

STARTER

1993 Mitsubishi Montero

1993 ELECTRICAL
Mitsubishi Starters

Montero

DESCRIPTION

The starter is a conventional 12-volt, 4-pole brush-type motor, with gear reduction drive. The starter-mounted solenoid shifts overrunning clutch and pinion into flywheel when starter is energized.

BENCH TESTING

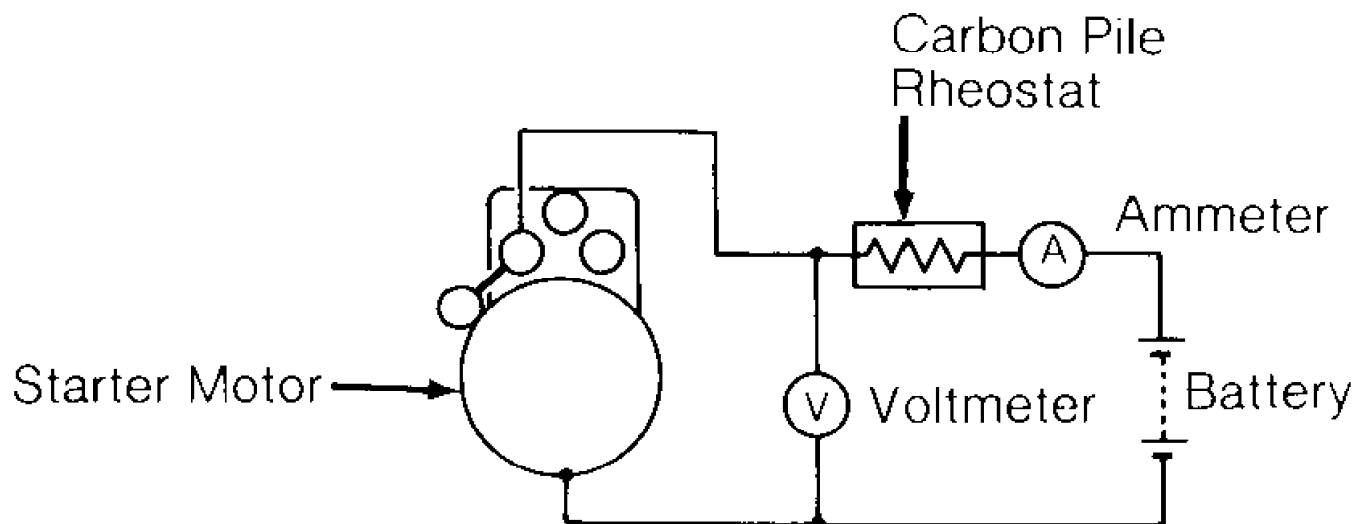
STARTER NO-LOAD TEST

CAUTION: Perform tests in less than 10 seconds to prevent coil damage.

1) Install starter in soft-jawed vise. Connect starter in series with a fully-charged 12-volt battery. Connect a 100-amp ammeter and carbon pile rheostat in series with positive battery post and starter motor terminal. See Fig. 1.

2) Install voltmeter across starter motor. Adjust carbon pile rheostat to full resistance. Connect cable from starter motor body to negative battery terminal. Adjust carbon pile rheostat to proper test voltage. See STARTER NO-LOAD TEST SPECIFICATIONS table.

3) Ensure maximum amperage is as specified and starter rotates smoothly. See STARTER NO-LOAD TEST SPECIFICATIONS table.



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Fig. 1: Performing Starter No-Load Test
Courtesy of Mitsubishi Motor Sales of America.

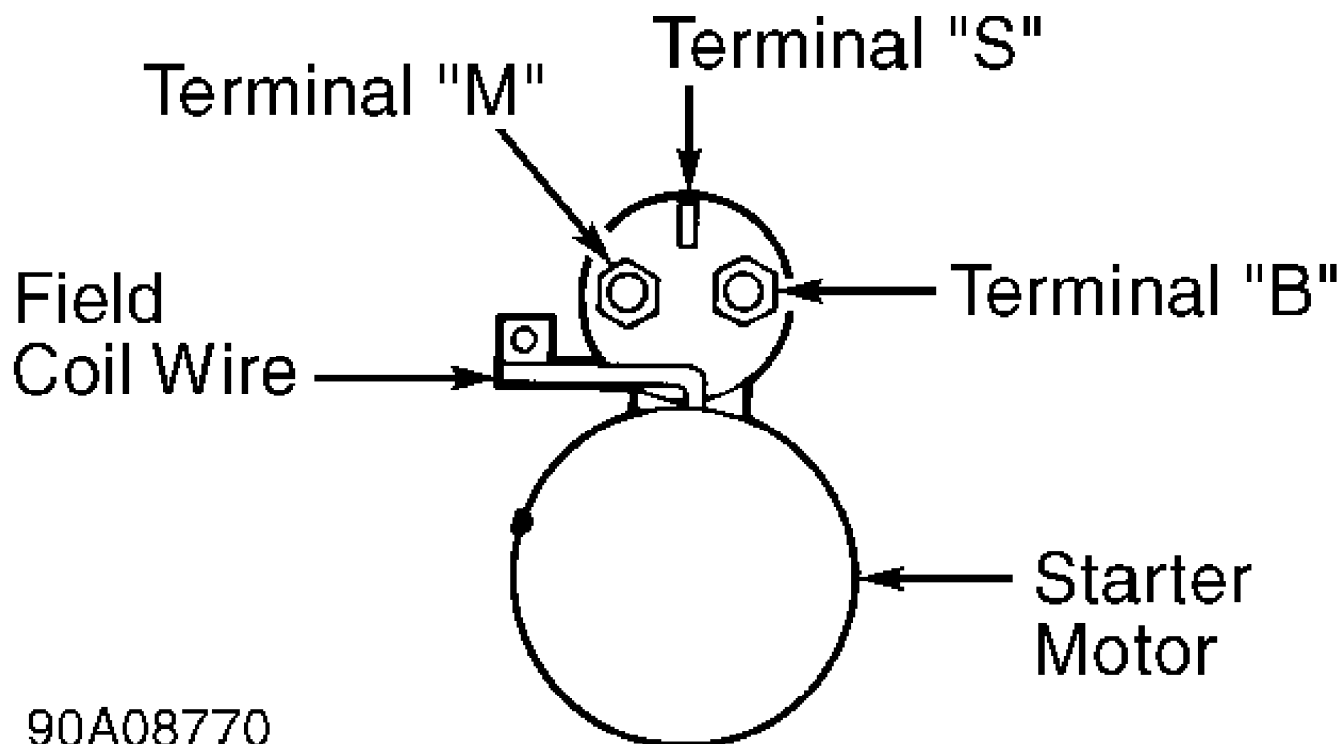
STARTER NO-LOAD TEST SPECIFICATIONS TABLE

Application	Test Voltage	Maximum Amps @ Minimum RPM
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PULL-IN COIL TEST

1) Disconnect field coil wire from terminal "M" at starter solenoid. See Fig. 2. Connect jumper wire between positive battery terminal of 12-volt battery and terminal "S" of solenoid.

2) Connect a second jumper wire from negative battery terminal and touch terminal "M" of starter solenoid. If solenoid plunger moves inward, solenoid is good. If solenoid plunger does not move inward, replace solenoid.



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Fig. 2: Starter Solenoid Terminal ID
Courtesy of Mitsubishi Motor Sales of America.

HOLD-IN COIL TEST

1) Disconnect field coil wire from terminal "M" at starter solenoid. See Fig. 2. Connect jumper wire between positive battery terminal of 12-volt battery and terminal "S" of starter solenoid.

2) Connect a second jumper wire from negative battery terminal and touch starter case. If solenoid plunger is pulled in, hold-in coil is good. If solenoid plunger is not pulled in, replace solenoid.

RETURN TEST

1) Disconnect field coil wire from terminal "M" at starter solenoid. See Fig. 2. Connect jumper wire between positive battery terminal of 12-volt battery and terminal "M" of starter solenoid.

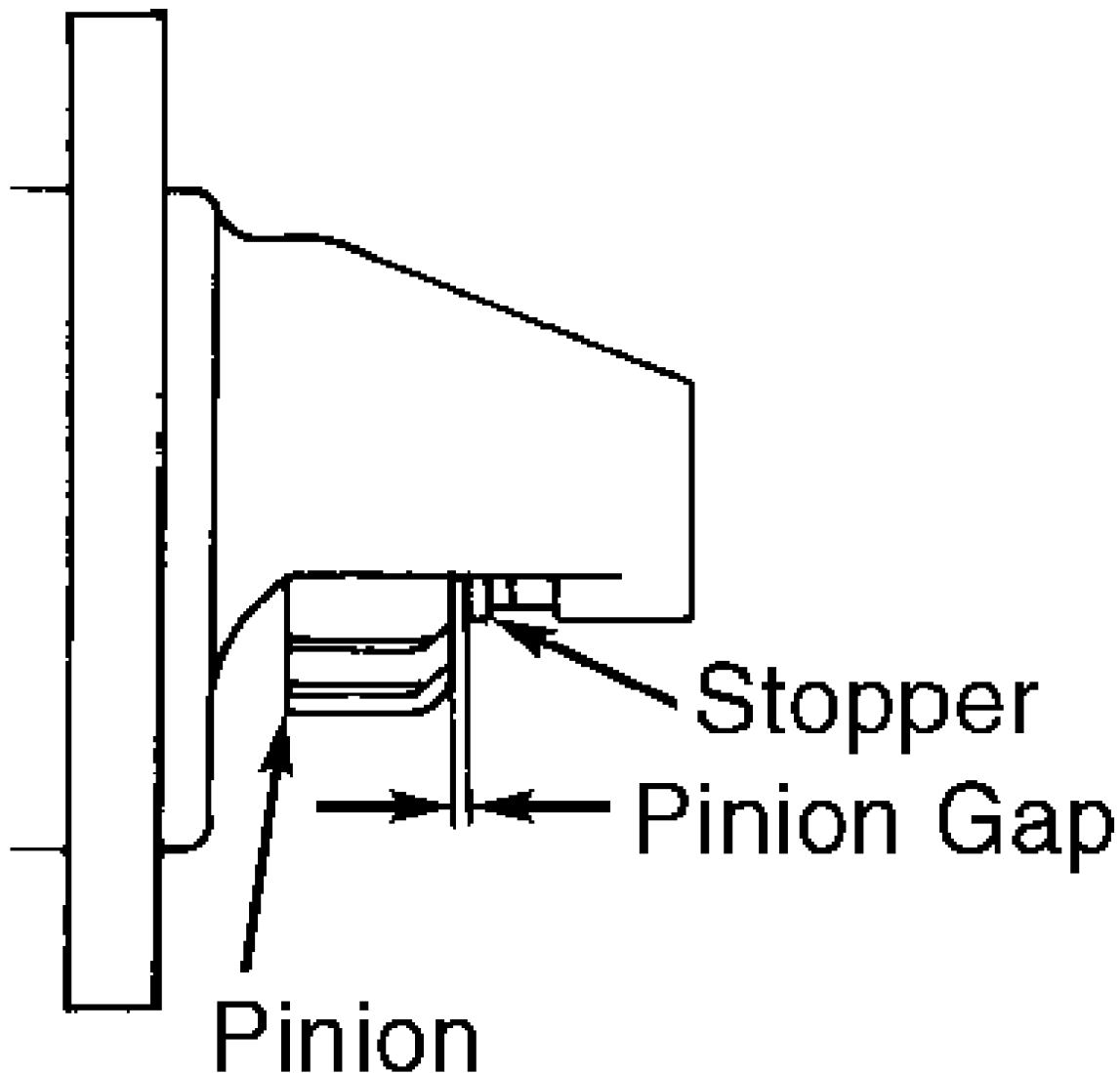
2) Connect a second jumper wire from negative battery terminal and touch starter case. Pull pinion outward and release it. Replace solenoid if pinion remains out.

PINION GAP MEASUREMENT

1) Disconnect field coil wire from terminal "M" at starter solenoid. See Fig. 2. Connect jumper wire between positive battery terminal of 12-volt battery and terminal "S" of starter solenoid.

2) Connect a second jumper wire from negative battery terminal and touch terminal "M" of starter solenoid. Measure clearance between pinion and stopper. See Fig. 3.

3) Clearance should be within specification. See STARTER SPECIFICATIONS table. Adjust clearance by adding or removing gaskets between solenoid and front housing.



91G00017

Fig. 3: Measuring Pinion Gap
Courtesy of Mitsubishi Motor Sales of America.

REMOVAL & INSTALLATION

Removal & Installation

Disconnect negative battery cable. If necessary, raise vehicle on hoist. Remove starter mounting bolts and starter. To install, reverse removal procedure.

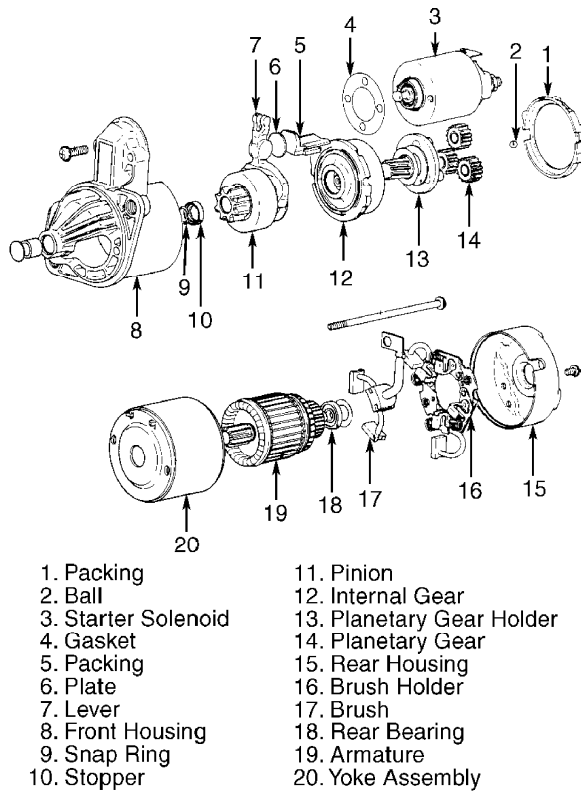
NOTE: On Montero with A/T, it may be necessary to disconnect transmission oil cooler line for starter removal.

OVERHAUL

Check commutator for out-of-round and proper amount of undercut. Replace or repair armature if not within specification. See STARTER SPECIFICATIONS table. Ensure brushes are not worn beyond wear line (outer line closest to commutator contact surface). Check pinion gap. See PINION GAP MEASUREMENT under BENCH TESTING. See Fig. 4.

STARTER SPECIFICATIONS TABLE

Application	In. (mm)
Commutator Maximum Runout002 (.05)
Commutator Minimum Diameter	1.16 (29.4)
Commutator Undercut Depth020 (.51)
Pinion Gap020-.079 (.51-2.01)



90108774
 Fig. 4: Exploded View Of Gear Reduction Starter
 Courtesy of Mitsubishi Motor Sales of America.

WIRING DIAGRAMS

See appropriate chassis wiring diagram in WIRING DIAGRAMS.