No harness connection

TR8132A

Diagnostic Trouble Code Table

AIR BAG DIAGNOSTIC MONITOR DIAGNOSTIC TROUBLE CODE PRIORITY TABLE

Priority	Code	Component/Fault Description
Highest	—	No Air Bag Indicator—Inoperative Lamp Circuit or No Ignition Voltage to Diagnostic Monitor
	—	Continuous Air Bag Indicator—Diagnostic Monitor Disconnected or Inoperative
	12	Low Battery Voltage
	13	Air Bag Circuit Short to Ground

(Continued)

DIAGNOSIS AND TESTING (Continued)

AIR BAG DIAGNOSTIC MONITOR DIAGNOSTIC TROUBLE CODE PRIORITY TABLE (Cont'd)

Priority	Code	Component/Fault Description
	14	Primary Crash Sensor Circuit Short to Ground
	21	Safing Sensor Not Mounted to Vehicle Properly
	22	Safing Sensor Output Shorted to Battery Voltage
	23	Safing Sensor Circuit Input Feed/Return Circuit Open
	24	Safing Sensor Output Feed/Return Circuit Open
	32	Driver Side Air Bag High Resistance or Open
	33	Passenger Side Air Bag High Resistance or Open
	34	Driver Side Air Bag Circuit Low Resistance or Shorted
	35	Passenger Side Air Bag Low Resistance or Shorted
	41	Center Cowl Primary Crash Sensor Feed/Return Open
	42	Center Radiator Primary Crash Sensor Feed/Return Open
	44	Center Cowl Primary Crash Sensor Not Mounted to Vehicle Properly
	45	Center Radiator Primary Crash Sensor Not Mounted to Vehicle Properly
	51	Diagnostic Monitor Internal Thermal Fuse Blown Due to Intermittent Short to Ground
	52	Back-Up Power Supply Voltage Boost Fault
	53	Primary Crash Sensor Circuits—Resistance to Ground or Internal Diagnostic Monitor Fault
Lowest	—	Rapid Continuous Flashing of Air Bag Indicator All Primary Crash Sensors Disconnected

No Air Bag Indicator

Inoperative Lamp Circuit or No Ignition Voltage to Diagnostic Monitor

Normal Operation

The air bag indicator is designed to light for 6 (±2) seconds when the ignition key is turned to the ON position. This initial 6 seconds of air bag indicator illumination (continuous lamp) is considered normal operation and is called "prove-out" of the air bag indicator.

The diagnostic monitor requires power at Pin 1 in order to energize the air bag indicator circuit. If the air bag indicator circuit is open or if the diagnostic monitor does not have ignition voltage at Pin 1, then the air bag indicator will not light.

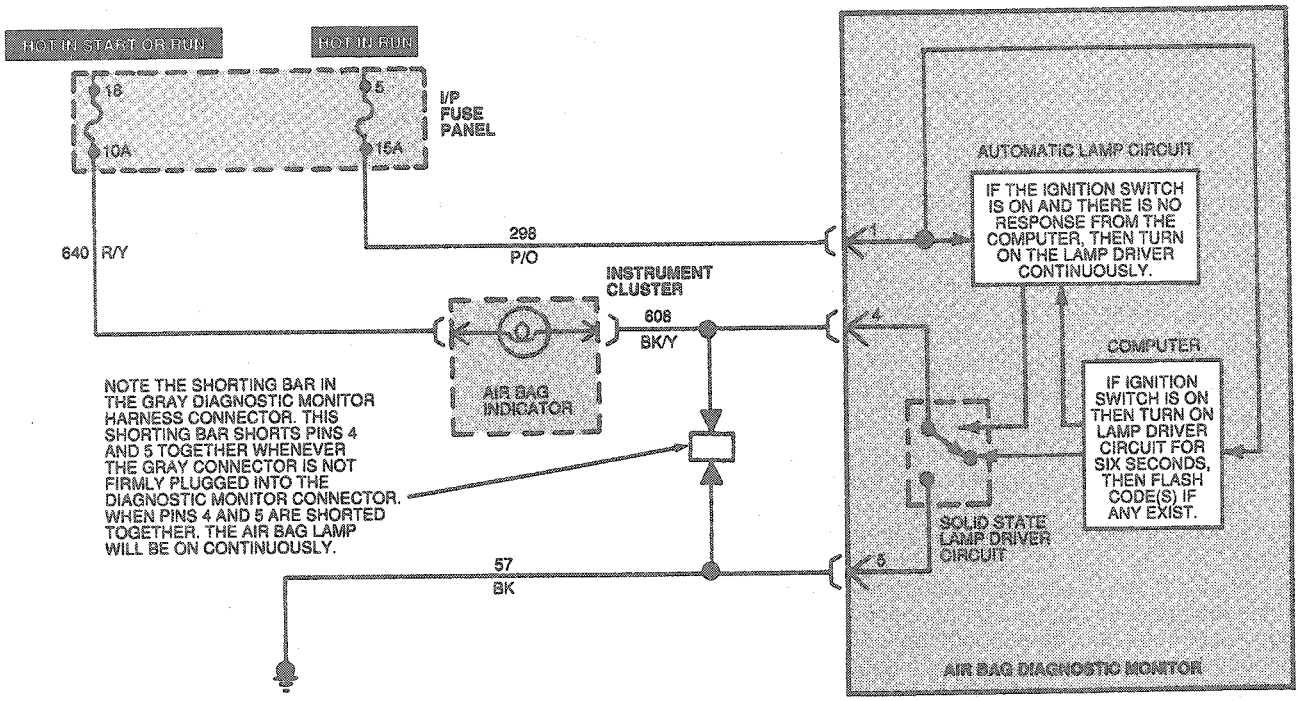
Possible Causes

A No Air Bag Indicator condition can be caused by:

1. **A burned out bulb or open wiring in the air bag indicator circuit.**
2. **Loss of ignition voltage at Pin 1 of the diagnostic monitor.**

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—No Air Bag Indicator



R8116-A

Pinpoint Tests—No Air Bag Indicator

NO AIR BAG INDICATOR

TEST STEP	RESULT	ACTION TO TAKE
NAB-1 CHECK FOR IGNITION VOLTAGE ● Deactivate system. ● Disconnect diagnostic monitor. ● Turn ignition switch to RUN. ● Measure voltage between Pins 1 (+) and 3 (-). ● **Is voltage measured equal to battery voltage?**	Yes ▶ No ▶	GO to **NAB-2.** SERVICE open circuit in "HOT IN RUN" Circuit 298 (P/O) from fuse panel. CHECK fuse 5. CHECK for proper ground on Pin 3 of diagnostic monitor connector. RECONNECT system. VERIFY system. REACTIVATE system.
NAB-2 CHECK FOR OPEN LAMP CIRCUIT ● Leave diagnostic monitor disconnected and key ignition switch in RUN. ● **Is air bag indicator on?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. LOCATE and SERVICE open circuit in air bag indicator circuitry. CHECK for burned out bulb, blown fuse 18, open connections, pushed out pins, etc. RECONNECT system. VERIFY system. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

Continuous Air Bag Indicator

Diagnostic Monitor Disconnected or Inoperative

Normal Operation

The Air Bag Indicator is designed to illuminate for 6 ± 2 seconds when the ignition key is turned to the ON position. This initial 6 seconds of Air Bag Indicator illumination (continuous lamp) is considered normal operation and is called "prove-out" of the Air Bag Indicator. If the diagnostic monitor detects any faults in the air bag system following prove-out, it will flash the Air Bag Indicator a series of times to indicate the diagnostic trouble code that has been detected. If the Air Bag Indicator comes on when the ignition switch is turned to the ON position and stays on for more then 8 seconds continuously, then a fault exists in the Air Bag Indicator circuit.

The air bag diagnostic monitor incorporates a solid state circuit that shorts the air bag indicator line (Circuit 608, BK/Y) to ground to turn the Air Bag Indicator on. When the Gray diagnostic monitor harness connector is unplugged from the diagnostic monitor, a shorting bar within the harness connector connects Pins 4 (air bag indicator) and 5 (ground) together. Therefore, the shorting bar will turn the Air Bag Indicator on whenever the Gray diagnostic monitor harness connector is disconnected. Because the shorting bar makes a continuous connections between Pins 4 and 5 when the connector is disconnected, the Air Bag Indicator will not flash—instead, it will be illuminated continuously.

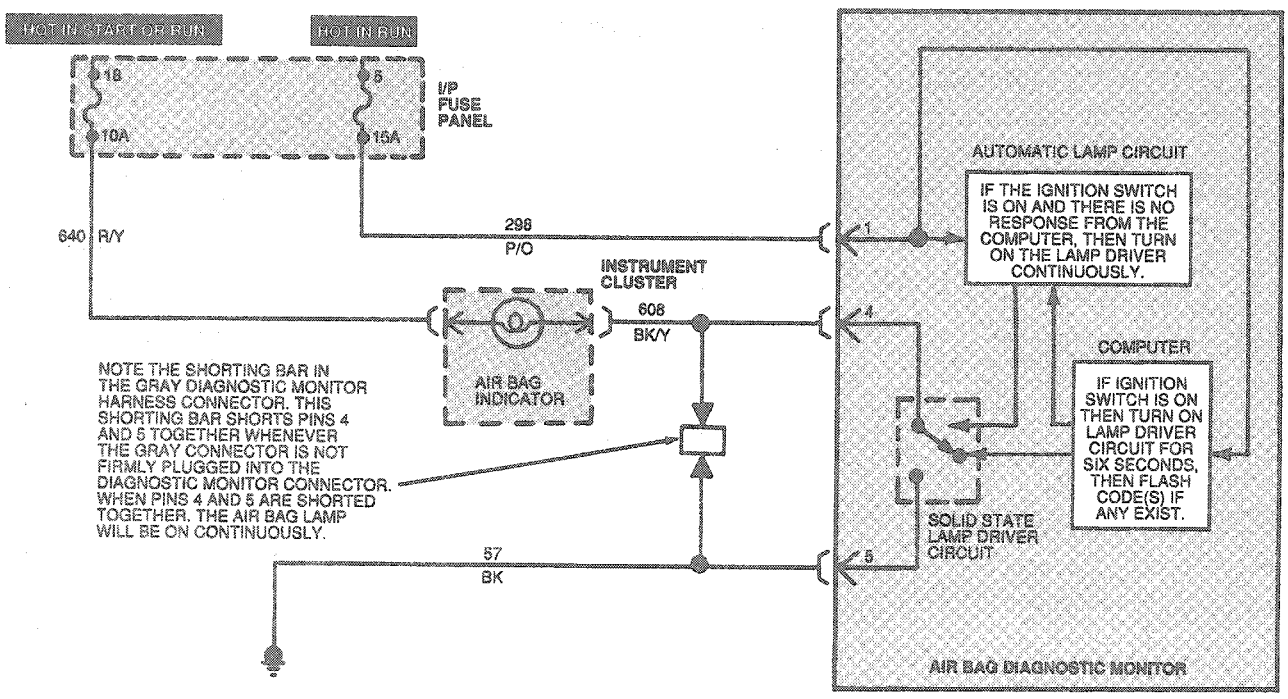
When the ignition switch is turned ON, the diagnostic monitor "wakes up" and after approximately 6 seconds turns the Air Bag Indicator OFF. If the diagnostic monitor fails to "wake up", the lamp driver circuit will automatically turn the Air Bag Indicator ON continuously indicating a concern in the air bag diagnostic monitor or at the Gray diagnostic monitor connector.

Possible Causes

Continuous illumination of the Air Bag Indicator can be caused by:

1. **A disconnected or poorly connected diagnostic monitor** may not push the shorting bar between Pins 4 and 5 into its fully retracted position. This shorts the Air Bag Indicator line to ground and causes the Air Bag Indicator to glow continuously.
2. **Shorted Air Bag Indicator wiring.**
3. **A damaged or worn diagnostic monitor.**

Electrical Schematic—Continuous Air Bag Indicator



DIAGNOSIS AND TESTING (Continued)

Pinpoint Tests—Continuous Air Bag Indicator

CONTINUOUS AIR BAG INDICATOR

TEST STEP	RESULT ▶	ACTION TO TAKE
CAB-1 CHECK IF DIAGNOSTIC MODULE IS CONNECTED ● Deactivate system. ● Inspect connectors on diagnostic monitor. ● **Are connectors fully pushed together?**	Yes ▶ No ▶	GO to **CAB-2.** Firmly MATE connectors to diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system.
CAB-2 CHECK LAMP CIRCUITRY ● Disconnect diagnostic monitor. ● Remove plastic locking wedge from Gray diagnostic monitor harness connector. ● Turn ignition switch to RUN. ● **Is air bag indicator on?**	Yes ▶ No ▶	SERVICE short to ground in Circuit 608 (BK/Y) between lamp and diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. GO to **CAB-3.**
CAB-3 INSPECT SHORTING BAR ● Inspect shorting bars on plastic locking wedge for proper operation. ● **Is shorting bar in good working order?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. REPLACE plastic locking wedge. Make sure replacement has shorting bars on the locking wedge. RECONNECT system. VERIFY system. REACTIVATE system.

Diagnostic Trouble Code 12

Low Battery Voltage

Normal Operation

The diagnostic monitor measures the voltage at Pin 13 of the diagnostic monitor connector. Voltage at Pin 13 should be equal to battery voltage. If the voltage measured at Pin 13 drops to less than 9 volts, the diagnostic monitor will flash out code 12.

Possible Causes

Low battery voltage at diagnostic monitor Pin 13 can be caused by:

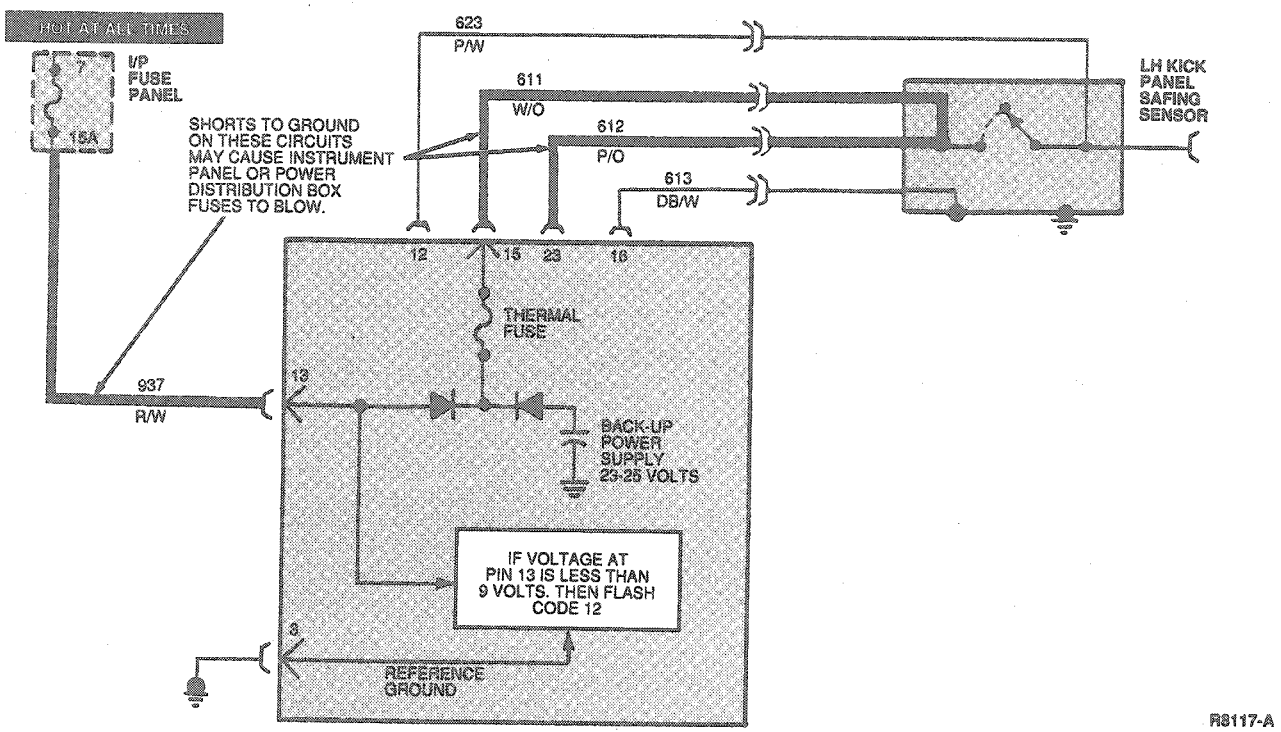
1. **An open in the battery input Circuit 937 (R/W)** that would prevent battery voltage from reaching diagnostic monitor Pin 13.

   NOTE: If the instrument panel Fuse 7 (15A) is blown, make sure to diagnose the system for Possible Causes 2 and 3.

2. **A short to ground in Circuit 611 (W/O) or 612 (P/O)** may result in a blown instrument panel Fuse 7.
3. **An internal short to ground within the safing sensor** may result in a blown instrument panel Fuse 7.
4. **A concern in the charging system** causing battery voltage to drop below 9 volts.

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 12



Pinpoint Tests—Diagnostic Trouble Code 12

DIAGNOSTIC TROUBLE CODE 12

TEST STEP	RESULT	ACTION TO TAKE
12-1 VERIFY CONDITION ● Turn key to ON. ● Count diagnostic trouble code. ● **Is code 12 flashing?**	Yes ▶ No ▶	GO to 12-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.). DO NOT proceed with Pinpoint Test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
12-2 DEACTIVATE SYSTEM ● Deactivate system. ● Disconnect diagnostic monitor. ● Turn ignition switch from OFF to RUN. ● Measure voltage between diagnostic monitor connector Pins 13 (+) and Pin 3 (-). ● **Is voltage on Pin 13 equal to battery voltage?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. GO to 12-3.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 12 (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
12-3	CHECK FUSE		
	• Check power feed fuse. • **Is fuse blown?**	Yes ▶	REPLACE fuse. GO to 12-4.
		No ▶	LOCATE and SERVICE open circuit between positive (+) terminal of battery and Pin 13 Circuit 937 (R/W) of diagnostic monitor harness connector. RECONNECT system. VERIFY system. REACTIVATE system.
12-4	CHECK FOR SHORT IN HARNESS		
	• **Does fuse blow again?**	Yes ▶	LOCATE and SERVICE short to ground between Fuse 7 and Pin 13 Circuit 937 (R/W) of diagnostic monitor harness connector. RECONNECT system. VERIFY system. REACTIVATE system.
		No ▶	GO to 12-5.
12-5	CHECK FOR SHORT IN CIRCUITS 611 AND 612		
	• Turn ignition switch OFF. • Connect diagnostic monitor. • Check fuse. • **Did fuse blow again?**	Yes ▶	LOCATE and SERVICE short to ground in Circuit 611 (W/O) Pin 15 or Circuit 612 (P/O) Pin 23. RECONNECT system. VERIFY system. REACTIVATE system.
		No ▶	The short to ground is intermittent. CHECK Circuit 937 (R/W) between Fuse 7 and diagnostic monitor Pin 13 for pinched or bare wires. Also CHECK Circuits 611 (W/O) and 612 (P/O) for intermittent shorts. LOCATE and SERVICE intermittent short. RECONNECT system. VERIFY system. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

Diagnostic Trouble Code 13

Air Bag Circuit Shorted To Ground

Normal Operation

The diagnostic monitor measures the voltage at Pins 11 and 12 of the diagnostic monitor connector. The voltage at these pins varies with charging system voltage (the expected voltages at Pins 11 and 12 are shown in the chart below). If the diagnostic monitor measures a voltage of 2.0 volts or less at Pins 11 and 12, the monitor will flash out code 13 to indicate a possible short to ground on these circuits (refer to Possible Causes for additional circuits that may be shorted to ground). When flashing code 13, the diagnostic monitor blows its internal thermal fuse. This disables the air bag deployment circuit. If the voltage at Pins 11 and 12 returns to normal, a diagnostic trouble code 51 will be present due to the open thermal fuse (refer to Diagnostic Trouble Code 51 as outlined).

NOTE: Diagnostic Trouble Code 13 will flash only while the short to ground is present.

Possible Causes

Low voltage at diagnostic monitor Pins 11 and 12 can be caused by:

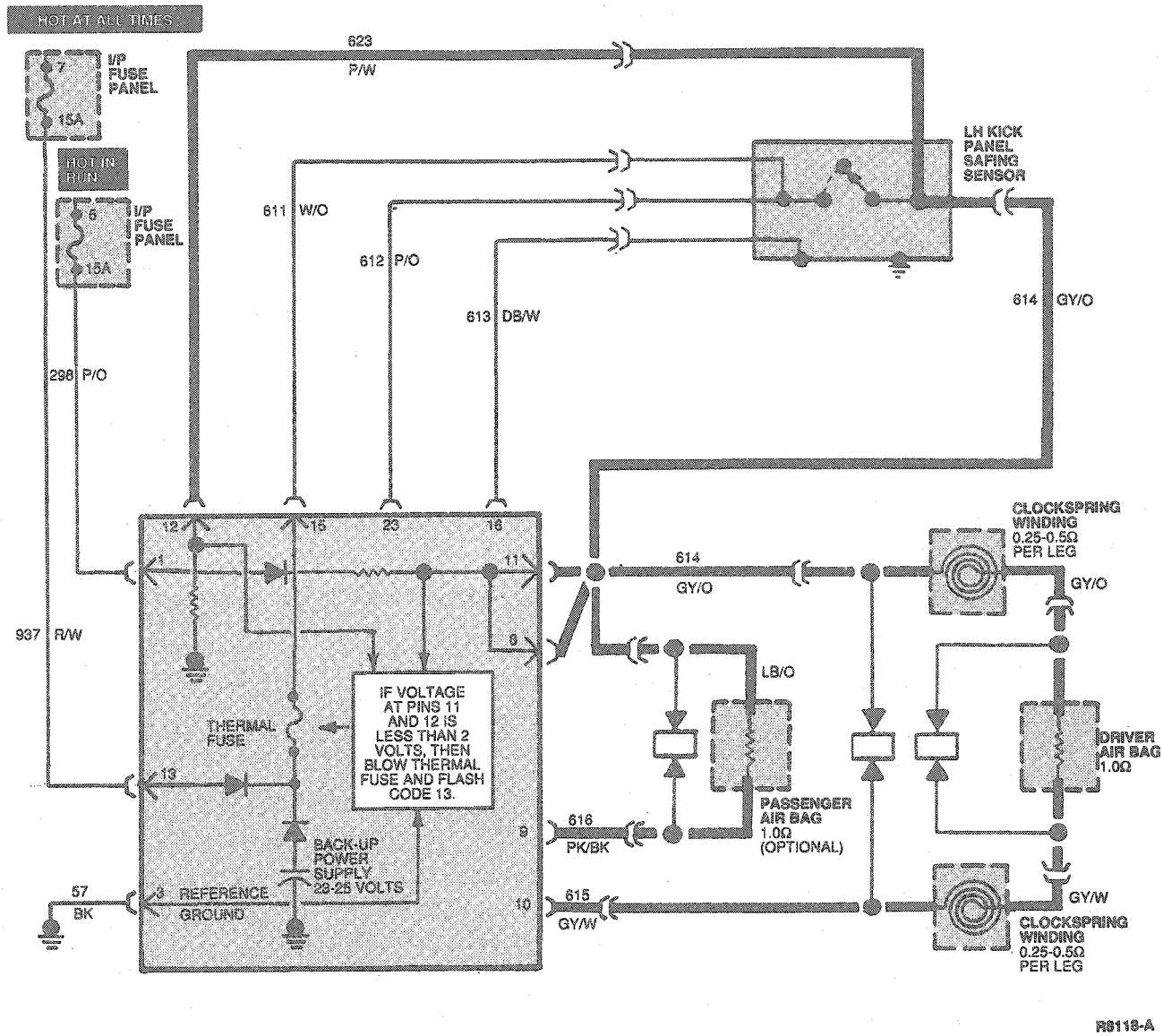
1. **A short to ground within the wiring harness on Circuits 614 (GY/O), 615 (GY/W), 616 (PK/BK) - (passenger bag vehicles only) or 623 (P/W)** causing the diagnostic voltage to drop.
2. **An internal short to ground within the clockspring assembly** causing the driver side air bag circuit(s) to be shorted to ground.
3. **An internal short to ground within the safing** sensor causing Circuit 614 (GY/O) or 623 (P/W) to be shorted to ground.
4. **An internal short to case ground within the driver side or passenger side air bag.**

CHARGING SYSTEM VOLTAGE

PIN NO.	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0
11	2.3	2.4	2.5	2.7	2.8	3.0	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3
12	2.3	2.4	2.5	2.7	2.8	3.0	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 13



DIAGNOSIS AND TESTING (Continued)

Pinpoint Tests—Diagnostic Trouble Code 13

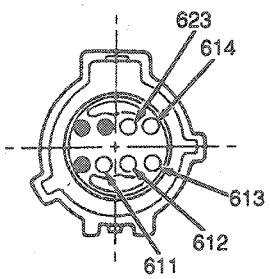
DIAGNOSTIC TROUBLE CODE 13

TEST STEP	RESULT ▶	ACTION TO TAKE
13-1 VERIFY CONDITION • Turn key to ON. • Count diagnostic trouble code. • **Is Code 13 flashing?**	Yes ▶ No ▶	GO to 13-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
13-2 DEACTIVATE SYSTEM NOTE: Never attempt to replace diagnostic monitor with a diagnostic trouble code 13 present, unless instructed to do so. • Deactivate system. • Verify system. • **Does air bag indicator flash a diagnostic trouble code 13?**	Yes ▶ No ▶	GO to 13-5. GO to 13-3.
13-3 CHECK AIR BAG(S) AND CLOCKSPRING • Inspect clockspring wiring in steering wheel, driver air bag, and passenger air bag (if equipped) for damaged, chafed, or pinched wires. • **Are any component wires damaged?**	Yes ▶ No ▶	REPLACE component(s) which have damaged wires. GO to **Diagnostic Trouble Code 51.** GO to 13-4.
13-4 VERIFY SHORT IN AIR BAG(S) • Make sure that the shorting bars are correctly installed in both the driver and passenger side (if equipped) air bag connectors. **WARNING: USE A HANDHELD DIGITAL OHMMETER WITH LESS THAN 10 MA SHORT-CIRCUIT CURRENT ON THE LOWEST RESISTANCE SCALE POSSIBLE (TYPICALLY 200 OHM SETTING). FAILURE TO USE A METER OF THIS TYPE MAY CAUSE PERSONAL INJURY DUE TO AIR BAG DEPLOYMENT.** • Measure the resistance between either of the terminals in the air bag connector and the metal case of the air bag assembly. Perform measurement on both the driver side and passenger side air bags (if equipped). • **Is the resistance reading infinite (open)?**	Yes ▶ No ▶	REPLACE clockspring. GO to **Diagnostic Trouble Code 51.** REPLACE the air bag assembly which in NOT reading infinite resistance (open). GO to **Diagnostic Trouble Code 51.**

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 13 (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
13-5	INSTALL AIR BAG SIMULATOR AT BASE OF STEERING COLUMN		
	• Remove driver air bag simulator. • Disconnect black 3-way connector containing Circuits 614 (GY/O) and 615 (GY/W) at base of steering column. • Install air bag simulator on vehicle harness side at base of steering column. • Verify system. • **Does air bag indicator flash a diagnostic trouble code 13?**	Yes ▶ No ▶	GO to 13-6. REPLACE clockspring. GO to **Diagnostic Trouble Code 51.**
13-6	REMOVE AIR BAG SIMULATOR FROM BASE OF STEERING COLUMN		
	• Remove air bag simulator from vehicle harness connector at base of steering column. (If vehicle is equipped with passenger side air bag, remove passenger air bag simulator also.) • Verify system. • **Does air bag indicator flash a diagnostic trouble code 13?**	Yes ▶ No ▶	GO to 13-7. LOCATE and SERVICE short to ground in wiring harness Circuit(s) 615 (GY/W) and/or 616 (PK/BK). GO to **Diagnostic Trouble Code 51.**
13-7	CHECK CENTER COWL SAFING SENSOR CIRCUIT		
	• Disconnect center cowl safing sensor connector. • Verify system. • **Does air bag indicator flash a diagnostic trouble code 13?**	Yes ▶ No ▶	LOCATE and SERVICE short to ground in wiring harness Circuit 614 (GY/O). GO to **Diagnostic Trouble Code 51.** GO to 13-8.
13-8	VERIFY SHORT TO GROUND IN SAFING SENSOR		
	• Measure resistance from safing sensor connector Circuit 614 (GY/O) to ground. • **Is resistance less than 10 ohms?**	Yes ▶ No ▶	REPLACE center cowl safing sensor. GO to **Diagnostic Trouble Code 51.** LOCATE and SERVICE short to ground in wiring harness Circuit 623 (P/W). GO to **Diagnostic Trouble Code 51.**



CENTER COWL SAFING SENSOR CONNECTOR

R7729-A

DIAGNOSIS AND TESTING (Continued)

Diagnostic Trouble Code 14

Primary Crash Sensor Circuit Shorted to Ground

Normal Operation

The diagnostic monitor measures the voltage at Pins 2 and 6 of the diagnostic monitor connector. The normal voltage at these pins is approximately 10 volts (± 1 volt) when the ignition switch is ON, or battery voltage when the ignition switch is OFF. If the diagnostic monitor detects that the voltage at Pins 2 or 6 has dropped to 5 volts or less, the monitor will flash out code 14 on the air bag indicator to indicate a short to ground on any of these circuits (refer to Possible Causes for additional circuits that may be shorted to ground). When flashing code 14, the diagnostic monitor blows its internal thermal fuse. This disables the air bag deployment circuit. If the voltage at Pins 2 and 6 returns to normal, a diagnostic trouble code 51 will be present due to the open thermal fuse. (Refer to Diagnostic Trouble Code 51 as outlined).

NOTE: Diagnostic Trouble Code 14 will flash only while the short to ground is present.

Possible Causes

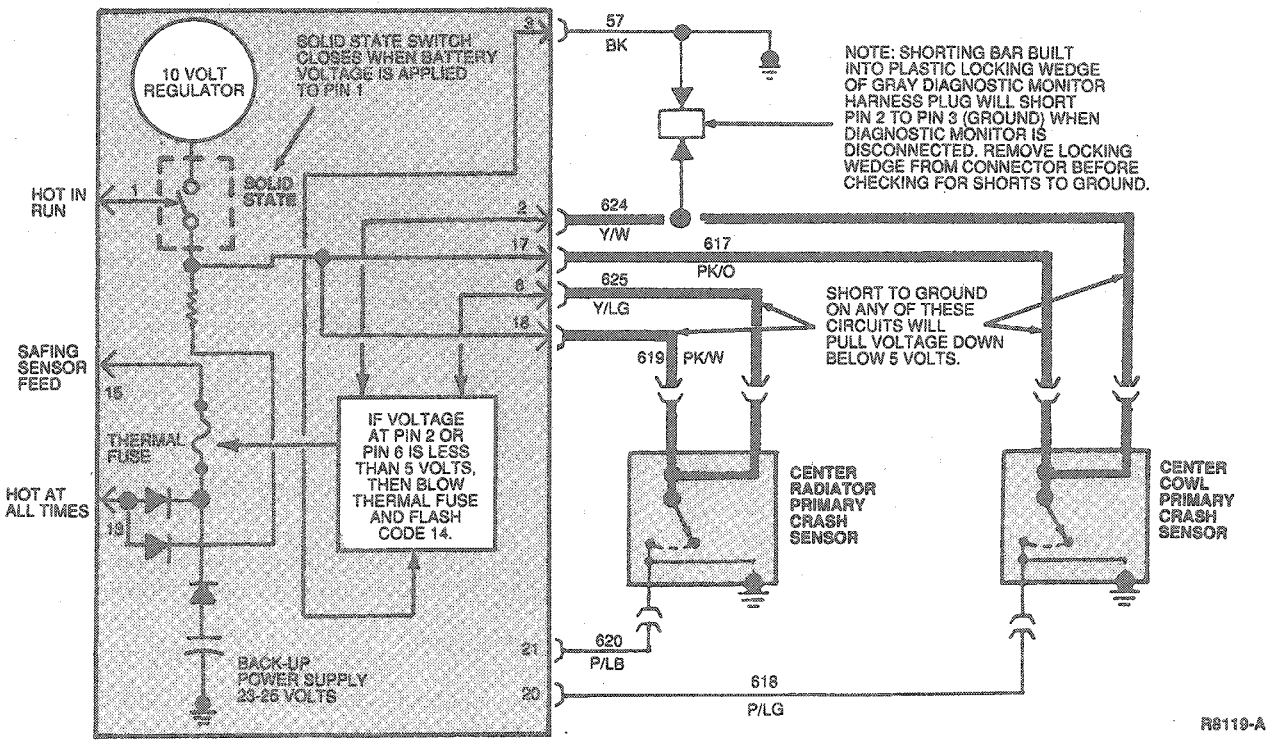
A drop in voltage at diagnostic monitor Pins 2 and 6 can be caused by:

1. **A short to ground within the wiring harness on Circuits 624 (Y/W), 625 (Y/LG), 617 (PK/O) or 619 (PK/W)** causing the diagnostic voltage to drop.

   NOTE: The Gray diagnostic monitor harness connector contains a shorting bar inside the connector that will short Pins 2 and 3 together whenever the diagnostic monitor is disconnected. Since Pin 3 is ground, shorting Pin 2 to Pin 3 will cause a short to ground on both Pins 2 and 17. Make sure to remove the plastic locking wedge from the Gray harness connector before checking resistance of these circuits to ground.

2. **An internal short to case ground within either of the primary crash sensors.**

Electrical Schematic—Diagnostic Trouble Code 14

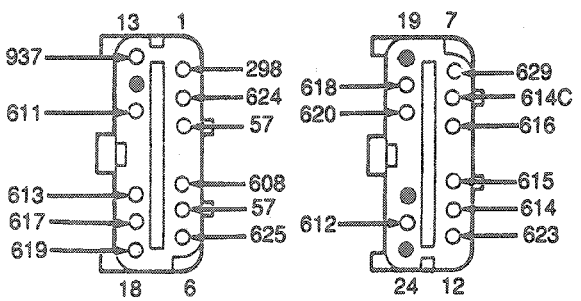


DIAGNOSIS AND TESTING (Continued)

Pinpoint Tests—Diagnostic Trouble Code 14

DIAGNOSTIC TROUBLE CODE 14

TEST STEP	RESULT ▶	ACTION TO TAKE
14-1 VERIFY CONDITION ● Turn key to ON. ● Count diagnostic trouble code. ● **Is Code 14 flashing?**	Yes ▶ No ▶	GO to 14-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
14-2 DETERMINE WHICH CIRCUIT IS SHORTED ● Deactivate system (leave battery cable disconnected). ● Disconnect diagnostic monitor. ● Remove plastic locking wedge from Gray harness plug/connector. ● Set ohmmeter to 200k scale or AUTO. ● Measure resistance between Pin 3 (ground) and all of the following: Pin 2 (Circuit 624, Y/W) Pin 6 (Circuit 625, Y/LG) Pin 17 (Circuit 617, PK/O) Pin 18 (Circuit 619, PK/W) ● **Are all the resistance readings Infinite (open)?**	Yes ▶ No ▶	INSPECT shorting bar on plastic locking wedge for proper operation. INSPECT plastic fingers in diagnostic monitor connector for wear or damage. REPLACE as required. GO to **Diagnostic Trouble Code 51.** GO to 14-3.



DIAGNOSTIC MONITOR CONNECTOR GRAY

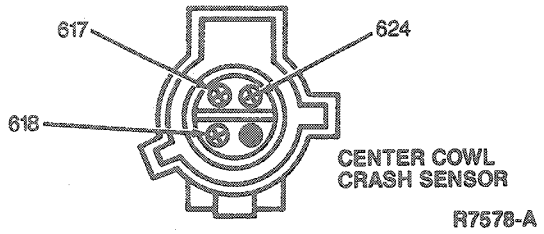
DIAGNOSTIC MONITOR CONNECTOR BLACK

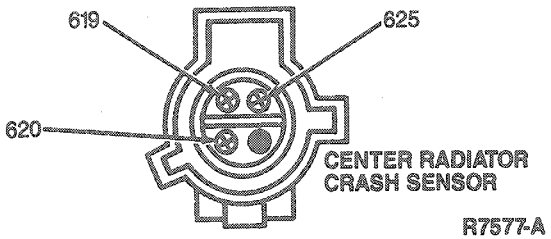
R7676-A

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 14 (Continued)

TEST STEP	RESULT ▶	ACTION TO TAKE
14-3 DETERMINE IF SENSOR OR WIRE IS SHORTED ● Disconnect the primary crash sensor that was shorted. ● Measure resistance across normally open contacts of primary crash sensor at the sensor connector (Circuit 617 (PK/O) or Circuit 619 (PK/W) to ground). ● **Is resistance reading infinite (open)?**	Yes ▶	LOCATE and SERVICE short to ground in wiring harness for affected circuits. GO to **Diagnostic Trouble Code 51.**
	No ▶	REPLACE primary crash sensor. GO to **Diagnostic Trouble Code 51.**





Diagnostic Trouble Code 21

LH Kick Panel Safing Sensor Not Mounted to Vehicle Properly

Normal Operation

The diagnostic monitor measures the resistance between Pin 16 (Circuit 613, DB/W) and Pin 3 (diagnostic monitor reference ground). If the diagnostic monitor measures a difference of more than 2.0 ohms between Pin 16 and Pin 3, it will flash out code 21 on the air bag indicator.

It is important to note that Circuit 613 (DB/W) is grounded to the side of the safing sensor case and the case of the safing sensor is grounded to the vehicle in the LH kick panel. A good ground connection, at both the case and the vehicle body, is important to proper circuit operation.

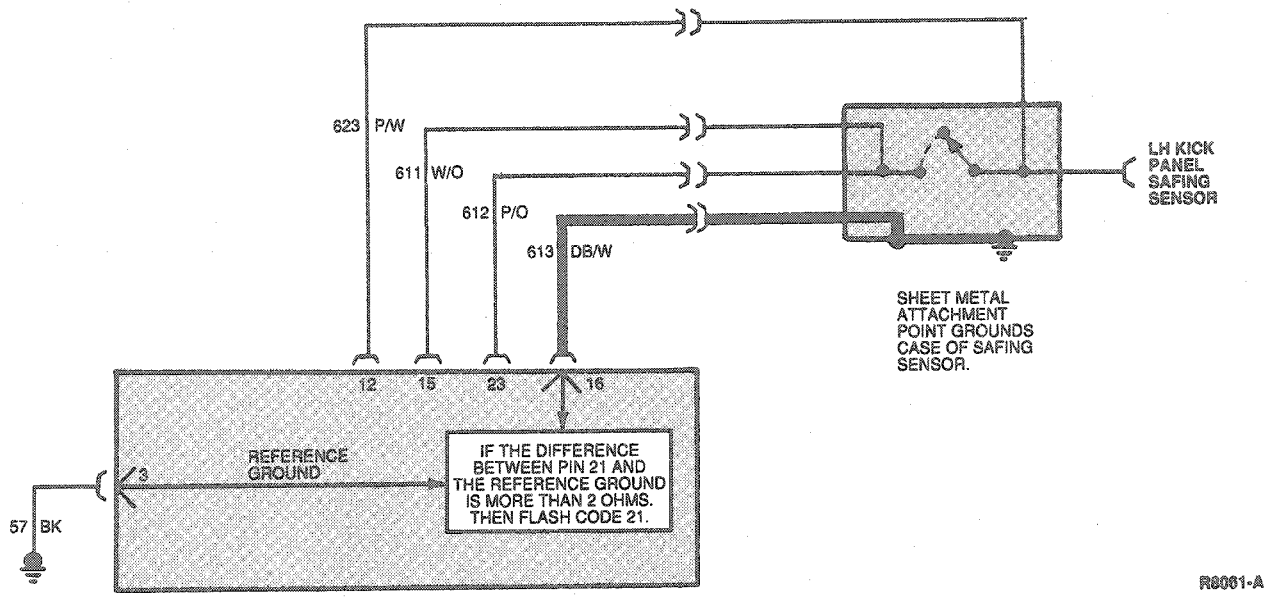
Possible Causes

High resistance at Pin 16 (Circuit 613, DB/W) to ground can be caused by:

1. **A poor connection due to loose mounting, dirt or corrosion at the safing sensor mounting surface.**
2. **An open or damaged wire in Circuit 613 (DB/W)** from Pin 16 of the diagnostic monitor connector to the safing sensor.
3. **An open circuit inside the safing sensor.**

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 21



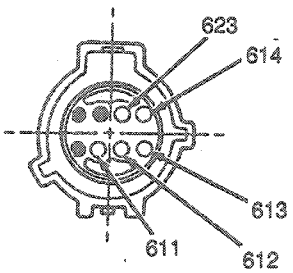
Pinpoint Tests—Diagnostic Trouble Code 21

DIAGNOSTIC TROUBLE CODE 21

TEST STEP		RESULT	ACTION TO TAKE
21-1	VERIFY CONDITION		
	• Turn key to ON. • Count diagnostic trouble code. • **Is Code 21 flashing?**	Yes ▶ No ▶	GO to 21-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the diagnostic monitor and repeat service.
21-2	MEASURE RESISTANCE		
	• Deactivate system. • Disconnect negative battery cable. • Measure resistance between Pin 3 (ground) and Pin 16 (Circuit 613 DB/W) - safing sensor ground). • **Is resistance greater than 2 ohms?**	Yes ▶ No ▶	GO to 21-3. REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 21 (Continued)

TEST STEP	RESULT	ACTION TO TAKE
21-3 MEASURE RESISTANCE		
• Disconnect LH kick panel safing sensor. • Measure resistance of Circuit 613 (DB/W) in the sensor connector to sensor mounting sheet metal. The sheet metal ground must be bare and clean. • **Is resistance greater than 2 ohms?**  **LH KICK PANEL SAFING SENSOR CONNECTOR** R7581-A	Yes ▶ No ▶	GO to 21-4. LOCATE and SERVICE open in wiring harness Circuit 613 (DB/W). RECONNECT system. VERIFY system. REACTIVATE system.
21-4 MEASURE RESISTANCE		
• Remove LH kick panel safing sensor from mounting to vehicle. • Thoroughly clean the sensor's mounting surface. • Remount sensor. • Measure resistance of Circuit 613 (DB/W) wire in the sensor connector to ground. • **Is resistance greater than 2 ohms?**	Yes ▶ No ▶	REPLACE safing sensor. RECONNECT system. VERIFY system. REACTIVATE system. RECONNECT system. VERIFY system. REACTIVATE system.

Diagnostic Trouble Code 22

Safing Sensor Output Circuit Shorted to Battery Voltage

Normal Operation

The diagnostic monitor measures voltage at Pins 11 (Circuit 614, GY/O) and 12 (Circuit 623, P/W). The voltage at these pins is controlled by two resistors inside the diagnostic monitor and the voltage varies with charging system voltage (the expected voltages at Pins 11 and 12 are shown in the chart below). If the voltage at both of these pins exceeds 5 volts, the diagnostic monitor will flash out code 22.

Possible Causes

High voltage at Pins 11 and 12 can be caused by:

1. **A short in the wiring harness between Circuits 614 (GY/O) or 623 (P/W) and another wire** can cause high voltage on these circuits.

   NOTE: The wiring harness leading to the safing sensor carries higher voltage circuits that may short to Circuits 614 and 623.

2. **A short in the clockspring** between Circuit 614 or 615 and some of the horn or speed control wiring.
3. **A short across the normally open contacts of the safing sensor.**

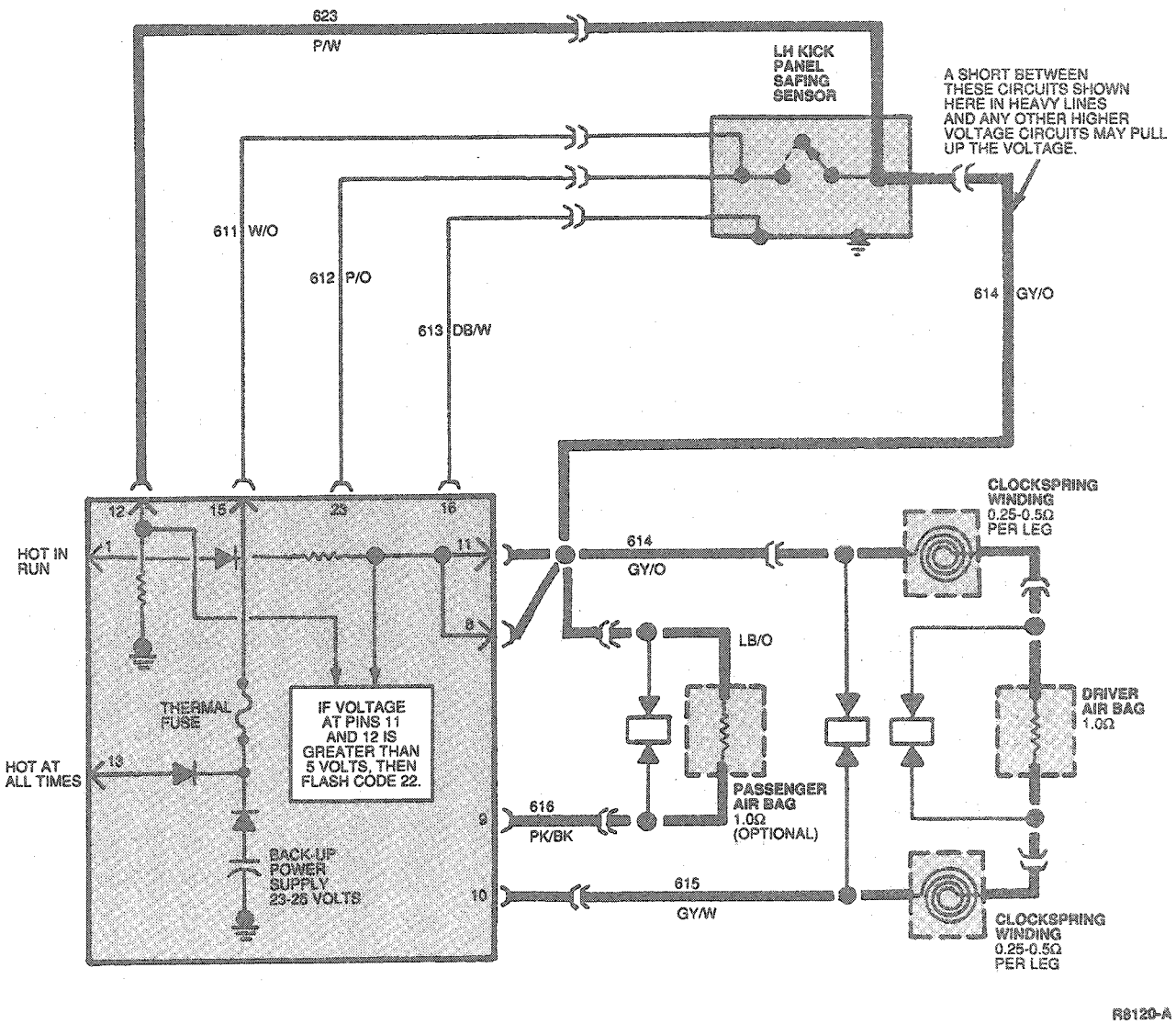
   NOTE: The voltage on Circuits 611 and 612 inside the safing is usually battery voltage or higher. There should be an open circuit across the contacts of the safing sensor if the sensor is operating normally. If the sensor contacts are closed, the voltage on Circuits 614 and 623 would be high (at least battery voltage).
4. **Vehicle charging system voltage too high.** If the generator output voltage is too high (greater than 17 volts) it may cause a code 22 to occur.

DIAGNOSIS AND TESTING (Continued)

CHARGING SYSTEM VOLTAGE

PIN No.	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0
11	2.3	2.4	2.5	2.7	2.8	3.0	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3
12	2.3	2.4	2.5	2.7	2.8	3.0	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3

Electrical Schematic—Diagnostic Trouble Code 22



DIAGNOSIS AND TESTING (Continued)

Pinpoint Tests—Diagnostic Trouble Code 22

DIAGNOSTIC TROUBLE CODE 22

TEST STEP	RESULT	ACTION TO TAKE
22-1 VERIFY CONDITION ● Turn key to ON. ● Count diagnostic trouble code. ● **Is Code 22 flashing?**	Yes ▶ No ▶	GO to **22-2.** Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
22-2 MEASURE VOLTAGE ● Deactivate system. ● Turn key ON. ● Measure voltage on Circuit 614 (GY/O) Pin 11 to Pin 3 (ground). ● **Is voltage measured high?** NOTE: Use voltage table for normal voltage specifications. Voltage should be within ± 0.5 volt.	Yes ▶ No ▶	GO to **22-3.** REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system.
22-3 CHECK FOR WIRING SHORTS ● Turn key off. ● Disconnect diagnostic monitor. ● Disconnect LH kick panel safing sensor. ● Measure resistance between diagnostic monitor harness connector Pins 15 (Circuit 611, W/O) and Pin 11 (Circuit 614, GY/O) and between Pins 23 (Circuit 612, P/O) and Pin 11 (Circuit 614, GY/O). ● **Are resistance readings infinite (open)?**	Yes ▶ No ▶	GO to **22-4.** LOCATE and SERVICE short circuit between Circuit 611 (W/O) or Circuit 612 (P/O) and Circuit 614 (GY/O). RECONNECT system. VERIFY system. REACTIVATE system.
22-4 CHECK FOR SHORT CIRCUIT IN LH KICK PANEL SAFING SENSOR ● Measure resistance between LH kick panel safing sensor connector Circuit 611 (W/O) and 614 (GY/O). ● **Is resistance infinite (open)?**	Yes ▶ No ▶	LOCATE and SERVICE Circuits short to B+ on 614, 615, 616, or 623. REPLACE LH kick panel safing sensor. RECONNECT system. VERIFY system. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

Diagnostic Trouble Code 23

Safing Sensor Input Feed/Return Circuit Open

Normal Operation

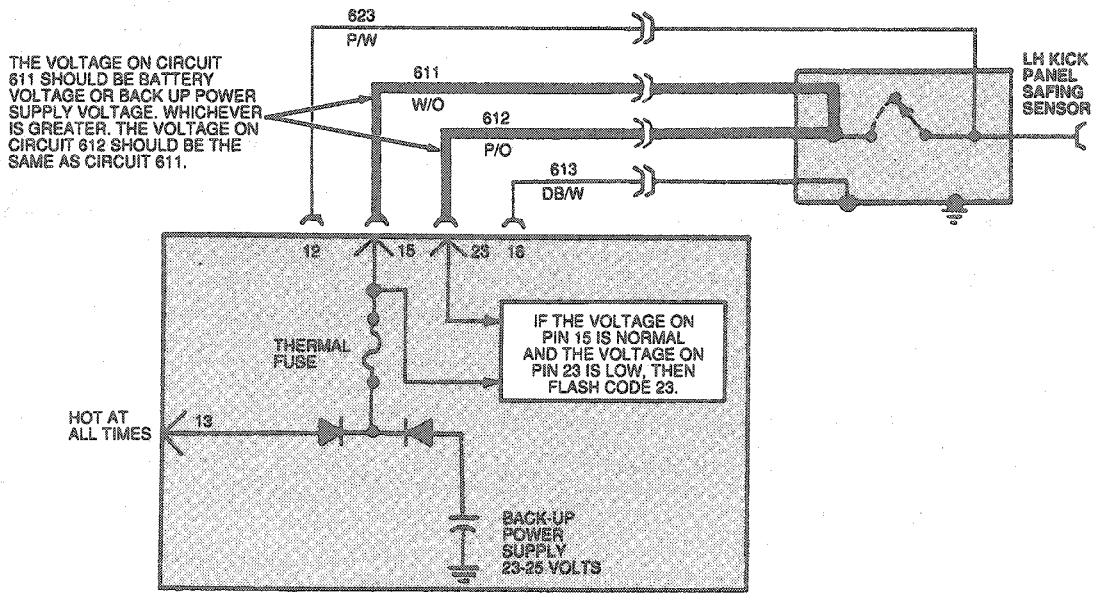
Battery voltage is provided at diagnostic monitor Pin 15 (Circuit 611(W/O) at all times. However, voltage at Pin 15 can be as high as 25 volts (as provided by the back up power supply) when the ignition switch is in the ON position and the back up power supply in the diagnostic monitor is charged up. Circuit 612 (P/O) is connected to Circuit 611 (W/O) inside the safing sensor. Therefore, the voltage at Pin 23 (Circuit 612) P/O) should be the same as the voltage at Pin 15 at all times. The diagnostic monitor compares the voltage available at Pins 15 and 23. If the voltage at Pin 15 is normal and the voltage at Pin 23 is low, the diagnostic monitor will flash out code 23 to indicate an open between these two circuits.

Possible Causes

Low voltage at Pin 23 can be caused by:

1. **An open circuit in the wiring harness in either Circuit 611 (W/O) or 612 (P/O).**
2. **An open circuit inside the safing sensor across the W/O and P/O wires.**

Electrical Schematic—Diagnostic Trouble Code 23

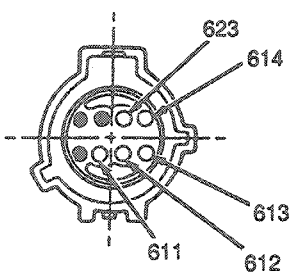


R8063-A

DIAGNOSIS AND TESTING (Continued)

Pinpoint Tests—Diagnostic Trouble Code 23

DIAGNOSTIC TROUBLE CODE 23

TEST STEP	RESULT ▶	ACTION TO TAKE
23-1 VERIFY CONDITION ● Turn key to ON. ● Count diagnostic trouble code. ● **Is Code 23 flashing?**	Yes ▶ No ▶	GO to 23-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
23-2 MEASURE VOLTAGE ● Deactivate system. ● Turn ignition switch from OFF to RUN. ● Wait 30 seconds. ● Measure voltage on the following pins using Pin 3 as a ground: Pin 15 (Circuit 611, P/O) Pin 23 (Circuit 612, P/O) ● Voltage should be 24 ± 1 volt. ● **Is voltage on both these pins normal?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. GO to 23-3.
23-3 MEASURE RESISTANCE ● Disconnect LH kick panel safing sensor. ● Set ohmmeter on 200 ohm scale or AUTO. ● Measure resistance across Circuit 611 (W/O) and 612 (P/O) on the sensor connector. ● **Is the resistance less than 2 ohms?**  **LH KICK PANEL SAFING SENSOR CONNECTOR** **R7581-A**	Yes ▶ No ▶	An open wire exists in the harness. LOCATE and SERVICE the open wire in either Circuit 611 or 612. RECONNECT system. VERIFY system. REACTIVATE system. REPLACE LH kick panel safing sensor. RECONNECT system. VERIFY system. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

Diagnostic Trouble Code 24

LH Kick Panel Safing Sensor Output Feed/Return Circuit Open

Normal Operation

The diagnostic monitor tightly controls the voltage at Pins 11 (Circuit 614, GY/O) and 12 (Circuit 623, P/W) by using two resistors inside the diagnostic monitor. Circuits 614 and 623 are connected together inside the safing sensor. Therefore, the voltage on both circuits should be identical. The voltage at Pins 11 and 12 varies with changes in the vehicle charging system voltage (the expected voltages at Pins 11 and 12 are shown in the chart below). The diagnostic monitor measures the vehicle system charging voltage at Pin 13 (battery input). By measuring the voltage at Pin 13, the diagnostic monitor can accurately predict what the voltage at Pins 11 and 12 should be in a normally functioning system. The diagnostic monitor measures the voltages at Pins 11 and 12 and compares them to the voltage at Pin 13, (battery input). If the voltages at Pins 11 and 12 are low in comparison to Pin 13 or if the voltage at Pin 11 is high and the voltage at Pin 12 is low, the diagnostic monitor will flash a code 24.

Possible Causes

Low voltage at Pins 11 and 12 or high voltage at Pin 11 and low voltage at Pin 12 can be caused by:

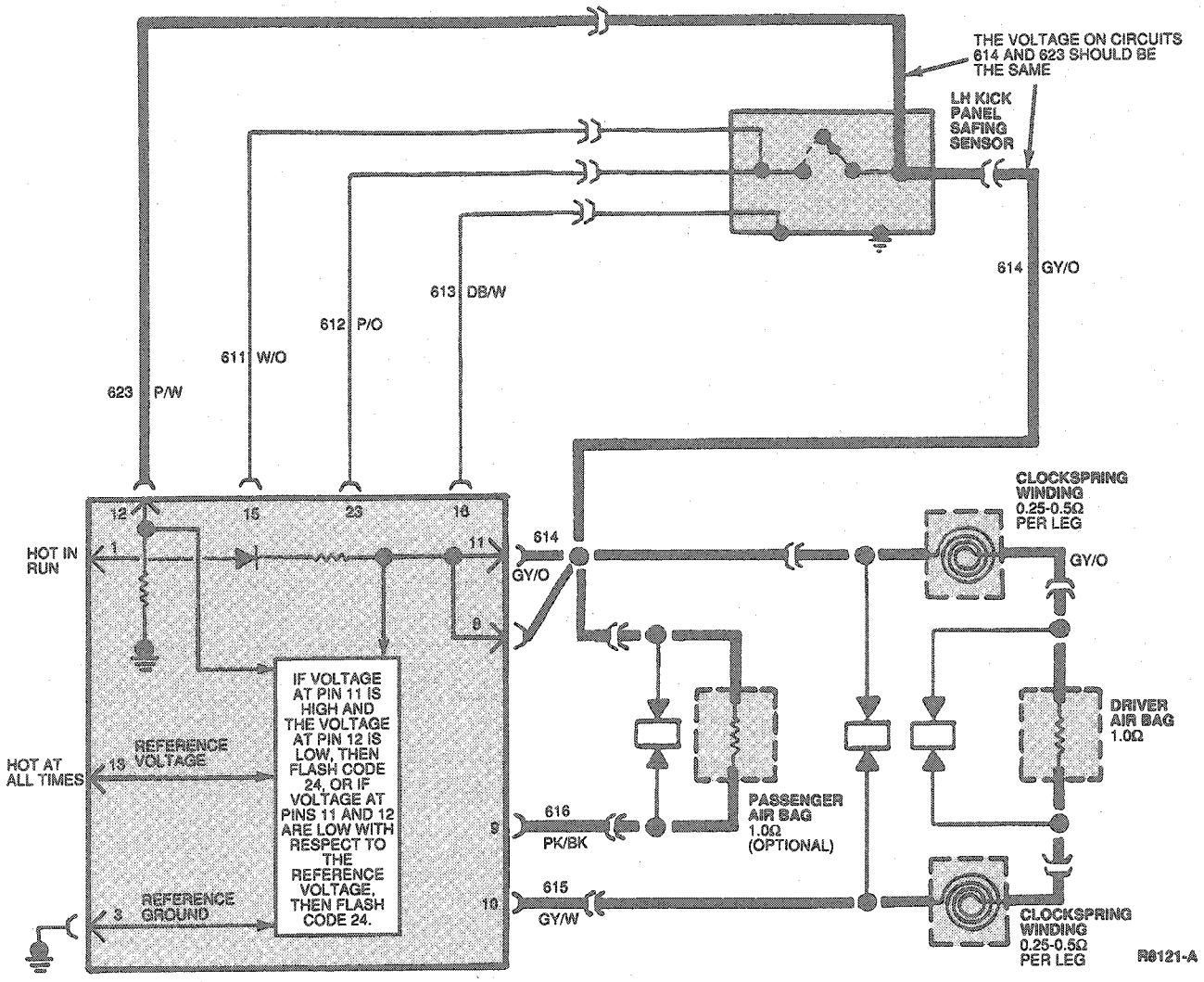
1. **An open circuit or high resistance in the wiring harness in Circuit 614 (GY/O) or 623 (P/W).**
2. **An open circuit or high resistance inside the safing sensor across the GY/O and P/W wires.**
3. **Resistance to ground on Circuit 614 or 623.** Circuits 614 and 623 should be open circuits to ground when the diagnostic monitor is disconnected from the harness. Resistance to ground on these circuits can cause a drop in the diagnostic voltage on both circuits.
4. **Intermittent battery voltage at Pin 13** can cause the reference voltage inside the diagnostic monitor to fluctuate and can cause diagnostic trouble code 24 in some circumstances.

CHARGING SYSTEM VOLTAGE

PIN No.	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0
11	2.3	2.4	2.5	2.7	2.8	3.0	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3
12	2.3	2.4	2.5	2.7	2.8	3.0	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.3

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 24

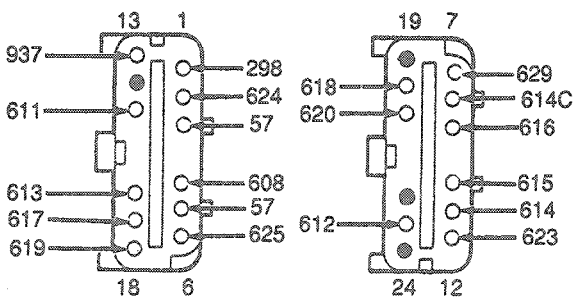


DIAGNOSIS AND TESTING (Continued)

Pinpoint Tests—Diagnostic Trouble Code 24

DIAGNOSTIC TROUBLE CODE 24

TEST STEP	RESULT	ACTION TO TAKE
24-1 VERIFY CONDITION ● Turn key to ON. ● Count diagnostic trouble code. ● **Is Code 24 flashing?**	Yes ▶ No ▶	GO to **24-2.** Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
24-2 MEASURE VOLTAGE ● Deactivate system. ● Turn ignition OFF then to RUN. ● Using Pin 3 as ground, measure voltage on following Circuits: Pin 11 - Circuit 614 (GY/O) Pin 12 - Circuit 623 (P/W) NOTE: Use voltage table for normal voltage specifications. ● **Are voltages at these terminals within ± 0.5 volt of specification?**	Yes ▶ No ▶	CHECK "HOT AT ALL TIMES" voltage feed Circuit 937 (R/W), from fuse panel to Pin 13 of diagnostic monitor harness connector for intermittent open circuits, fuse terminal crimps, etc. If none are found, REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. Both terminals measure low voltage. GO to **24-3.** Pin 12 measures high and Pin 11 measures low. GO to **24-4.**
24-3 MEASURE RESISTANCE ● Turn ignition switch OFF. ● Disconnect negative battery cable. ● Disconnect diagnostic monitor. ● Using Pin 3 as a ground, measure resistance of Pin 11 Circuit 614 (GY/O) to ground (ohmmeter must be on 200k ohm scale or AUTO). ● **Is resistance to ground infinite (open)?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. LOCATE and SERVICE short to ground in either Circuit 614 (GY/O), 615 (GY/W), 616 (PK/BK - Passenger bag vehicles) or Circuit 623 (P/W). CHECK air bag, clockspring and safing sensor for an internal short to ground. SERVICE as required. RECONNECT system. VERIFY system. REACTIVATE system.



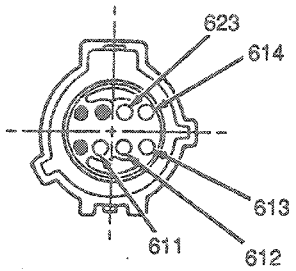
DIAGNOSTIC MONITOR CONNECTOR GRAY

DIAGNOSTIC MONITOR CONNECTOR BLACK

R7876-A

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 24 (Continued)

TEST STEP	RESULT ▶	ACTION TO TAKE
24-4 MEASURE RESISTANCE		
• Disconnect LH kick panel safing sensor. • Set ohmmeter to 200 ohm scale or AUTO. • Measure resistance across Circuits 614 (GY/O) and 623 (P/W) in safing sensor connector. • **Is the resistance less than 2 ohms?**	Yes ▶	LOCATE and SERVICE open circuit in wiring harness (Circuit 614 GY/O or Circuit 623 P/W). RECONNECT system. VERIFY system. REACTIVATE system.
 LH KICK PANEL SAFING SENSOR CONNECTOR R7581-A	No ▶	REPLACE safing sensor. RECONNECT system. VERIFY system. REACTIVATE system.

Diagnostic Trouble Code 32

Driver Side Air Bag Circuit High Resistance or Open

Normal Operation

The diagnostic monitor measures the resistance across Pin 10 (Circuit 615, GY/W) and Pin 11 (Circuit 614, GY/O) every time the ignition switch is turned to the ON position. Normal resistance across these circuits is between 1.5 ohms and 2.0 ohms. This resistance comes from the air bag itself (approximately 1.0 ohm) and the clockspring windings (approximately 0.25 to 0.5 ohm per winding, two windings in all). If the resistance across these two circuits exceeds 4.0 ohms, the diagnostic monitor will flash code 32.

NOTE: The connectors for the air bag and the clockspring have metal spring clips that act as shorting bars. These shorting bars are built into the plastic hardshell connectors. The shorting bars are designed to short Circuits 614 and 615 together when the connectors are not mated. **DO NOT attempt to remove the air bag shorting bar and measure the resistance of the air bag.**

The clockspring shorting bar may be removed to measure the clockspring resistance. Use extreme care when reinstalling the shorting bar to ensure it is installed correctly.

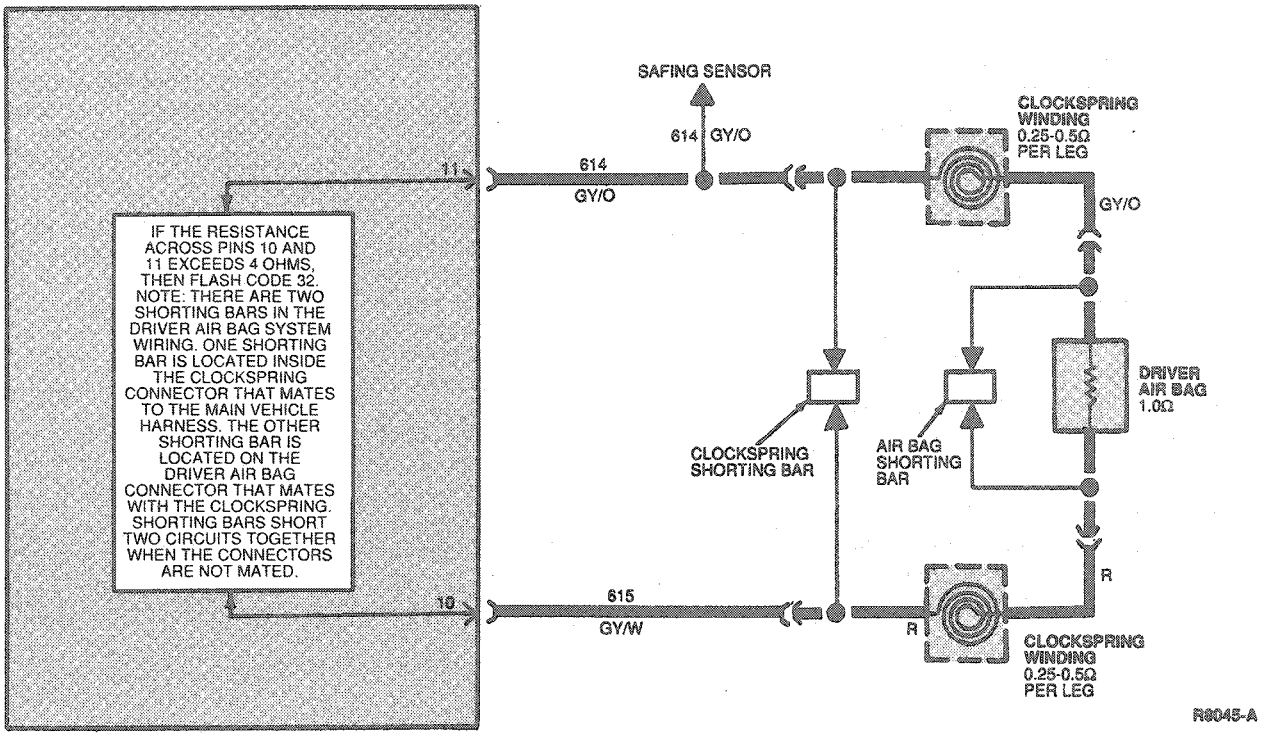
Possible Causes

Excessive resistance across Pins 10 and 11 can be caused by:

1. **A poor connection where the clockspring connects into the main wiring harness.** The clockspring connector at the base of the steering column may have excessive resistance between the male and female terminals in the connector or across the terminal crimps.
2. **An open circuit or high resistance in the clockspring windings** inside the clockspring assembly.
3. **An open circuit or high resistance in the wiring harness in either Circuit 614 (GY/O) or Circuit 615 (GY/W).**
4. **An open circuit or high resistance in the driver side air bag.** DO NOT attempt a direct resistance measurement of the air bag. Follow the diagnostic procedures to determine if the air bag resistance is higher than normal.

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 32



Pinpoint Tests—Diagnostic Trouble Code 32

DIAGNOSTIC TROUBLE CODE 32

TEST STEP		RESULT ▶	ACTION TO TAKE
32-1	VERIFY CONDITION		
● Turn key to ON. ● Count diagnostic trouble code. ● Is code 32 flashing?		Yes ▶ No ▶	GO to 32-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.). DO NOT proceed with Pinpoint Test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 32 (Continued)

TEST STEP	RESULT ▶	ACTION TO TAKE
32-2 MEASURE RESISTANCE ● Deactivate system. ● Disconnect diagnostic monitor. ● Set ohmmeter on lowest scale possible (200 ohms or AUTO). ● "Zero" ohmmeter by touching leads together and record resistance reading. ● Remove plastic locking wedge from Black harness connector. ● Measure resistance across Pin 11 Circuit 614 (GY/O) and Pin 10 Circuit 615 (GY/W). Record measurement. Subtract this reading from reading made when zeroing ohmmeter. ● **Is result less than 2.3 ohms?**	Yes ▶ No ▶	MAKE SURE that locking wedge has been removed from Black harness connector. MAKE SURE to use 2 ohm air bag simulator and not a jumper wire. Then repeat the measurements. GO to **32-3.**
32-3 VERIFY RESISTANCE READING ● **Is result greater than 3.0 ohms?**	Yes ▶ No ▶	GO to **32-5.** GO to **32-4.**
32-4 VERIFY RESISTANCE ● Reconnect diagnostic monitor. ● Turn ignition switch from OFF to RUN. ● **Is code 32 still flashing?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. INSPECT diagnostic monitor harness connector for improperly retained Pins 10 and 11. If OK, INSPECT clockspring wiring in steering wheel for damaged wiring. If OK, RECONNECT driver air bag and VERIFY system. If Code 32 is now flashing, REPLACE driver air bag. RECONNECT system. VERIFY system. REACTIVATE system.
32-5 MEASURE RESISTANCE ● Disconnect clockspring at base of the steering column. ● Install air bag simulator on main wiring harness at base of steering column. ● Measure resistance across Pin 10 (Circuit 615 (GY/W)) and Pin 11 (Circuit 614 (GY/O)) on diagnostic monitor harness connector. ● Subtract this reading from reading made when zeroing ohmmeter. ● **Is result equal to 2 ohms ± 0.2 ohm?**	Yes ▶ No ▶	REPLACE contact assembly (clockspring). REFER to 11-04 for Removal and Installation procedures. RECONNECT system. VERIFY system. REACTIVATE system. VERIFY that air bag simulator resistance measures 2 ohms ± 0.2 ohm. If OK, LOCATE and SERVICE open in Circuit 614 or 615. RECONNECT system. VERIFY system. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

Diagnostic Trouble Code 33

Passenger Side Air Bag Circuit High Resistance or Open

Normal Operation

The diagnostic monitor measures the resistance across Pin 8 (Circuit 614) GY/O) and Pin 9 (Circuit 616) PK/BK) every time the ignition switch is turned to the ON position. Normal resistance across these circuits is between 0.9 ohms and 1.1 ohms. This resistance comes from the passenger side air bag itself. If the vehicle in NOT equipped with a passenger side air bag, Pin 7 of the diagnostic monitor should be connected to ground. Connecting Pin 7 to ground programs the diagnostic monitor to ignore high resistance on the passenger side air bag circuits. If the resistance across these two circuits exceeds 4.0 ohms and Pin 7 is not grounded, the diagnostic monitor will flash code 33.

NOTE: The connector for the air bag has a metal spring clip that acts as a shorting bar. This shorting bar is built into the plastic hardshell connector on the back of the passenger side air bag. The shorting bar is designed to short the air bag terminals together when the connector is not mated. **DO NOT attempt to remove the air bag shorting bar and measure the resistance of the air bag.**

Possible Causes

A high resistance or open in the passenger side air bag circuit can be caused by:

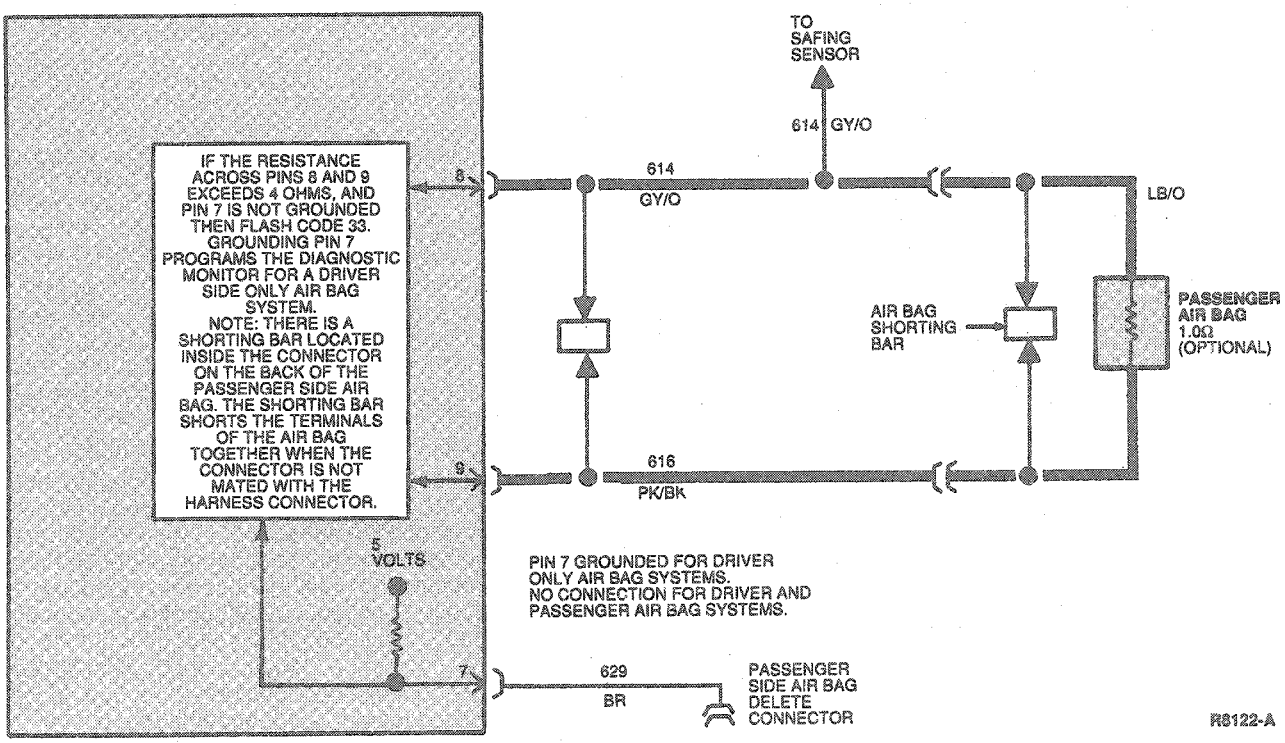
Vehicles not equipped with a passenger side air bag:

1. **Pin 7 not connected to ground.** The wire in pin location 7 in the black diagnostic monitor harness connector should be connected onto a bracket near the passenger side air bag mounting bracket.

Vehicles equipped with a passenger side air bag:

1. **An open circuit or high resistance in the wiring harness in Circuit 614 (GY/O) or 616 (PK/BK).**
2. **An open circuit or high resistance in the passenger side air bag.** DO NOT attempt a direct resistance measurement of the air bag. Follow the diagnostic procedures to determine if the air bag resistance is higher than normal.

Electrical Schematic—Diagnostic Trouble Code 33



DIAGNOSIS AND TESTING (Continued)

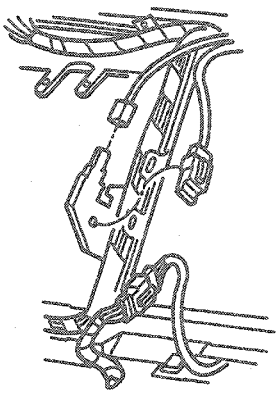
Pinpoint Tests—Diagnostic Trouble Code 33

DIAGNOSTIC TROUBLE CODE 33

TEST STEP	RESULT	ACTION TO TAKE
33-1 VERIFY CONDITION • Turn key to ON. • Count diagnostic trouble code. • **Is code 33 flashing?**	Yes ▶ No ▶	GO to 33-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.). DO NOT proceed with Pinpoint Test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
33-2 DEACTIVATE SYSTEM • Deactivate system. • **Is vehicle equipped with a passenger side air bag?**	Yes ▶ No ▶	GO to 33-3. GO to 33-6.
33-3 MEASURE RESISTANCE • Disconnect diagnostic monitor. • Set ohmmeter on lowest scale possible (200 ohms or AUTO). • "Zero" ohmmeter by touching leads together and record resistance reading. • Remove plastic locking wedge from Black harness connector. • Measure resistance across Pin 8 (Circuit 614, GY/O) and Pin 9 (Circuit 616, PK/BK). Record measurement. Subtract this reading from reading made when zeroing meter. • **Is result greater than 2.2 ohms?**	Yes ▶ No ▶	VERIFY that air bag simulator resistance measures 2 ohms ± 0.2 ohm. If OK, LOCATE and SERVICE open circuit in either Circuit 614 or 616. RECONNECT system. VERIFY air bag indicator. REACTIVATE system. GO to 33-4.
33-4 CHECK FOR CODE 33 • Reconnect diagnostic monitor. • Turn ignition switch from OFF to RUN. • Wait 30 seconds. • **Is code 33 still flashing?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY air bag indicator. REACTIVATE system. GO to 33-5.
33-5 CHECK FOR CODE 33 • Turn ignition switch OFF. • Follow reactivation procedure and install passenger side air bag. • Verify air bag indicator. • **Is code 33 still flashing?**	Yes ▶ No ▶	REPLACE passenger side air bag. RECONNECT system. VERIFY air bag indicator. REACTIVATE system. The fault is intermittent. INSPECT Circuits 614 and 616 for potential open circuits. EXAMINE all connectors at diagnostic monitor and passenger air bag.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 33 (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
33-6	MEASURE RESISTANCE		
• Disconnect diagnostic monitor. • Disconnect battery cables. • Measure resistance between diagnostic monitor harness Circuit 629 (BR) Pin 7 and Pin 3 (ground). • **Is resistance less than 10 ohms? (Is Pin 7 grounded?)**  WITHOUT PASSENGER AIR BAG R7585-A		Yes ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY air bag indicator. REACTIVATE system.
		No ▶	LOCATE and CONNECT wire in Pin 7 to ground. Be sure to connect it to the correct place on the bracket as shown.

Diagnostic Trouble Code 34

Driver Side Air Bag Circuit Low Resistance or Shorted

Normal Operation

The diagnostic monitor measures the resistance across Pin 10 (Circuit 615, GY/W) and Pin 11 (Circuit 614, GY/O) every time the ignition switch is turned to the ON position. Normal resistance across these circuits is between 1.5 ohms and 2.0 ohms. This resistance comes from the air bag itself (approximately 1.0 ohm) and the clockspring windings (0.25 to 0.5 ohm per winding, two windings in all). If the resistance across these two circuits is less than 0.7 ohm, the diagnostic monitor will flash code 34.

NOTE: The connectors for the air bag and the clockspring have metal spring clips that act as shorting bars. These shorting bars are built into the plastic hardshell connectors. The shorting bars are designed to short Circuits 614 and 615 together when the connectors are not mated. **DO NOT attempt to remove the air bag shorting bar and measure the resistance of the air bag.**

The clockspring shorting bar may be removed to measure the clockspring resistance. Use extreme care when reinstalling the shorting bar to ensure it is installed correctly.

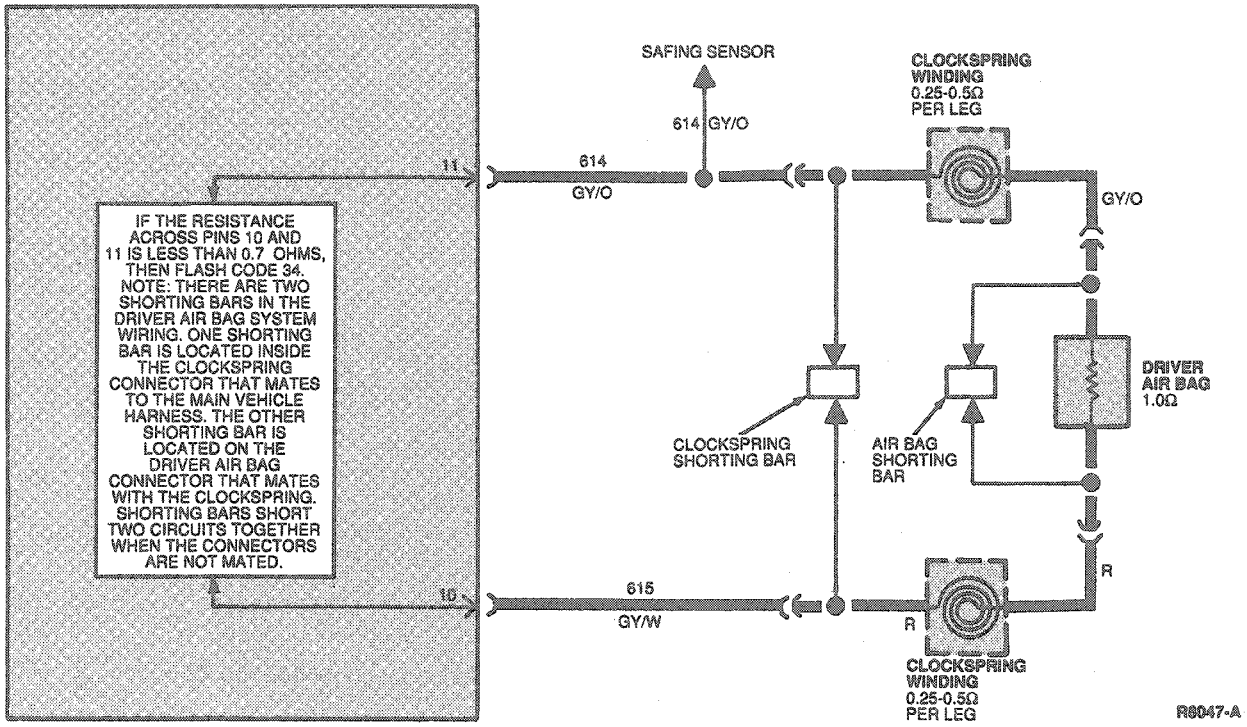
Possible Causes

Low resistance across Pins 10 and 11 can be caused by:

1. **A poorly mated air bag clockspring connector** may not push the shorting bars back into their fully retracted positions.
2. **A damaged shorting bar** may short Circuits 614 and 615 together.
3. **A short in the clockspring windings** between Circuits 614 and 615.
4. **A short across the air bag terminals within the air bag.** DO NOT attempt a direct resistance measurement of the air bag. Follow the diagnostic procedures to determine if the air bag resistance is lower than normal.

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 34



Pinpoint Tests—Diagnostic Trouble Code 34

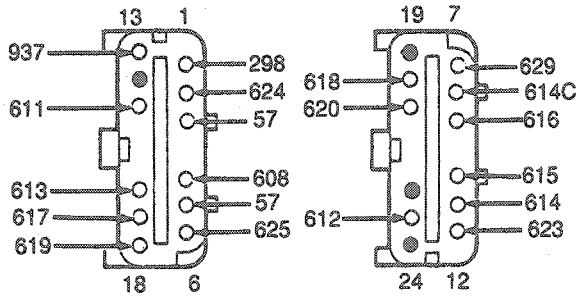
DIAGNOSTIC TROUBLE CODE 34

TEST STEP		RESULT ▶	ACTION TO TAKE
34-1	VERIFY CONDITION		
	• Turn key to ON. • Count diagnostic trouble code. • **Is code 34 flashing?**	Yes ▶ No ▶	GO to 34-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.). DO NOT proceed with Pinpoint Test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 34 (Continued)

TEST STEP	RESULT ▶	ACTION TO TAKE
34-2 MEASURE RESISTANCE ● Deactivate system. Leave driver side air bag harness connector empty. (DO NOT install air bag simulator). ● Disconnect diagnostic monitor. ● Remove plastic locking wedge from black harness connector. ● Measure resistance across Pin 11 (Circuit 614, GY/O) and Pin 10 (Circuit 615, GY/W). ● **Is resistance across Pins 10 and 11 infinite (open)?**	Yes ▶ No ▶	GO to 34-3. GO to 34-4.
34-3 CHECK FOR CODE 34 ● Install air bag simulator onto clockspring connector at steering wheel. ● Reconnect diagnostic monitor. ● Turn ignition switch from OFF to RUN. ● Wait 30 seconds. ● **Is code 34 flashing?**	Yes ▶ No ▶	VERIFY air bag simulator resistance is 2.0 ohms ± 0.2 ohm. If OK, REPLACE diagnostic monitor. RECONNECT system. VERIFY air bag indicator. REACTIVATE system. EXAMINE shorting bar on driver side air bag connector for proper function. REPLACE driver side air bag if shorting bar is normal. RECONNECT system. VERIFY system. REACTIVATE system. NOTE: Examine clockspring to main harness connector as an example of normal shorting bar.



DIAGNOSTIC MONITOR CONNECTOR GRAY

DIAGNOSTIC MONITOR CONNECTOR BLACK

R7876-A

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 34 (Continued)

TEST STEP	RESULT ▶	ACTION TO TAKE
34-4 MEASURE RESISTANCE		
• Disconnect clockspring at base of the steering column where it mates with main vehicle harness. • Measure resistance across Pin 11 (Circuit 614, GY/O) and Pin 10 (Circuit 615, GY/W). • **Is resistance across Pins 10 and 11 infinite (open)?**	Yes ▶	EXAMINE shorting bar in clockspring main harness connector for proper function. NOTE: Examine driver side air bag connector as an example of a normal shorting bar. REPLACE clockspring if shorting bar is normal. RECONNECT system. VERIFY system. REACTIVATE system.
	No ▶	LOCATE and SERVICE short across Circuits 614 and 615 in wiring harness. INSPECT diagnostic monitor harness connector and clockspring harness connector for shorted terminals. RECONNECT system. VERIFY air bag indicator. REACTIVATE system.

Diagnostic Trouble Code 35

Passenger Side Air Bag Circuit Low Resistance or Shorted

Normal Operation

The diagnostic monitor measures the resistance across Pin 8 (Circuit 614, GY/O) and Pin 9 (Circuit 616, PK/BK) every time the ignition switch is turned to the ON position. Normal resistance across these circuits is between 0.9 ohm and 1.1 ohms. This resistance comes from the passenger side air bag itself. If the resistance across Pin 8 and 9 is less than 0.7 ohm, the monitor will flash code 35. Note that it does not matter if Pin 7 is grounded or not. If low resistance is measured across Pins 8 and 9, diagnostic trouble code 35 will flash.

NOTE: The connector for the air bag has a metal spring clip that acts as a shorting bar. This shorting bar is built into the plastic hardshell connector on the back of the passenger side air bag. The shorting bar is designed to short the air bag terminals together when the connector is not mated. **DO NOT attempt to remove the air bag shorting bar and measure the resistance of the air bag.**

Possible Causes

Low resistance across Pins 8 and 9 can be caused by:

Vehicle not equipped with a passenger air bag:

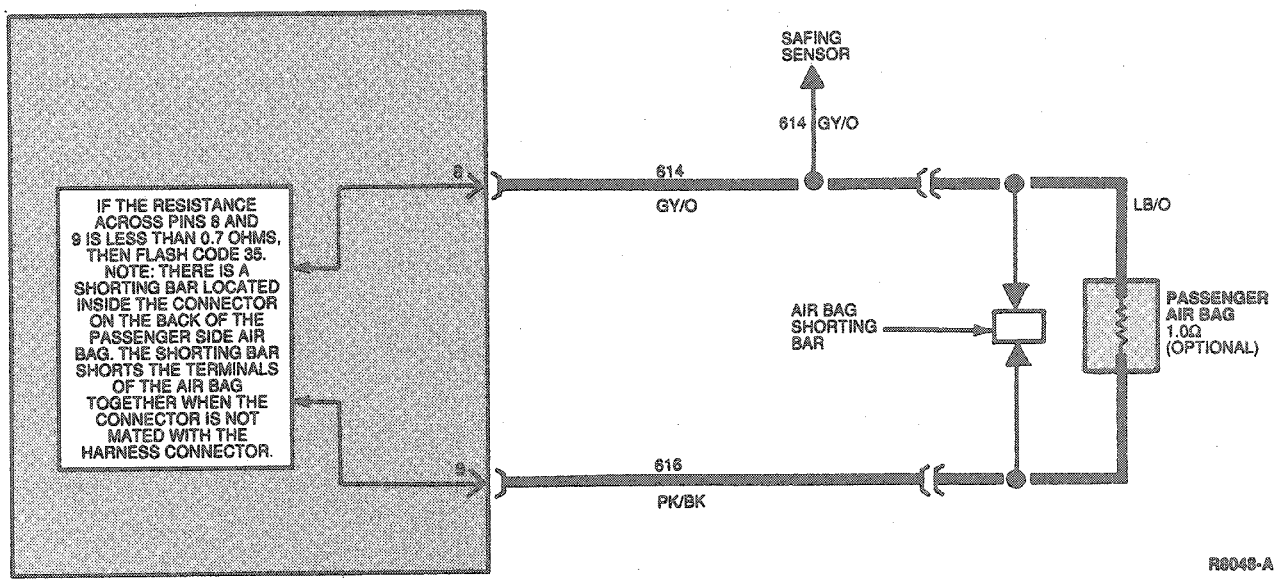
1. **A jumper wire installed across passenger air bag harness connector.** The passenger air bag connector should be empty.

Vehicle equipped with a passenger air bag:

1. **A poorly mated passenger air bag harness connector** may not push the shorting bars back into their fully retracted positions.
2. **A damaged shorting bar** may short Circuits 614 and 616 together.
3. **A short across the passenger air bag terminals within the air bag.** DO NOT attempt a direct resistance measurement of the air bag. Follow the diagnostic procedures to determine if the air bag resistance is lower than normal.

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 35



Pinpoint Tests—Diagnostic Trouble Code 35

DIAGNOSTIC TROUBLE CODE 35

TEST STEP	RESULT	ACTION TO TAKE
35-1 VERIFY CONDITION ● Turn key to ON. ● Count diagnostic trouble code. ● Is code 35 flashing?	Yes ▶ No ▶	GO to 35-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.). DO NOT proceed with Pinpoint Test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
35-2 MEASURE RESISTANCE ● Deactivate system. Leave passenger side air bag harness connector empty. (DO NOT install air bag simulator). ● Disconnect diagnostic monitor. ● Remove plastic locking wedge from Black harness connector. ● Measure resistance across Pin 8 (Circuit 614, GY/O) and Pin 9 (Circuit 616, PK/BK). ● Is resistance across Pins 8 and 9 infinite (open)?	Yes ▶ No ▶	GO to 35-3. LOCATE and SERVICE short across Circuits 614 and 616 in wiring harness. INSPECT diagnostic monitor harness connector and terminals for possible short circuits. RECONNECT system. VERIFY air bag indicator. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 35 (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
35-3	CHECK FOR CODE 35		
	• Install passenger air bag simulator onto passenger side air bag harness connector. • Reconnect diagnostic monitor. • Turn ignition switch from OFF to RUN. • Wait for 30 seconds. • **Is code 35 flashing?**	Yes ▶	VERIFY air bag simulator is 2.0 ohms ± 0.2 ohm. If OK, REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system.
		No ▶	EXAMINE shorting bar on passenger side air bag harness connector for proper function. NOTE: EXAMINE clockspring main harness connector as an example of a normal shorting bar. REPLACE passenger side air bag if shorting bar is normal. RECONNECT system. VERIFY system. REACTIVATE system.

Diagnostic Trouble Code 41

Center Cowl Primary Crash Sensor Feed/Return Circuit Open

Normal Operation

The voltage at Pin 17 (Circuit 617, PK/O) is approximately 10 volts (± 1 volt). Circuit 617 is connected to Circuit 624 (Y/W) inside the center cowl primary crash sensor. Therefore, the voltage at Pin 2 should be the same as the voltage at Pin 17. If the voltage at Pin 2 is less than the voltage at Pin 17, the diagnostic monitor will flash code 41.

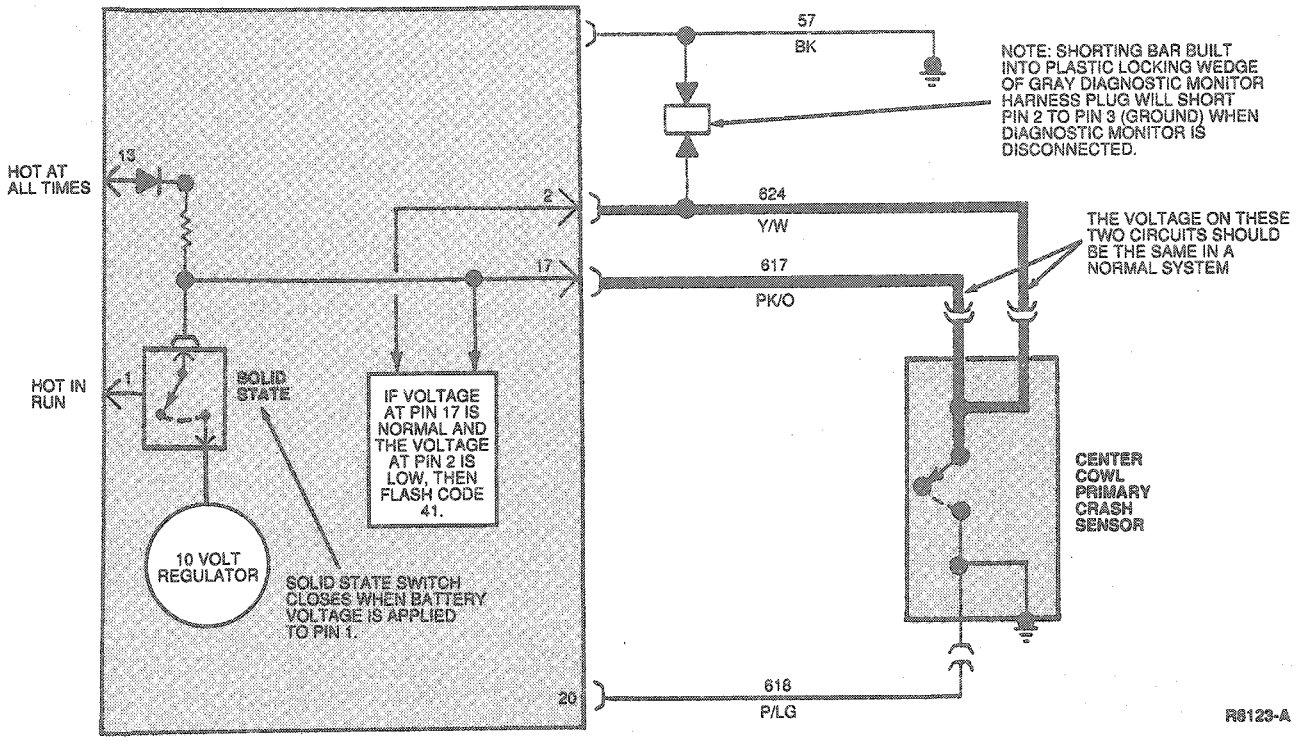
Possible Causes

Low voltage at Pin 2 can be caused by:

1. **An open circuit in the wiring harness in either Circuit 617 (PK/O) or Circuit 624 (Y/W).**
2. **An open circuit in center cowl primary crash sensor** across the PK/O and Y/W wires.

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 41



Pinpoint Tests—Diagnostic Trouble Code 41

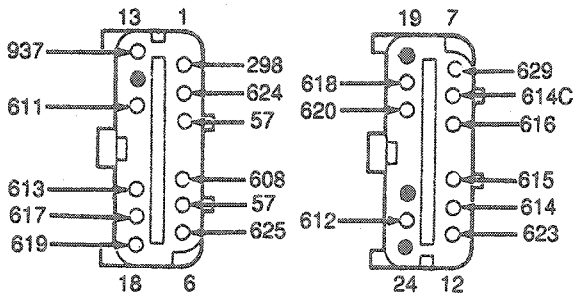
DIAGNOSTIC TROUBLE CODE 41

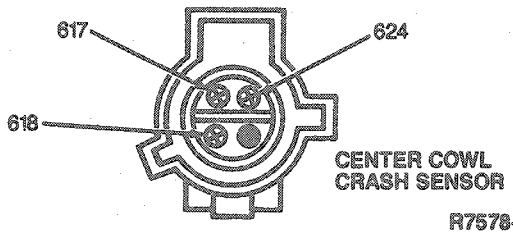
TEST STEP		RESULT	ACTION TO TAKE
41-1	VERIFY CONDITION		
	• Turn key to ON. • Count diagnostic trouble code. • **Is Code 41 flashing?**	Yes ▶ No ▶	GO to 41-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 41 (Continued)

TEST STEP	RESULT	ACTION TO TAKE
41-2 DEACTIVATE SYSTEM • Deactivate system. • Disconnect diagnostic monitor. • Set ohmmeter on 200 ohm scale or AUTO. • Measure resistance across Pin 17 (Circuit 617, PK/O) and Pin 2 (Circuit 624, Y/W) of diagnostic monitor harness connector. • **Is resistance reading less than 2 ohms?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. GO to 41-3.
41-3 CHECK RESISTANCE OF CENTER COWL PRIMARY CRASH SENSOR • Disconnect center cowl primary crash sensor from harness. • Measure resistance across Circuits 617 (PK/O) and 624 (Y/W) in sensor connector. • **Is resistance reading less than 2 ohms?**	Yes ▶ No ▶	LOCATE and SERVICE open circuit in wiring harness between diagnostic monitor and center cowl primary crash sensor in either Circuit 617 (PK/O) or 624 (Y/W). INSPECT all interconnections. RECONNECT system. VERIFY system. REACTIVATE system. REPLACE center cowl primary crash sensor. RECONNECT system. VERIFY system. REACTIVATE system.





Diagnostic Trouble Code 42

Center Radiator Primary Crash Sensor Feed/Return Circuit Open

Normal Operation

The voltage at Pin 18 (Circuit 619, PK/W) is approximately 10 volts (± 1 volt). Circuit 619 is connected to Circuit 625 (Y/LG) inside the center radiator primary crash sensor. Therefore, the voltage at Pin 6 should be the same as the voltage at Pin 18. If the voltage at Pin 6 is lower than the voltage at Pin 18, the diagnostic monitor will flash code 42.

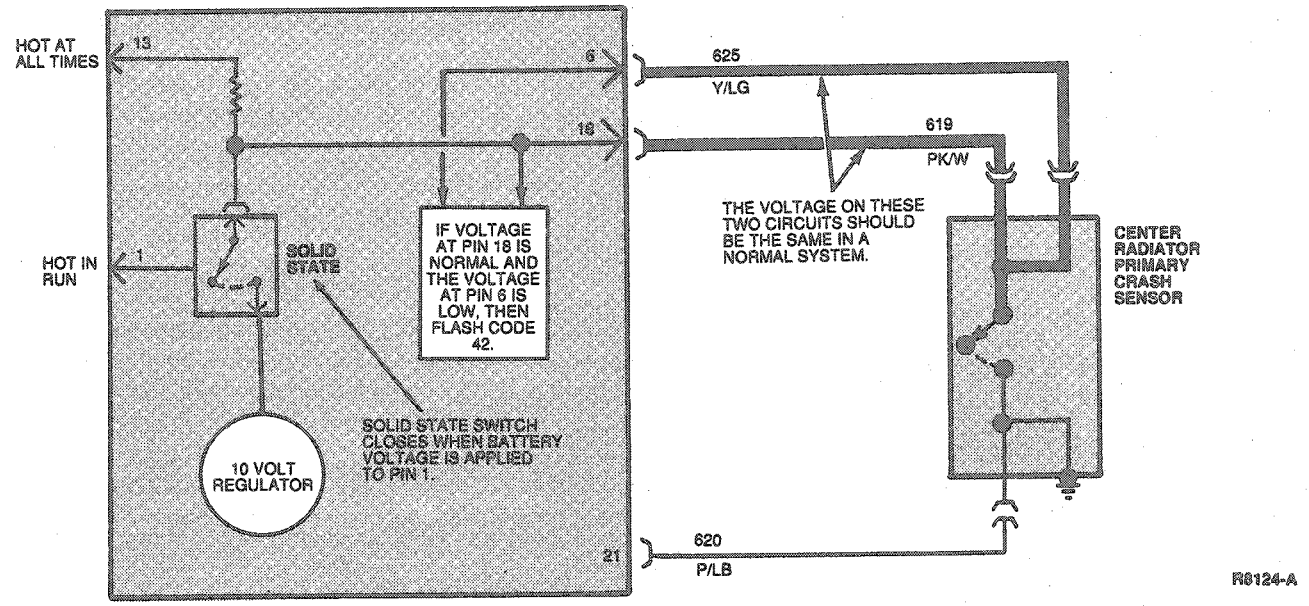
Possible Causes

Low voltage on Pin 6 can be caused by:

1. **An open circuit in the wiring harness in either Circuit 619 (PK/W) or Circuit 625 (Y/LG).**
2. **An open circuit in center radiator primary crash sensor** across the PK/W and Y/LG wires.

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 42



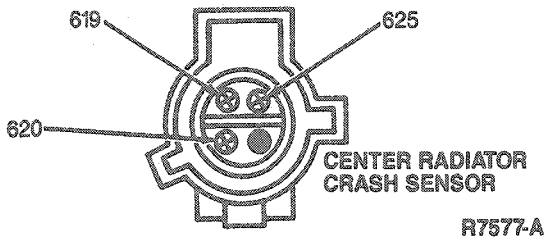
Pinpoint Tests—Diagnostic Trouble Code 42

DIAGNOSTIC TROUBLE CODE 42

TEST STEP	RESULT ▶	ACTION TO TAKE
42-1 VERIFY CONDITION		
• Turn key to ON. • Count diagnostic trouble code. • **Is Code 42 flashing?**	Yes ▶ No ▶	GO to 42-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
42-2 DEACTIVATE SYSTEM		
• Deactivate system. • Disconnect diagnostic monitor. • Set ohmmeter on 200 ohm scale or AUTO. • Measure resistance across Pin 18 (Circuit 619, PK/W) and Pin 6 (Circuit 625, Y/LG) of the diagnostic monitor harness connector. • **Is resistance reading less than 2 ohms?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. GO to 42-3.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 42 (Continued)

TEST STEP		RESULT ▶	ACTION TO TAKE
42-3	CHECK RESISTANCE OF CENTER RADIATOR PRIMARY CRASH SENSOR		
	• Disconnect center radiator primary crash sensor from harness. • Measure resistance across Circuits 619 (PK/W) and 625 (Y/LG) in sensor connector. • Is resistance reading less than 2 ohms?	Yes ▶	LOCATE and SERVICE open circuit in the wiring harness between diagnostic monitor and primary crash sensor in either Circuit 619 (PK/W) or 625 (Y/LG). INSPECT all interconnections. RECONNECT system. VERIFY system. REACTIVATE system.
		No ▶	REPLACE center radiator primary crash sensor. RECONNECT system. VERIFY system. REACTIVATE system.

Diagnostic Trouble Code 44

Center Cowl Primary Crash Sensor Not Mounted To Vehicle Properly

Normal Operation

The diagnostic monitor measures the resistance between Pin 20 (Circuit 618, P/LG) and Pin 3 (diagnostic monitor reference ground). If the diagnostic monitor measures a difference of more than 2.0 ohms between Pin 20 and Pin 3, it will flash out code 44.

Note that Circuit 618 (P/LG) is grounded to the side of the center cowl primary crash sensor case and the case of the sensor is grounded to the vehicle at its mounting point.

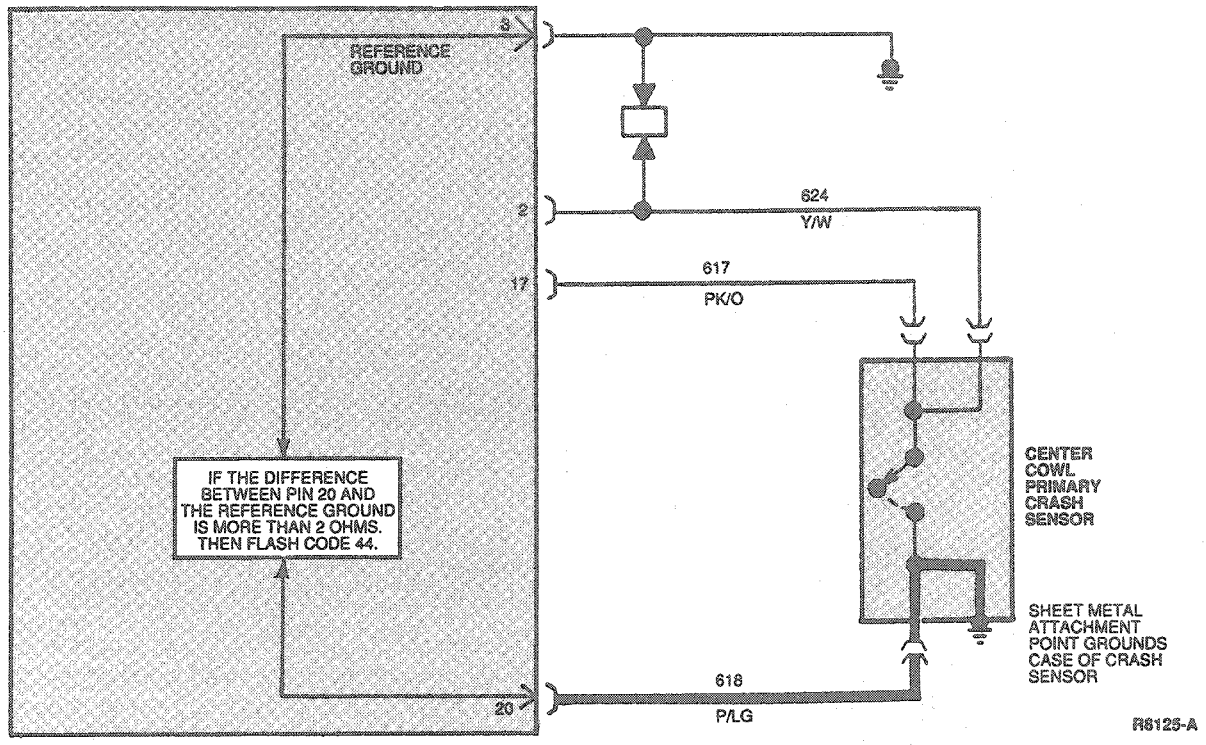
Possible Causes

High resistance on Pin 20 (Circuit 618, P/LG) to ground can be caused by:

1. **A poor connection due to loose mounting, dirt, or corrosion at the center cowl primary crash sensor** mounting location.
2. **An open or damaged wire in Circuit 618** (P/LG) from Pin 20 of the diagnostic monitor harness connector to center cowl primary crash sensor.
3. **An open circuit inside the center cowl primary crash sensor.**

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 44



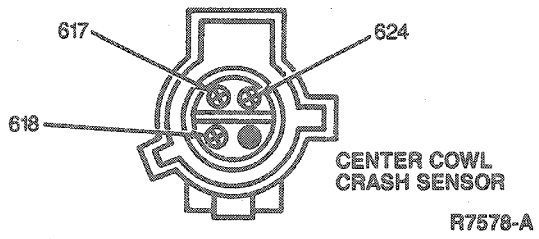
Pinpoint Tests—Diagnostic Trouble Code 44

DIAGNOSTIC TROUBLE CODE 44

TEST STEP	RESULT ▶	ACTION TO TAKE
44-1 VERIFY CONDITION		
• Turn key to ON. • Count diagnostic trouble code. • Is Code 44 flashing?	Yes ▶	GO to 44-2.
	No ▶	Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 44 (Continued)

TEST STEP	RESULT ▶	ACTION TO TAKE
44-2 DEACTIVATE SYSTEM		
• Deactivate system. Leave positive battery cable disconnected. • Disconnect diagnostic monitor. • Set ohmmeter on lowest ohm scale possible (200 ohms or AUTO). • Zero ohmmeter. Record resistance reading with the two leads together. • Measure resistance between Pin 20 (Circuit 618, P/LG) and Pin 3 (ground). • Subtract the reading made when zeroing meter. • **Is result greater than 2 ohms?**	Yes ▶ No ▶	GO to 44-3. REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system.
44-3 CHECK CENTER COWL CRASH SENSOR GROUND		
• Disconnect center cowl primary crash sensor from harness. • Measure resistance between Circuit 618 (P/LG) in sensor connector and a nearby, good, chassis ground. Make sure that this ground is clean and bare. • **Is resistance less than 2 ohms?**  	Yes ▶ No ▶	INSPECT Circuit 618 (P/LG) between Pin 20 of diagnostic monitor and sensor for open circuit. CHECK all interconnects for poor connections. SERVICE any poor connections. RECONNECT system. VERIFY system. REACTIVATE system. REMOVE screws retaining sensor. CLEAN mounting surface of center cowl sensor and chassis. INSTALL sensor. TIGHTEN screws to proper specification. GO to 44-4.
44-4 MEASURE RESISTANCE OF SENSOR TO GROUND		
• Measure resistance between Circuit 618 (P/LG) in sensor connector and chassis ground. • **Is the resistance less than 2 ohms?**	Yes ▶ No ▶	RECONNECT system. VERIFY system. REACTIVATE system. REPLACE center cowl primary crash sensor. RECONNECT system. VERIFY system. REACTIVATE system.

Diagnostic Trouble Code 45

Center Radiator Primary Crash Sensor Not Mounted To Vehicle Properly

Normal Operation

The diagnostic monitor measures the resistance between Pin 21 (Circuit 620, P/LB) and Pin 3 (diagnostic monitor reference ground). If the diagnostic monitor measures a difference of more than 2.0 ohms between Pin 21 and Pin 3, it will flash out code 45.

Note that Circuit 620 (P/LB) is grounded to the side of the center radiator primary crash sensor case and the case is grounded to the vehicle at its mounting point.

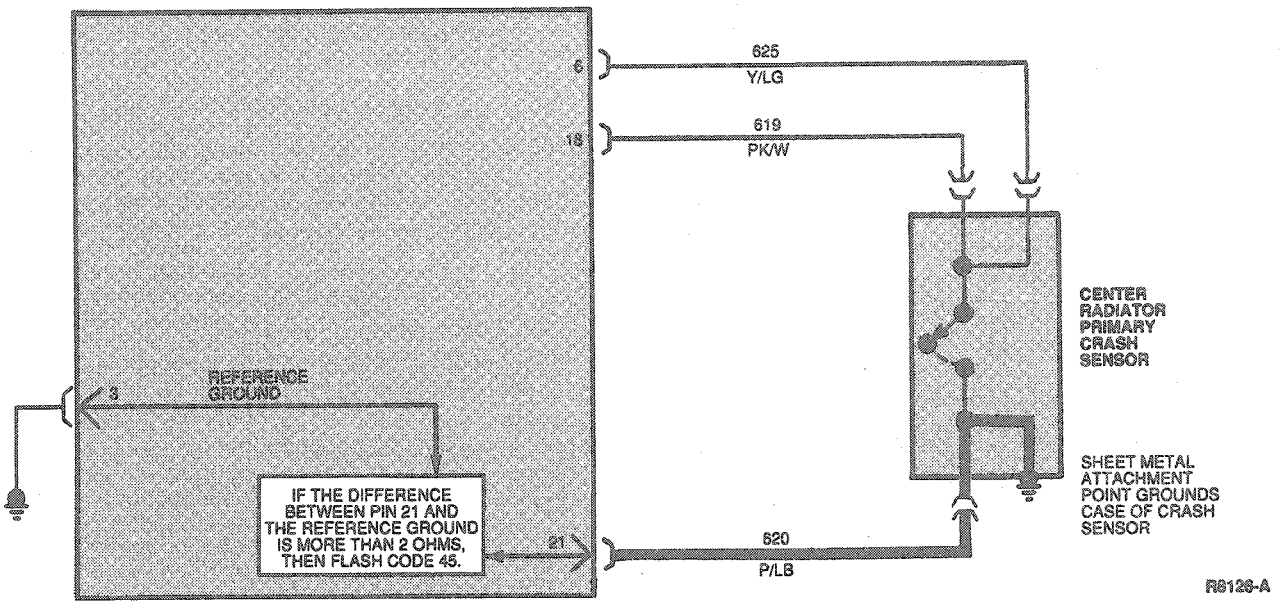
Possible Causes

High resistance on Pin 21 (Circuit 620 P/LB) to ground can be caused by:

1. **A poor connection due to loose mounting, dirt, or corrosion at the center radiator primary crash sensor** mounting location.
2. **An open or damaged wire in Circuit 620 (P/LB)** from Pin 21 of the diagnostic monitor harness connector to center radiator primary crash sensor.
3. **An open circuit inside the center radiator primary crash sensor.**

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 45



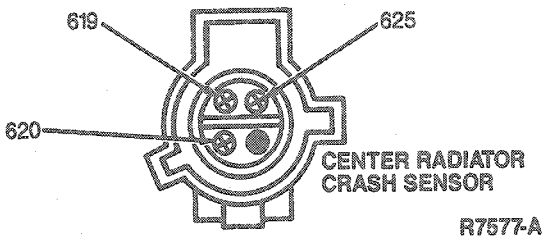
Pinpoint Tests—Diagnostic Trouble Code 45

DIAGNOSTIC TROUBLE CODE 45

TEST STEP	RESULT ▶	ACTION TO TAKE
45-1 VERIFY CONDITION		
• Turn key to ON. • Count diagnostic trouble code. • Is Code 45 flashing?	Yes ▶ No ▶	GO to 45-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
45-2 DEACTIVATE SYSTEM		
• Deactivate system. Leave positive battery cable disconnected. • Disconnect diagnostic monitor. • Set ohmmeter on lowest ohm scale possible (200 ohms or AUTO). • Zero ohmmeter. Record resistance reading with two leads together. • Measure resistance between Pin 21 (Circuit 620, P/LB) and Pin 3 (ground). • Subtract reading taken while zeroing meter. • Is result greater than 2 ohms?	Yes ▶ No ▶	GO to 45-3. REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 45 (Continued)

TEST STEP		RESULT	ACTION TO TAKE
45-3	CHECK CENTER RADIATOR CRASH SENSOR GROUND		
	• Disconnect center radiator primary crash sensor from harness. • Measure resistance between Circuit 620 (P/LB) in sensor connector and a nearby, good chassis ground. Make sure that this ground is clean and bare. • **Is resistance less than 2 ohms?**  	Yes ▶	INSPECT Circuit 620 (P/LB) between Pin 21 of diagnostic monitor and sensor for open circuit. CHECK all interconnects and splices for poor connections. Make sure to CHECK in-line connectors for poor crimps, etc. SERVICE any poor connections. RECONNECT system. VERIFY system. REACTIVATE system.
		No ▶	REMOVE screws retaining sensor. CLEAN mounting surface of sensor and chassis. INSTALL sensor. TIGHTEN screws to proper specification. GO to 45-4.
45-4	MEASURE RESISTANCE OF SENSOR TO GROUND		
	• Measure resistance between Circuit 620 (P/LB) in sensor connector and a good chassis ground. • **Is resistance less than 2 ohms?**	Yes ▶	RECONNECT system. VERIFY system. REACTIVATE system.
		No ▶	REPLACE center radiator primary crash sensor. RECONNECT system. VERIFY system. REACTIVATE system.

Diagnostic Trouble Code 51

Diagnostic Monitor Internal Thermal Fuse Blown And Short To Ground No Longer Exists

Short to Ground was Serviced or is Intermittent

Normal Operation

NOTE: The diagnostic monitor contains an internal thermal fuse that is not serviceable. The thermal fuse is controlled by the diagnostic monitor. The diagnostic monitor will blow the thermal fuse whenever a short on the deployment circuits occurs. **The thermal fuse does not blow because of excessive current flowing through it. DO NOT attempt to jumper out the thermal fuse with a circuit breaker or any other type of fuse.**

WARNING: DO NOT INSTALL A NEW DIAGNOSTIC MONITOR UNTIL THE SHORT HAS BEEN LOCATED AND CORRECTED. IF A SHORT TO GROUND HAS NOT BEEN LOCATED AND CORRECTED, THEN THE SHORT TO GROUND IS INTERMITTENT AND IS NOT PRESENT AT THIS TIME. INSTALLING A NEW DIAGNOSTIC MONITOR WITH AN INTERMITTENT SHORT IN THE SYSTEM WILL RESULT IN REPEAT BLOWN DIAGNOSTIC MONITORS AND REPEAT SERVICE.

The diagnostic monitor measures the voltages at the diagnostic monitor connector Pins. When certain air bag deployment wires are shorted to ground (heavy lines illustrated in the schematic below), the system may become susceptible to unwanted deployment of the air bag(s). The diagnostic monitor senses a short to ground on any of these circuits and helps prevent unwanted air bag deployment by blowing the diagnostic monitor thermal fuse. Blowing this fuse removes all power (battery and back-up power) from the air bag deployment circuits. While the short to ground exists, the monitor will flash diagnostic trouble code 13 or code 14, depending on where the short appears (see code 13 and 14 for more details). If the short to ground is intermittent and temporarily corrects itself, the diagnostic monitor will flash code 51.

NOTE: If the short to ground returns, the higher priority codes 13 or 14 will be flashed instead of 51.

If the Air Bag indicator is flashing code 51 and a short to ground has not been serviced, this means that an intermittent short to ground exists in the air bag system. The diagnostic monitor should be replaced only after service of the intermittent short has been completed.

Some service tips for finding an intermittent short to ground are:

DIAGNOSIS AND TESTING (Continued)

1. Consult OASIS (Restraint Systems Service Code 104000) for up to date diagnostics and descriptions of wiring concern locations for the vehicle (VIN number) you are working on. OASIS is updated daily using concern descriptions from engineering and Dealership Service sources.
2. Inspect wiring and harnesses in areas where they pass through or are located next to metal components (i.e. engine compartment bulkhead, body sheet metal, component mounting brackets, etc.)

Code 51 After Air Bag Deployment

NOTE: Diagnostic monitors can withstand several air bag deployments and do not need to be replaced after every deployment. **Only replace the diagnostic monitor if it is damaged.**

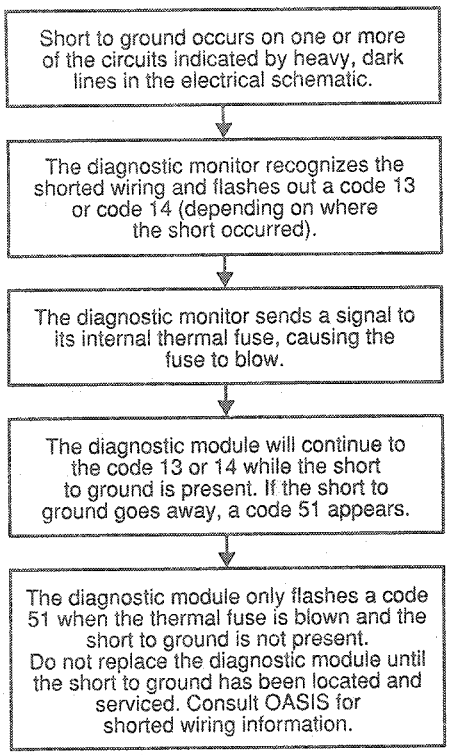
Occasionally, after an air bag deploys, the internal wiring of the air bag(s) may become shorted to the metal housings of the air bag(s). This internal air bag short is detected by the diagnostic monitor as a short to ground in the air bag deployment wiring. Since the diagnostic monitor is still operating immediately after most deployments, the monitor will detect the short and will flash code 13 and blow its internal thermal fuse. After the deployment, as the air bag(s) cool off, the internal shorted wiring may correct itself, therefore the short to ground will no longer exist and the diagnostic monitor will flash code 51. If a vehicle with a deployed air bag is flashing code 51, inspect the vehicle for crushed wiring, sensors, etc. and replace as required. If no damage is found, assume that the deployed air bag was the cause for the intermittent short and replace the diagnostic monitor when the new air bag(s) are installed.

After a short to ground has been corrected, the diagnostic monitor will flash out Diagnostic Trouble Code 51. Diagnostic Trouble Code 51 indicates that the thermal fuse inside the diagnostic monitor is blown and the short to ground no longer exists.

If a short to ground has not been located and serviced (short to ground corrected itself), consult OASIS for potential wiring shorts.

If a short to ground has been correctly located and serviced then replace diagnostic monitor. DO NOT replace diagnostic monitor until the short to ground has been positively located and serviced. Replacing diagnostic monitor before servicing a short to ground will result in repeat service.

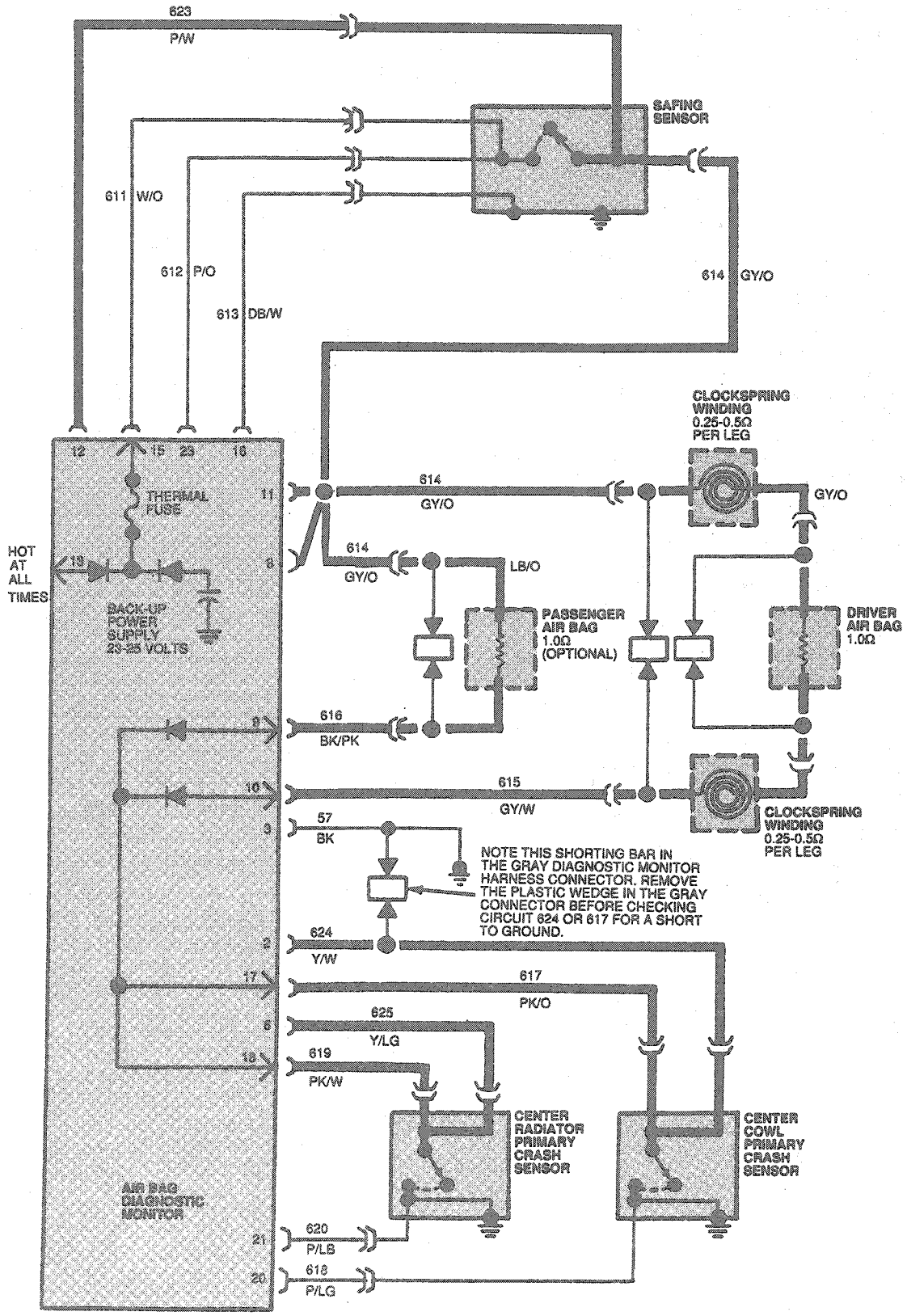
CODE 51 SEQUENCE OF EVENTS



R8069-A

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Diagnostic Trouble Code 51



DIAGNOSIS AND TESTING (Continued)

Diagnostic Trouble Code 52

Back-Up Power Supply Voltage Boost Fault

Normal Operation

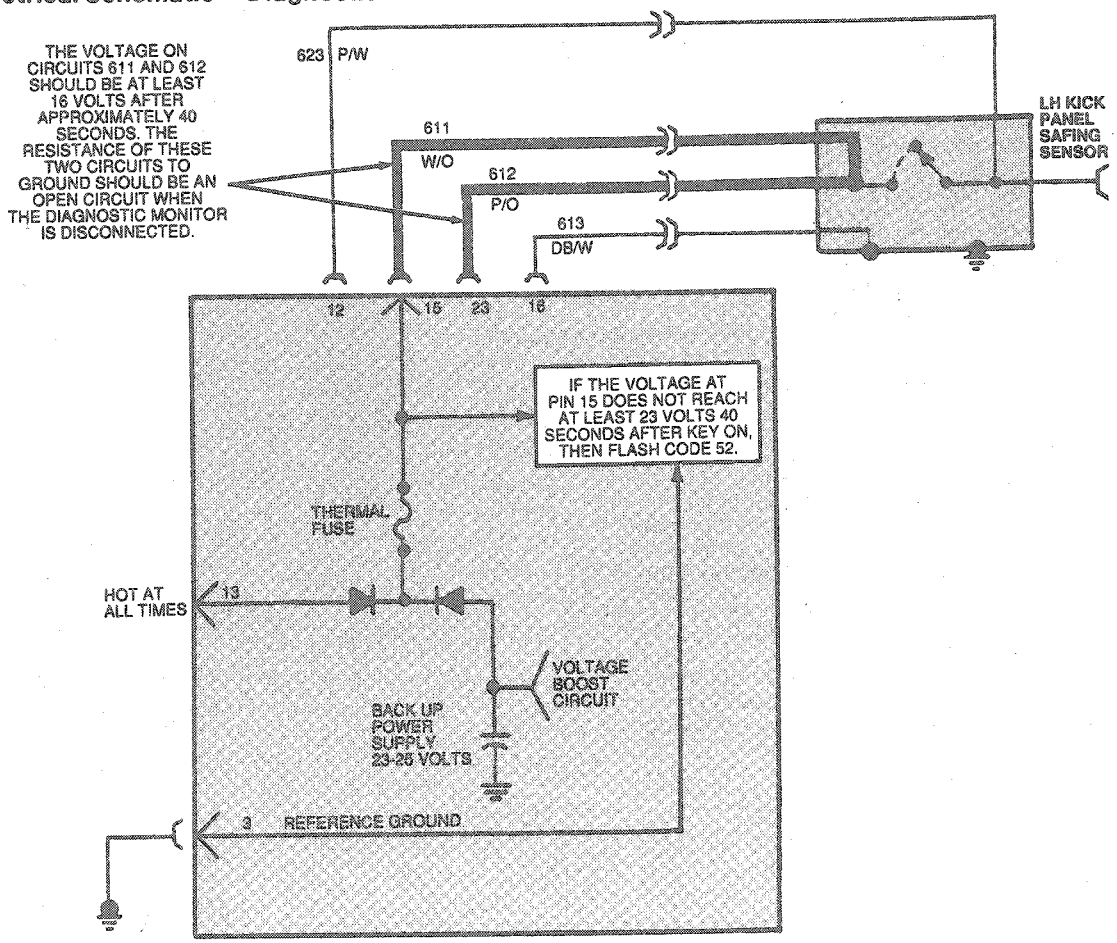
A back up power supply is contained within the diagnostic monitor that consists of a capacitor and a voltage boost circuit. The voltage boost circuit charges the capacitor to approximately 24 volts (± 1 volt) when the ignition switch is turned to ON. The back up power supply is connected through a diode to diagnostic monitor Pin 15 (Circuit 611, W/O). The resistance of Circuit 611 to ground is infinite since it is an open circuit. This open circuit allows the capacitor to maintain its higher voltage because there is no discharge path for the capacitor. The diagnostic monitor measures the voltage on the back up power supply capacitor. If the voltage on the capacitor does not reach and maintain a minimum of 23 volts after approximately 45 seconds, the diagnostic monitor will flash code 52 to indicate low voltage in the back up power supply voltage boost circuit.

Possible Causes

Low back up power supply voltage can be caused by:

1. **Resistance on Circuit 611 (W/O) to ground.** Resistance to ground on Circuit 611 (W/O) or Circuit 612 (P/O) will cause the back up power supply capacitor to discharge and the boost circuit will not be able to boost the voltage.
2. **Boost circuit failure within the diagnostic monitor.** If the voltage boost circuit in the diagnostic monitor is damaged it will not be able to raise the back up power supply voltage on the capacitor.

Electrical Schematic—Diagnostic Trouble Code 52



DIAGNOSIS AND TESTING (Continued)

Pinpoint Tests—Diagnostic Trouble Code 52

DIAGNOSTIC TROUBLE CODE 52

TEST STEP	RESULT ▶	ACTION TO TAKE
52-1 VERIFY CONDITION ● Turn key to ON. ● Count diagnostic trouble code. ● **Is Code 52 flashing?**	Yes ▶ No ▶	GO to 52-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
52-2 DEACTIVATE SYSTEM ● Deactivate system. ● Turn ignition switch from OFF to RUN. ● Wait 45 seconds. ● Measure voltage between Pin 15 (Circuit 611, W/O) and Pin 3 (ground). ● **Is voltage measured 24 volts ± 1 volt?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. GO to 52-3.
52-3 CHECK FOR OPEN IN CIRCUIT 611 ● Turn ignition switch to OFF. ● Disconnect diagnostic monitor. ● Set ohmmeter to 200 k ohm scale or AUTO. ● Measure resistance of Pin 15 (Circuit 611, W/O) to Pin 3 (ground). ● **Is resistance measured greater than 100,000 ohms?**	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. GO to 52-4.
52-4 MEASURE RESISTANCE OF CIRCUIT 611 ● Disconnect LH kick panel safing sensor. ● Measure resistance between Pin 15 (Circuit 611, W/O) and Pin 3 (ground) at the diagnostic monitor harness connector. ● **Is resistance measured greater than 100,000 ohms?**	Yes ▶ No ▶	GO to 52-5. LOCATE and SERVICE short to ground in Circuit 611 (W/O). RECONNECT system. VERIFY system. REACTIVATE system.
52-5 CHECK FOR SHORT IN SENSOR ● Measure resistance of Circuit 611 (W/O) in safing sensor connector to sheet metal ground. ● **Is resistance measured greater than 100,000 ohms?**	Yes ▶ No ▶	LOCATE and SERVICE short to ground in Circuit 612 (P/O). RECONNECT system. VERIFY system. REACTIVATE system. REPLACE LH kick panel safing sensor. RECONNECT system. VERIFY system. REACTIVATE system.

DIAGNOSIS AND TESTING (Continued)

Diagnostic Trouble Code 53

Primary Crash Sensor Circuits Resistance To Ground Or Internal Diagnostic Monitor Failure

Normal Operation

The normal voltage on Pins 2, 6, 17, and 18 is controlled by an internal resistor inside the diagnostic monitor and is internally regulated to approximately 10 volts (± 1 volt). The resistance to ground these pins in the diagnostic monitor harness connector should be infinite. The resistance across the normally open contacts of the two primary crash sensors should also be infinite. The diagnostic monitor measures the voltage on Pins 2, 6, 17, and 18. If there is any resistance to ground on any of these pins or across the primary crash sensor contacts, it will cause the diagnostic voltage on these pins to drop below normal levels. If the diagnostic monitor measures that this voltage has dropped to between 5 and 10 volts, the monitor senses it has an internal voltage regulation failure and will flash code 53. Note that a direct short to ground in the primary crash sensor circuits will drop the voltage to less than 5 volts and the diagnostic monitor will flash code 14 on the air bag indicator (refer to Diagnostic Trouble Code 14 as outlined).

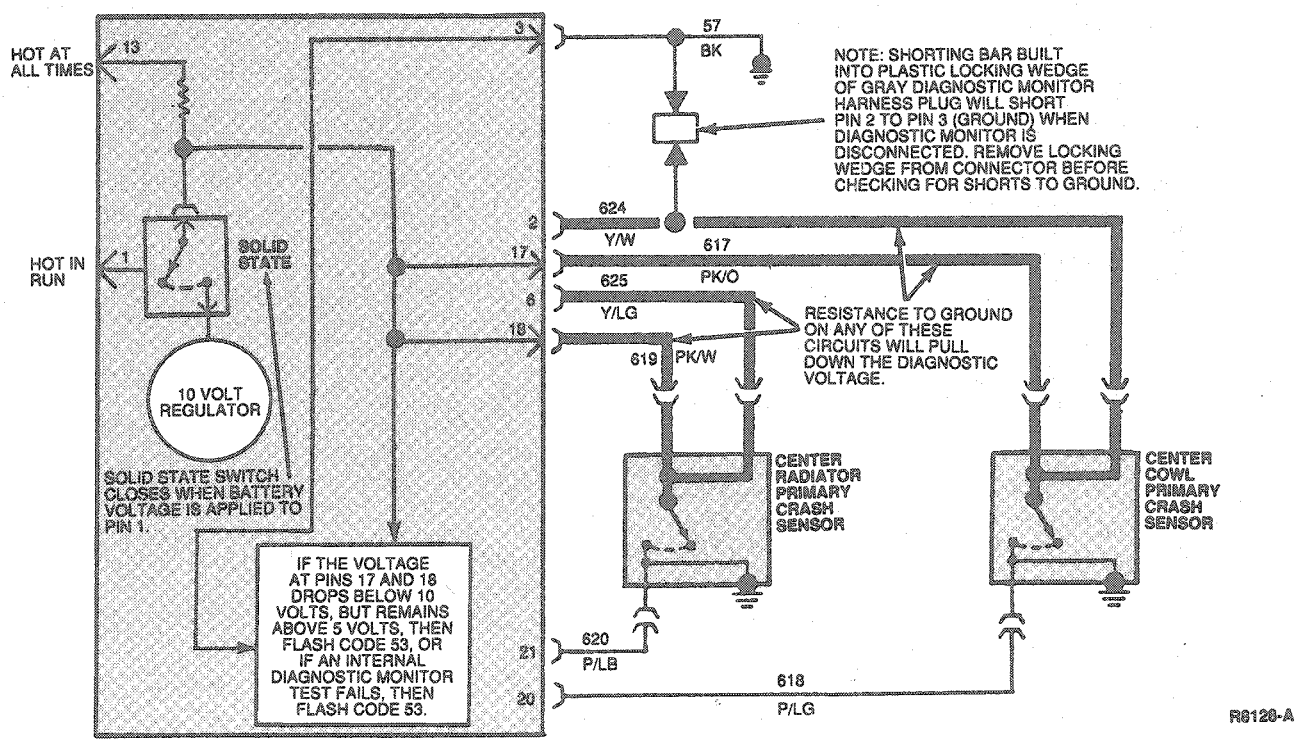
The diagnostic monitor also performs several on-board diagnostics every time the ignition switch is turned on. If any of these tests fail, the diagnostic monitor will flash code 53 on the air bag indicator.

Possible Causes

A voltage drop in the primary crash sensor circuits or an internal diagnostic monitor failure can be caused by:

1. **A partial drop in voltage in the primary crash sensor circuits due to resistance to ground on the primary crash sensor wiring or any resistance across the normally open primary crash sensor contacts.**
2. **Internal diagnostic monitor on-board diagnostics failure.**

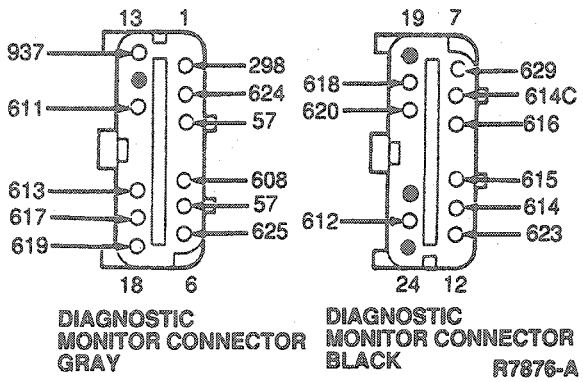
Electrical Schematic—Diagnostic Trouble Code 53



DIAGNOSIS AND TESTING (Continued)

Pinpoint Tests—Diagnostic Trouble Code 53

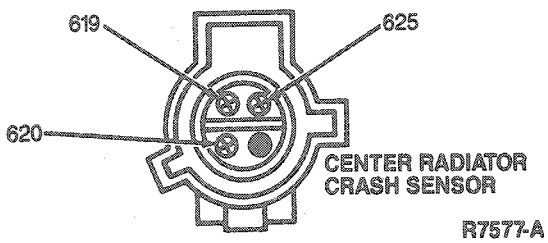
DIAGNOSTIC TROUBLE CODE 53

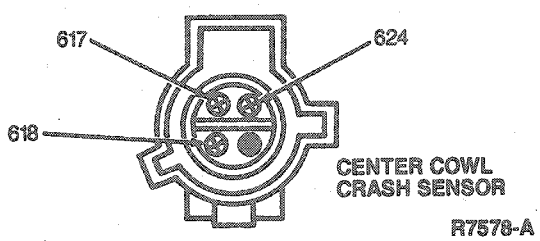
TEST STEP	RESULT	ACTION TO TAKE
53-1 VERIFY CONDITION • Turn key to ON. • Count diagnostic trouble code. • **Is Code 53 flashing?**	Yes ▶ No ▶	GO to 53-2. Read the normal operation description for this diagnostic trouble code. EXAMINE the diagnostic trouble code schematic and look for areas where intermittent conditions would occur (connectors, splices, crimps, etc.) DO NOT proceed with pinpoint test until the code is flashing! Failure to do so will result in needless replacement of the air bag system components and repeat service.
53-2 DEACTIVATE SYSTEM • Deactivate system (leave battery cable disconnected). • Disconnect diagnostic monitor. • Remove plastic locking wedge from Gray harness connector. • Set ohmmeter on highest scale possible (200k ohms or AUTO). • Measure resistance between Pin 3 (ground) and the following circuits: Pin 2 (Circuit 624, Y/W) Pin 6 (Circuit 625, Y/LG) Pin 17 (Circuit 617, PK/O) Pin 18 (Circuit 619, PK/W) • **Are all circuit readings infinite (open)?**  DIAGNOSTIC MONITOR CONNECTOR GRAY DIAGNOSTIC MONITOR CONNECTOR BLACK R7876-A	Yes ▶ No ▶	REPLACE diagnostic monitor. RECONNECT system. VERIFY system. REACTIVATE system. GO to 53-3.

DIAGNOSIS AND TESTING (Continued)

DIAGNOSTIC TROUBLE CODE 53 (Continued)

TEST STEP	RESULT ▶	ACTION TO TAKE
53-3 LOCATE ABNORMAL CRASH SENSOR ● Disconnect primary crash sensor with low resistance reading. ● Measure resistance between Circuits 617 (PK/O) or 619 (PK/W) and ground. ● Is resistance infinite (open)?	Yes ▶	LOCATE and SERVICE short to ground in wiring harness on low resistance circuit. RECONNECT system. VERIFY system. REACTIVATE system.
	No ▶	REPLACE primary crash sensor. RECONNECT system. VERIFY system. REACTIVATE system.





Rapid Continuous Flashing of Air Bag Indicator

All Primary Crash Sensors Disconnected

Normal Operation

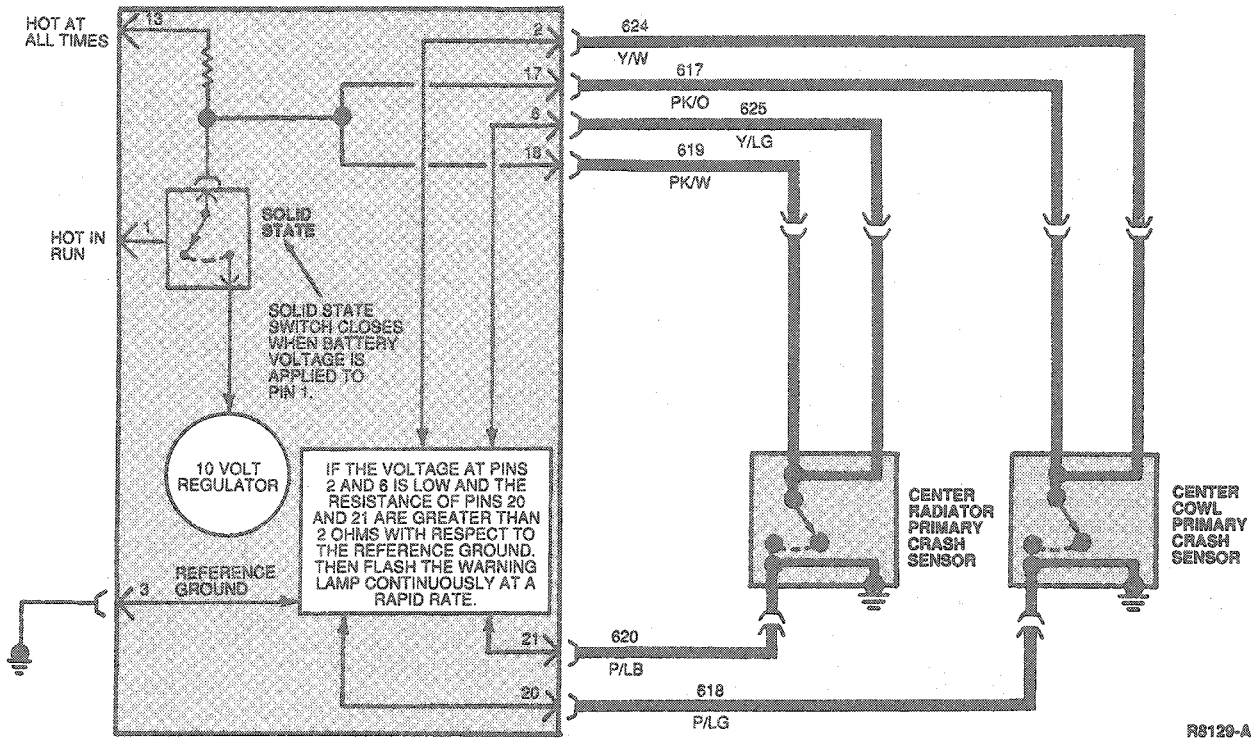
Each primary crash sensor has three wires. Two of the wires are used for air bag deployment and monitoring the sensor's connection to the diagnostic monitor (refer to Diagnostic Trouble Codes 41 and 42 diagnosis as outlined). The other wire is used for monitoring the mounting (ground) of the sensor to sheet metal (refer to codes 44 and 45 diagnosis as outlined). If diagnosis reveals that BOTH primary sensors are not connected AND the primary sensors are not properly grounded, the diagnostic monitor will flash the air bag indicator continuously at a fast rate.

Possible Causes

1. Both primary crash sensors disconnected from wiring harness.

DIAGNOSIS AND TESTING (Continued)

Electrical Schematic—Rapid Continuous Flashing of Air Bag Indicator



REMOVAL AND INSTALLATION

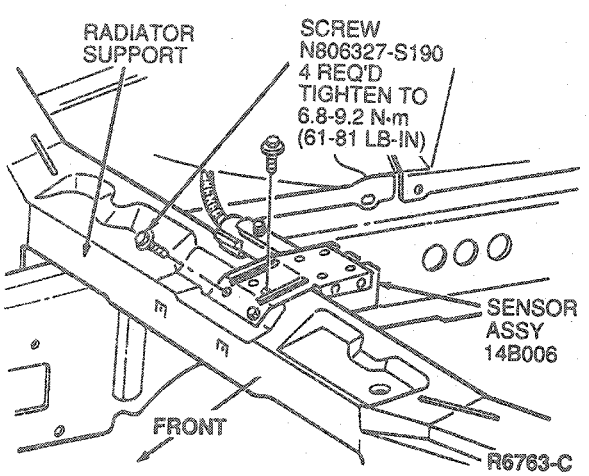
WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE POSITIVE BATTERY CABLE MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.

Sensor—Center Radiator

Removal

NOTE: To service stripped sensor retaining screw at center mounted sensor, use screw (Part No. N802455-S190). Tighten to 13-17 N·m (10-12 lb-ft).

1. Disconnect battery positive cable.
2. Remove sight shield.
3. Disconnect center front sensor electrical connector.



4. Remove four screws retaining center front sensor to radiator support. Remove sensor from vehicle.

Installation

1. Position front center sensor with arrow on top pointing toward front of vehicle and secure to radiator support with four screws. Tighten screws to 6.8-9.2 N·m (61-81 lb-in).
2. Connect front center sensor wire lead connector to wiring assembly connector.
3. Install sight shield.
4. Connect battery positive cable.

REMOVAL AND INSTALLATION (Continued)

5. Verify air bag indicator.

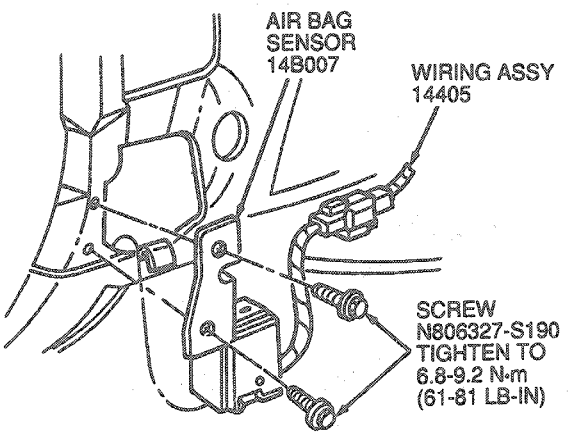
Sensor, LH Kick Panel Safing

NOTE: To service stripped air bag sensor retaining screw center mounted sensor use screw (Part No. N802455-S190). Tighten to 13-17 N·m (10-12 lb-ft).

Removal

WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY POSITIVE CABLE MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.

1. Disconnect battery positive cable.
2. Remove driver cowl side trim panel. Refer to Section 01-05.
3. Disconnect LH safing sensor electrical connector.



R7590-A

4. Remove wiring locator on rail, and two screws retaining LH sensor to LH lower cowl side panel, and remove sensor from vehicle.

Installation

1. Position LH safing sensor to LH lower cowl side panel support, and secure with two retaining screws. Tighten screws to 6.8-9.2 N·m (61-81 lb-in).
2. Connect LH sensor electrical wiring connector to wiring assembly connector.
3. Install locator on connector into wiring retainer.
4. Connect positive battery ground cable.

5. Verify air bag indicator.

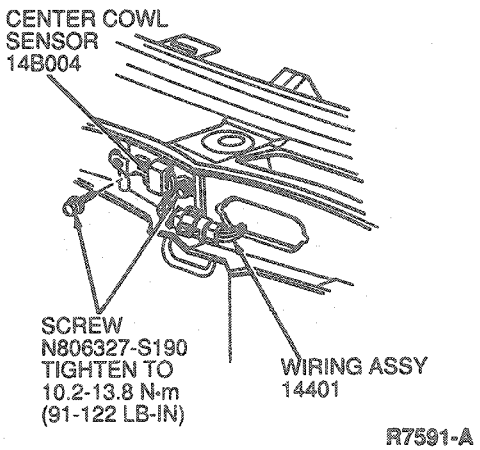
Sensor, Center Cowl Crash

Removal

WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY POSITIVE CABLE MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.

NOTE: To service stripped sensor retaining screws at the rear sensor, use screw (Part No. N806327-S190). Tighten to 4.5-6.1 N·m (40-54 lb-in).

1. Disconnect battery positive cable. Refer to Section 01-05.



R7591-A

2. Remove two screws retaining center cowl primary crash rear sensor to center cowl and remove sensor.
3. Disconnect the center cowl primary crash sensor wiring connector from wiring assembly connector and remove sensor.

Installation

1. Connect center cowl primary crash sensor wiring connector to wiring assembly connector.
2. Position sensor to center cowl panel and secure with retaining screws. Tighten to 10.2-13.8 N·m (91-122 lb-in).
3. Connect battery positive cable.
4. Verify air bag indicator.

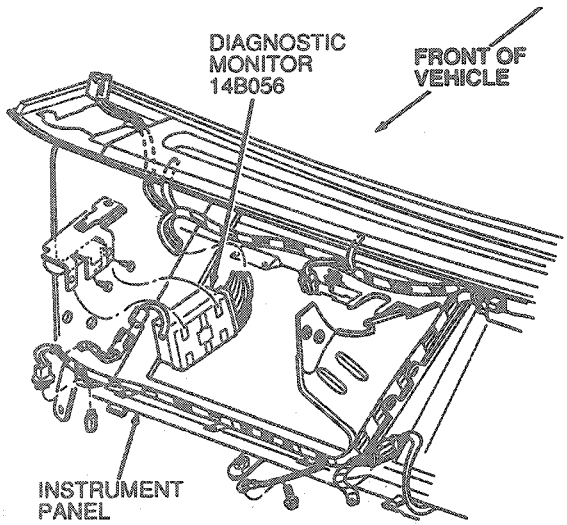
REMOVAL AND INSTALLATION (Continued)

Diagnostic Monitor

Removal

WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY POSITIVE CABLE MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.

1. Disconnect battery positive cable.
2. Rotate glove compartment past its stops.
3. Depress two diagnostic monitor retaining tabs and slide monitor off its bracket.
4. Disconnect two monitor connectors. Remove monitor.



R6767-C

Installation

1. Connect diagnostic monitor connectors.
2. Position monitor to bracket and slide into place. Ensure retaining tabs are secure.
3. Connect positive battery cable.
4. Return glove compartment to its original position.
5. Verify air bag.

Module, Driver Air Bag

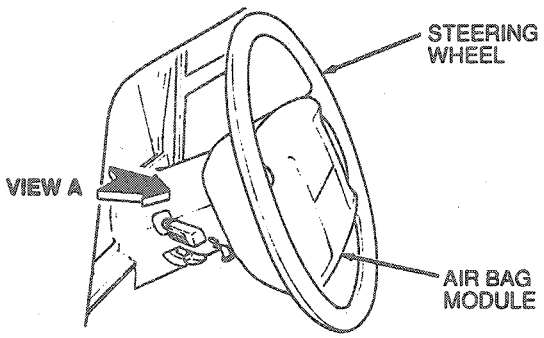
NOTE: If the air bag did not deploy in a collision, it may not have been needed. Complete all diagnosis before replacing the air bag module.

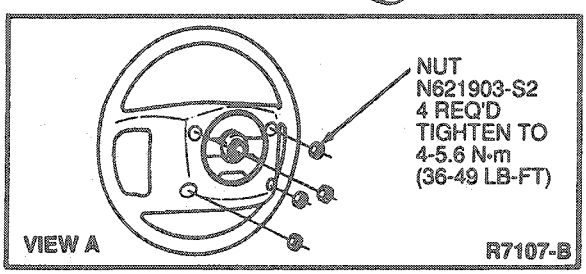
NOTE: Fill out and return air bag traceability postcard for new air bag with VIN numbers, note diagnostic trouble code.

Removal

WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE BATTERY CABLE MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.

1. Disconnect battery positive cable.
2. Remove four nut and washer assemblies retaining air bag module to steering wheel.

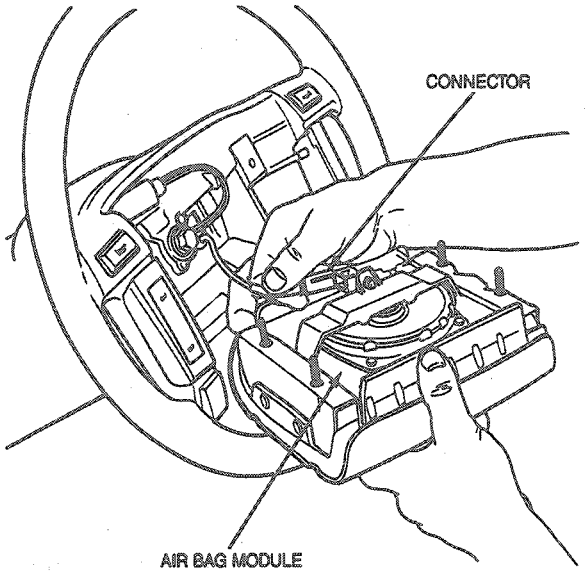




R7107-B

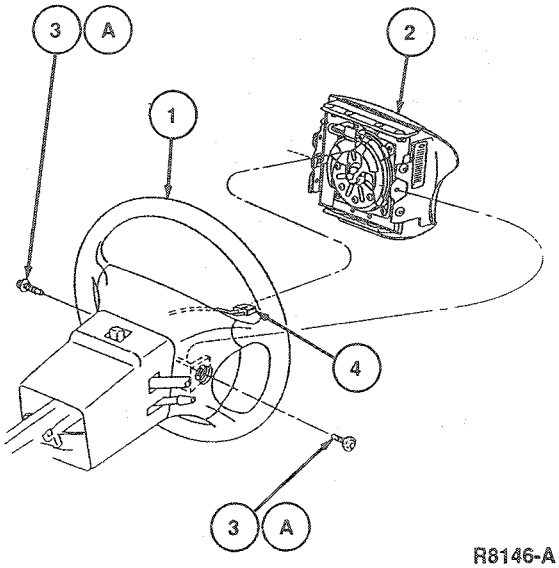
REMOVAL AND INSTALLATION (Continued)

3. Disconnect the air bag electrical connector from clockspring connectors. Remove air bag assembly.



G5783-A

SHO

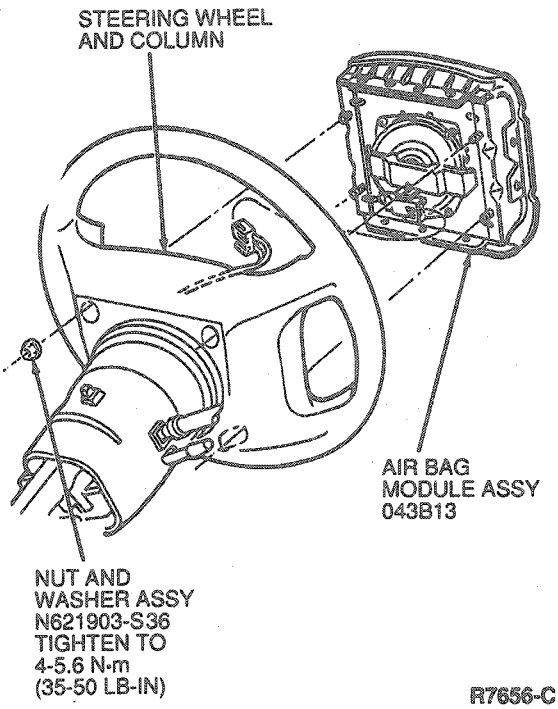


R8146-A

Item	Part Number	Description
1	3600	Steering Wheel
2	014B13	Air Bag Module Assy

(Continued)

Item	Part Number	Description
3A	N807278-S36	Screw and Washer Assy (2 Req'd)
4	—	Air Bag Module-to-Clockspring Connector
A		Tighten to 10.2-13.8 N·m (8-10 Lb-Ft)



R7656-C

Installation

1. Connect the air bag module wiring connector to contact assembly connectors.
2. Position air bag module to steering wheel and secure with four nut and washer assemblies. Tighten to 4-5.6 N·m (36-49 lb-in). For SHO secure with two screw and washer assemblies. Tighten to 10.2-13.8 N·m (8-10 lb-ft).
3. Connect battery ground cable.
4. Verify air bag indicator.

Module, Passenger Air Bag

NOTE: If the air bag did not deploy in a collision, it may not have been needed. Complete all diagnosis before replacing the air bag module.

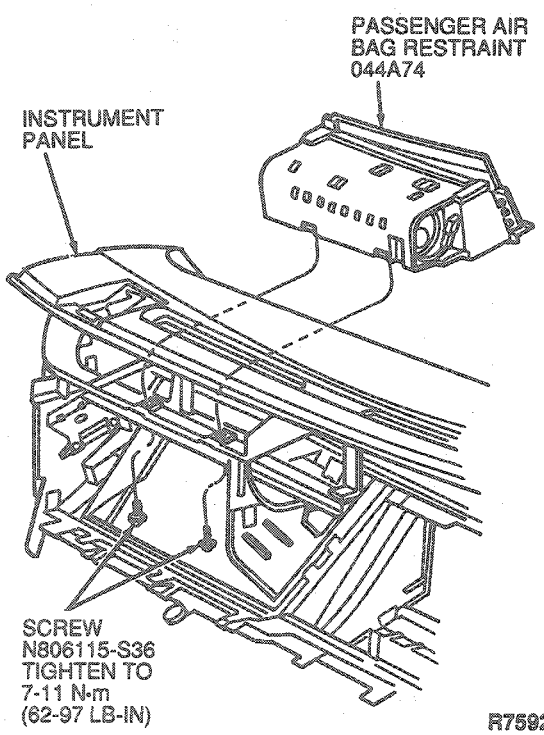
REMOVAL AND INSTALLATION (Continued)

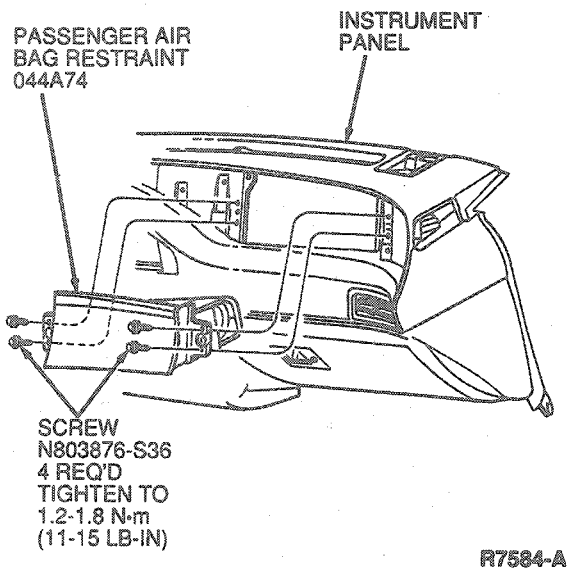
Removal

WARNING: THE ELECTRICAL CIRCUIT NECESSARY FOR SYSTEM DEPLOYMENT IS POWERED DIRECTLY FROM THE BATTERY. TO AVOID ACCIDENTAL DEPLOYMENT AND POSSIBLE PERSONAL INJURY, THE POSITIVE CABLE MUST BE DISCONNECTED PRIOR TO SERVICING OR REPLACING ANY SYSTEM COMPONENTS.

1. Disconnect battery positive cable. Wait one minute for energy to be depleted.
2. Remove RH and LH finish panel.
3. Remove instrument panel finish panel retaining spear clips.
4. Open glove compartment, press side inward and lower glove compartment to floor.
5. Through glove compartment opening, remove two lower air bag module retaining bolts.
6. Remove four remaining air bag module retaining screws from side of air bag cover.
7. Disconnect electrical connector attached to LH side of airbag and remove module.

   WARNING: PLACE AIR BAG MODULE ON BENCH WITH TRIM COVER FACING UP.





Installation

NOTE: Fill out and return air bag traceability postcard for new air bag with VIN numbers, note diagnostic trouble code.

1. Connect electrical connector to air bag module and position module in instrument panel.
2. Install four upper retaining screws. Tighten to 1.2-1.8 N·m (11-15 lb-in).
3. Install lower module retaining bolts. Tighten to 7.6-10.4 N·m (68-92 lb-in).
4. Return glove compartment to correct position.
5. Install instrument panel finish panel locator pin into air bag bushing locator then align spear clips and press finish panel into place.
6. Connect positive battery cable.
7. Verify air bag indicator.

Clockspring

Refer to Section 11-04 for Air Bag Clockspring Removal and Installation.

DISPOSAL PROCEDURES

Several situations may arise which require some form of disposal action: scrapping a vehicle containing a deployed air bag, scrapping a vehicle with a live air bag, disposal of a live but electrically inoperative air bag module or scrapping a deployed module. Disposal recommendations for these situations are shown in the following chart and discussed in detail below.

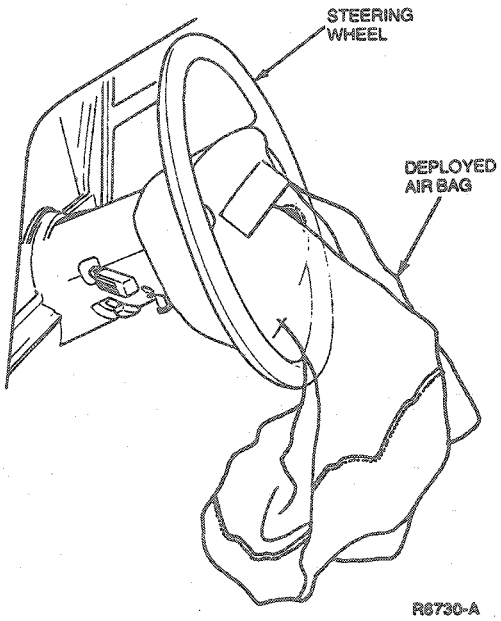
AIR BAG DISPOSAL RECOMMENDATIONS

CONDITION	INSTRUCTIONS
1. Vehicle to be Scrapped; Live Air Bag.	Electrically Deploy Using Procedures 1 or 2 as Required.
2. Vehicle to be Scrapped; Deployed Air Bag.	Scrap Vehicle in the Usual Manner.
3. Module Replaced; Faulty but Live Air Bag.	Package and Label Properly. Return Per Instructions with New Air Bag.
4. Module Replaced; Deployed Air Bag.	Scrap Module in the Usual Manner.

CR4095-B

Deployed Air Bag

To service a vehicle in which the air bag has deployed, the deployed driver air bag must be replaced with a new air bag. The deployed air bag can be disposed of in the same manner as any part to be scrapped.



Undeployed Air Bag—Faulty

In the event that an air bag is diagnosed as faulty (refer to Diagnostic Procedures), the faulty air bag must be replaced by a new air bag. The faulty air bag **CANNOT BE DISPOSED OF IN THE USUAL MANNER**. It must be returned intact to Ford Motor Company for proper disposal. Return the carton to the following address for warranty claim credit:

- **WARRANTY PARTS RETURN CENTER**
  1285 S. MILL STREET
  PLYMOUTH, MI 48170

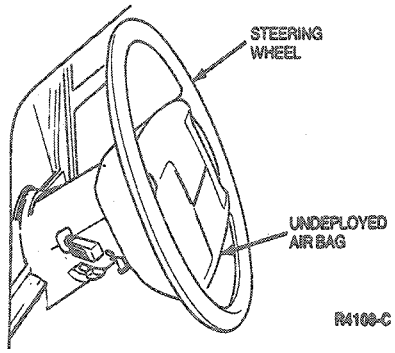
NOTE: All faulty live air bags have been placed on the Mandatory Return List. All discolored or damaged modules should be treated the same as any faulty live air bag being returned.

The air bag must be packaged and shipped according to the U.S. Department of Transportation regulations. Retain packaging used for replacement air bag including the labeling. **Do not deploy air bag.** Properly package the module in the original service replacement carton and securely tape shut, with the Flammable Solid label and shipping exemption affixed to it.

DISPOSAL PROCEDURES (Continued)

Scrapped Vehicle

Some vehicles that are damaged or inoperable to the point that service cannot be made may contain an undeployed air bag. This condition could occur by side or rear impact, rollover or if the vehicle is simply past its useful lifetime. **THE AIR BAG SHOULD BE DEPLOYED USING PROCEDURE 1 OR 2 BELOW PRIOR TO SCRAPPING VEHICLE.**



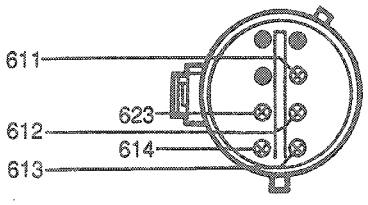
Air Bag Disposal

Procedure 1

Electronic Deployment with Intact Wiring

This procedure is to be used in the event that a vehicle with a live air bag inflator is to be scrapped. Scrapping a vehicle may be required due to severe damage in a non-air bag deployable collision or at the end of the vehicle's useful life. This procedure assumes that the air bag wiring remains intact; that is, no diagnostic trouble codes are indicated by the readiness indicator, the system proves out correctly and the vehicle's battery is still in place (or one has been provided). This procedure is to be performed outdoors, away from other personnel, since the deploying air bag makes a loud report upon actuation.

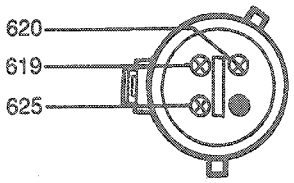
1. Check and clear the front seat of all loose objects.
2. Do not permit any occupants to remain inside the vehicle.
3. Open the hood and check for an operational vehicle battery. If no battery is found, supply one and connect it in the usual manner.
4. Turn the ignition switch to the RUN position and observe the air bag readiness indicator. If the indicator illuminates for six seconds and then stops, the system is intact and may be deployed. Continue with Procedure 1. If a series of diagnostic trouble codes appear, go to Procedure 2 to deploy the unit.
5. Turn ignition switch to the OFF position.
6. Locate the LH kick panel sensor in the LH cowl side panel, and disconnect.
7. Using a 152mm (6 inch) length of wire, jump pins 611 (W/O) and 614 (GY/O) at harness connector.



8. Locate front center crash sensor mounted on top center radiator support and disconnect.

   WARNING: MAKE SURE NO OCCUPANTS ARE IN THE VEHICLE.

9. Jump Circuit 619 (PK/W) to ground using a 152mm (6 inch) length of wire.



10. If successful, a loud report will be heard and the bag material will be visible in the center of the steering wheel. Allow at least 10 minutes before approaching the air bag to allow for cooling. If air bag(s) does not deploy, go to Procedure 2.

The air bag(s) is now inoperative and the vehicle may be scrapped in the accordance with scrap metal procedures.

Procedure 2

Remote Deployment of Air Bags

This procedure is to be used in the event that a vehicle with a live air bag is to be scrapped, but the vehicle does not contain an intact wiring harness or certain system components are inoperative. This procedure can also be used if Procedure 1 was unsuccessful.

WARNING: REMOTE DEPLOYMENT IS TO BE PERFORMED OUTDOORS WITH ALL PERSONNEL AT LEAST 20 FEET AWAY TO ENSURE PERSONAL SAFETY AND DUE TO THE LOUD REPORT WHICH OCCURS WHEN AN AIR BAG IS DEPLOYED.

1. Remove the driver (and passenger, if equipped) air bag from the vehicle as outlined.
2. Cut the two air bag connector wires and strip 25mm (1 inch) of insulation from the ends. Obtain two wires at least 20 feet long. Connect one end of each wire to each of the air bag module wires.

DISPOSAL PROCEDURES (Continued)

3. Place the air bag with the trim cover facing upward on a flat surface in a remote area such as a parking lot or field.

   WARNING: DO NOT PLACE THE AIR BAG WITH THE TRIM COVER FACING DOWN, AS THE FORCES OF THE DEPLOYING AIR BAG MAY CAUSE IT TO RICOCHET AND CAUSE PERSONAL INJURY.

4. Remaining at least 20 feet away from the air bag, deploy the air bag by touching the other ends of the two wires to the terminals of a 12 volt vehicle battery.
5. If successful, a loud report will be heard and the air bag material will be visible. Allow at least 10 minutes before approaching the air bag to allow for cooling.

The air bag is now deployed and may be scrapped in accordance with scrap metal procedures.

SPECIFICATIONS

MAJOR SYSTEM COMPONENT PART NUMBERS

Part Number	Component
43B13	Driver Air Bag
14B004	Sensor and Bracket Assy, Center Cowl
14B007	Safing Sensor and Bracket Assy
14B005	Primary Crash Sensor and Bracket Assy, Center Radiator
14B056	Diagnostic Monitor
044A74	Passenger Air Bag
14A664	Clockspring

TORQUE SPECIFICATIONS

Description	N·m	Lb-in
Driver Air-Bag Module-to-Steering Wheel Nuts	4-6	36-49
Passenger Air Bag Module Retaining Screws—Front	1.2-1.8	11-15

(Continued)

TORQUE SPECIFICATIONS (Cont'd)

Description	N·m	Lb-in
Passenger Air Bag Module Retaining Screws—Rear	2.7-4	11-15
RH and LH Front Sensor-to-Radiator Support Screws	6.8-9.2	61-81
Rear Sensor-to-Dash Panel Screws	10.2-13.8	91-122
Instrument Cluster Finish Panel Screws	2-2.9	17-27
Front Sensor Screws	6.8-9.2	61-81
Insulator Screw	1.5-3	13-27
Instrument Panel Screws	9-14	7-10
Upper Retaining Screws	0.5-1.0	4-8
Lower Retaining Screws	2-4	17-35
Passenger Air Bag Retaining Bolts—Lower	7.6-10.4	68-92
Driver Air-Bag-to-Steering Wheel Screws (SHO)	10.2-13.8	8-10 (Lb-Ft)

SPECIAL SERVICE TOOLS

ROTUNDA EQUIPMENT

Model	Description
105-00010	Air Bag Simulator