Alternators & Regulators

MITSUBISHI ALTERNATORS

Chrysler Corp. Imports: Arrow Pickup, Challenger, Champ, Colt, Ram-50 Pickup, Sapporo; Courier; Mazda B2000 & B2200 Pickups, GLC, RX7, 626

DESCRIPTION

Mitsubishi alternators are conventional 3-phase, self-rectifying type units containing 6 diodes (3 positive and 3 negative) which are used to rectify current. A case-mounted Integrated Circuit (IC) regulator is used on all models.

APPLICATION

Model	Volt/Amps	Part No.
Chrysler Corp. Imports		
Arrow & Ram-50		
Pickups	12/45	A2T16471
Challenger,Sapporo	12/50	AQ2250G
Champ & Colt	12/45	A2T16731
Courier	12/35	[1] E27Z10346A
Mazda		
B2000	13.5/23	[1] GE0118300
B2200	13.5/28	S20118300A
GLC		
FWD	12/50	[1] E30118300C
RWD	14/30	[1] D50118300
RX7	12/50	[1] N22118300
626	13.5/42	[1] HE4118300

[1] — Vehicle manufacturer's part number.

TESTING

ON-VEHICLE TEST

CAUTION: DO NOT short across any alternator terminals nor run vehicle with any wires disconnected. Battery must be fully charged for tests to be accurate.

Output Test

1) With ignition switch off, check voltage at "R" terminal and "L" terminal. Reading at both terminals should be 0 volts. If either reading is not 0, alternator is defective.

2) Turn ignition switch on but do not start engine. Voltage at "L" should be 1-3 volts. If voltage is 0, alternator and regulator are defective.

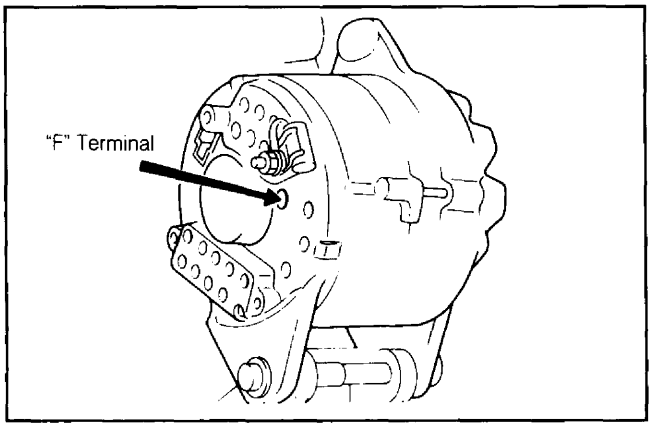
3) If voltage at "L" is close to battery voltage with ignition on, short circuit the "F" terminal to the rear alternator housing. *See Fig. 1.*

4) Read the voltage at "L" with "F" terminal shorted. If voltage is lower than battery voltage, the regulator is defective. If voltage is close to battery voltage, alternator is defective.

5) With ignition switch off and battery ground cable disconnected, connect ammeter between alternator terminal "B" and cable. Connect voltmeter between "B" (+) terminal and ground. *See Fig.*

6) Start engine and accelerate to 2000-3000 RPM. Turn on all lights and check ammeter for specified output.

Fig. 1: Alternator "F" Terminal Location



The terminal is located inside the hole at a depth of approximately .8" (20 mm).

Fig. 2: Alternator Output Test Arrangement

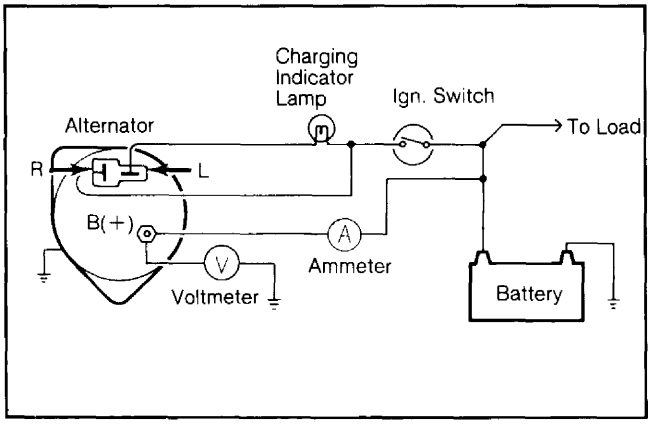


Illustration applies to all vehicles.

OVERHAUL

DISASSEMBLY

1) After removing through bolts, insert screwdriver between front housing and stator to separate housing halves.

2) Hold the rotor in a soft jawed vice. Remove pulley nut, pulley, fan, and spacer. Remove rotor drive end housing by lightly tapping end housing with a soft mallet.

CAUTION: To prevent damage to diodes, DO NOT overheat when unsoldering.

3) To separate stator from diode end housing, unsolder three negative diode leads and connections between diodes. Hold the stator lead with a longnosed plier to prevent rectifier from overheating.

4) Remove the condensor from the "B" terminal. Unsolder the "L" and "B" terminal form the rectifier assembly. Lift out rectifier assembly and brush holder.

TESTING

Diode Assemblies

1) Check each diode with ohm meter in forward and reverse direction. If the diode shows large

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resistance in one direction and small resistance in other direction, diode is normal.

2) If diode shows small resistance in both directions, it is shorted. If large resistance is shown in both directions, diode is open. Heat sink and diodes are replaced as an assembly.

Rotor Field Continuity

Check continuity across field coil slip rings. A reading of 3-6 ohms must be obtained. No continuity indicates broken wire. Rotor must be replaced.

Rotor Field Coil Ground

Check continuity between individual slip rings and rotor core/shaft. If there is continuity, coil or slip ring is grounded. Rotor must be replaced.

Stator Coil Ground

Check to ensure no continuity between stator coil leads and stator core.

Stator Coil Continuity

Check continuity between leads of stator coil. If there is no continuity, coil has broken wire and must be replaced.

Brush Wear Limit

Brushes must be replaced when worn to 1/3 of original length. This limit is indicated by a wear limit line on the side of each brush.

Brush Spring Pressure

Standard tension should be 12-16 oz. (3.16-4.26 N). Replace if less than 7 oz. (2.1 N) or if springs are corroded.

PARTS REPLACEMENT

Diodes

The diodes and rectifier are serviced as an assembly. If any diodes are defective, replace rectifier assembly.

Drive End Bearing

Remove bearing retainer set screws. Press bearing out of front housing.

Rear Bearing

Remove rear bearing from housing assembly using a press or bearing puller.

Voltage Regulator

The voltage regulator and brush holder are combined in one unit. If regulator is found to be defective, they are serviced as an assembly.

REASSEMBLY

Reassemble by reversing disassembly procedures. Soldering of rectifier leads should be done in less than 5 seconds to prevent damage to diodes. When installing the rotor assembly in the rear housing, hold the brushes in position by inserting a piece of wire into the access hole in rear housing.

ADJUSTMENTS

VOLTAGE REGULATOR

The voltage regulator is preset and no provision is made for adjustment. The charging voltage is set at 14.1-14.7 V at 68°F (20°C).

Fig. 3: Exploded View of Mitsubishi Alternator