

DIAGNOSIS AND TESTING (Continued)

STARTER SYSTEM DIAGNOSIS (Continued)

CONDITION	POSSIBLE SOURCE	ACTION
Unusual starter noise during starter overrun.	<ul style="list-style-type: none"> Starter not mounted flush (cocked). Noise from other components. Ring gear tooth damage or excessive ring gear runout. Worn or damaged starter. 	<ul style="list-style-type: none"> Realign starter on transaxle converter housing. Refer to Section 00-04. Investigate other powertrain accessory noise contributors. Refer to Section 03-01A. Replace starter as outlined.
Starter cranks but engine does not start.	<ul style="list-style-type: none"> Concern in fuel system. Concern in ignition system. Engine related problem. 	<ul style="list-style-type: none"> Refer to Section 10-00. Refer to Section 03-07. Refer to 03-01A.
Starter cranks slowly.	<ul style="list-style-type: none"> Low battery. High resistance or loose connections in starter solenoid battery feed or ground circuit. Ring gear runout excessive. Worn or damaged starter. 	<ul style="list-style-type: none"> Refer to Section 14-00. Check that all connections are secure. Refer to Section 03-01A. Replace starter as outlined.
Starter remains engaged and runs with engine.	<ul style="list-style-type: none"> Shorted ignition switch. Battery cable touching solenoid 'S' terminal (defective or mispositioned cable). Worn or damaged starter. 	<ul style="list-style-type: none"> Refer to Section 11-05. Replace or relocate cable and replace starter as outlined. Replace starter as outlined.

TJ4464A

PINPOINT TEST A: CHECK STARTER MOTOR

TEST STEP	RESULT	ACTION TO TAKE
A1 CHECK FOR VOLTAGE TO STARTER NOTE: Hoist vehicle (if necessary) to access starter solenoid terminals. CAUTION: Remove plastic safety cap on starter solenoid and disconnect hardshell connector at solenoid 'S' terminal as described under Removal and Installation in this Section. <ul style="list-style-type: none"> Key OFF. Transmission in PARK or NEUTRAL. Check for voltage between starter B+ terminal and starter drive housing. Is voltage between 12 and 12.45 volts? 	Yes No	GO to A2. CHECK wire connections between battery and starter solenoid and the ground circuit for open or short.
A2 CHECK STARTER MOTOR <ul style="list-style-type: none"> Key OFF. Transmission in PARK or NEUTRAL. Connect one end of a jumper wire to the starter B+ terminal and momentarily touch the other end to solenoid 'S' terminal. Does starter crank? 	Yes No	CHECK connections from ignition circuitry to solenoid 'S' blade terminal for open or short. REPLACE starter as outlined.

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Starter Load Test

Tools Required:

- Rotunda Starting/Charging Tester 078-00005

Conduct this test if the starter cranks slowly and it is desired to compare current to specifications.

- Connect Rotunda Starting and Charging Tester 078-00005 or equivalent. Make sure that current is not flowing through ammeter and heavy-duty carbon pile rheostat portion of circuit (rheostat at maximum counterclockwise position).

- Place transaxle in NEUTRAL or PARK. Crank engine with ignition off, and determine exact reading on voltmeter. This test is accomplished disconnecting push-on connector at solenoid 'S' terminal and by connecting a remote control starter switch from positive battery terminal to solenoid 'S' terminal.

NOTE: Make sure ignition switch is in the OFF position and 'S' terminal connector has been removed so engine does not start.