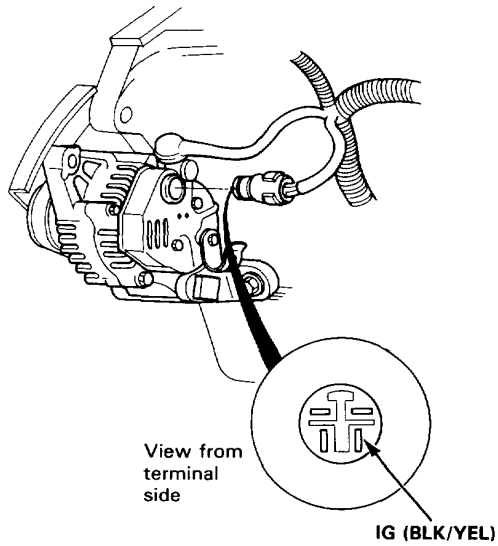
Alternator and Regulator Test

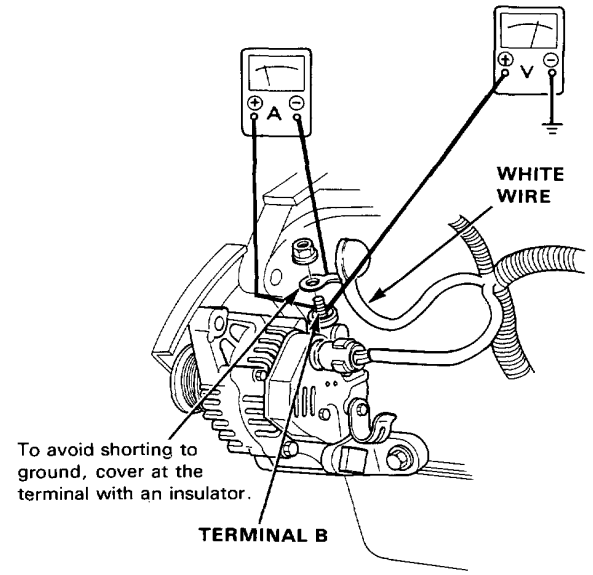
1. First make sure you have a good battery, and that the alternator belt, and connections at the alternator and main fuses are good. Next, check the No.14 (10A) fuse in the dash fuse box. (If blown, the charge warning light will come on even if the system is working properly)

2. Disconnect the alternator connector from the alternator.
   With the ignition switch on, there should be battery voltage between the IG (BLK/YEL) terminal and body ground.



- If there is no voltage, check for an open in the BLK/YEL wire between the dash fuse box and voltage regulator.
- If there is battery voltage, go to step 3.

3. If these check OK, connect a voltmeter between the alternator terminal B and body ground, and an ammeter (100 amp capacity or higher) between the alternator terminal B and the white wire as shown. (An inductive pick up can be used instead of disconnecting the white wire.)

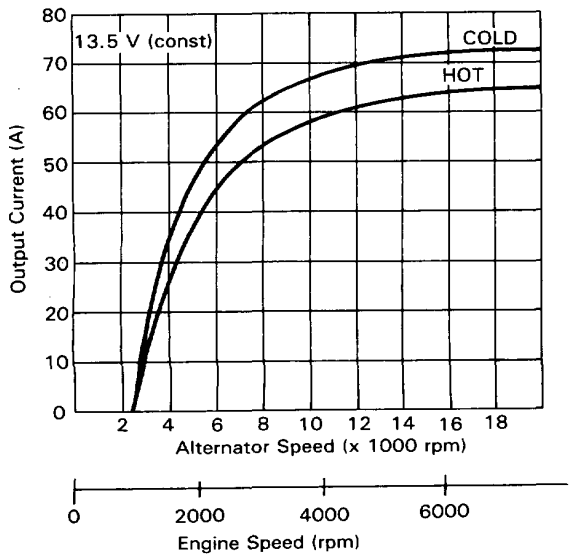


4. Start the engine, and turn on the headlights, blower motor, rear window defogger, etc.

   NOTE: If voltage stays above 13.5 V, apply electrical load more to lower the voltage to less than 13.5 V. If the voltage exceeds 16 V, stop the engine and replace the voltage regulator.

5. Compare the readings to the chart below. If no output or below specification, go to step 7. If output is within specification, go to step 6.

NOTE: Subtract 5 to 10 amperes from the maximum reading due to engine operation.

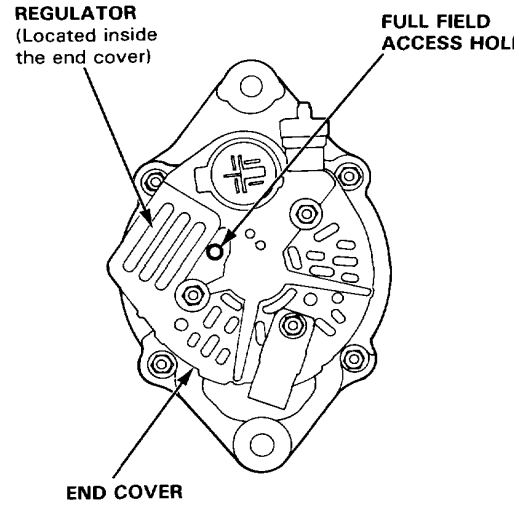


6. Turn off all loads in step 4, then measure the alternator output voltage at 1,500 rpm.

- If the voltage is between 13.9 V and 15.1 V, the alternator and regulator are OK.
  If the charge warning light is still on, see Charge Warning Light Test.

7. Perform a full-field test: Insert a short screwdriver into the full field access hole at the back of the alternator. While grounding the screwdrive and check amperage reading.

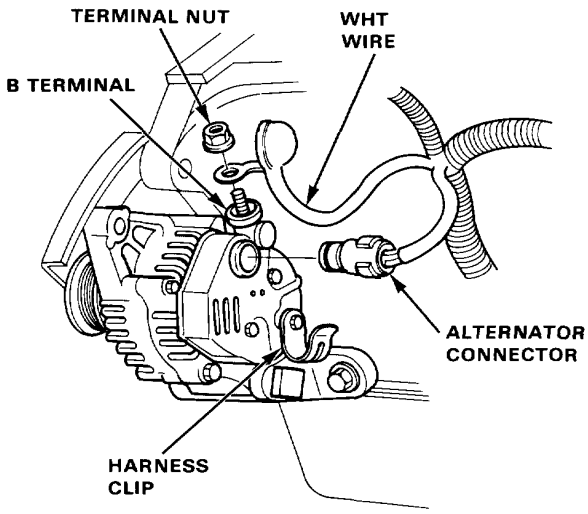
CAUTION: The voltage will rise quickly when the alternator is full fielded. Do not allow the voltage to exceed 18 volts or damage to the electrical system may result.



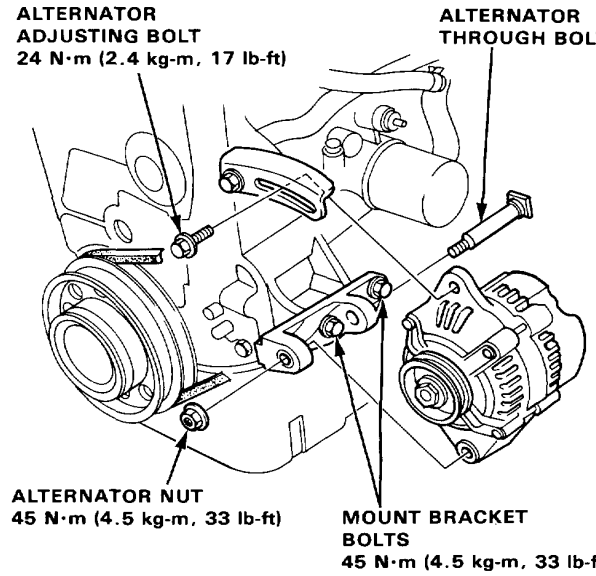
- If the amperage is not within specification, replace the alternator.
- If the amperage is within specification, replace the voltage regulator.

Alternator Replacement

1. Disconnect the ground wire from the battery negative (−) post.
2. Disconnect the alternator connector from the alternator.
3. Remove the terminal nut and the WHT wire from the B terminal.



4. Remove the adjusting bolt and alternator nut, then remove the alternator belt from the alternator pulley.
5. Remove the alternator throught bolt, then remove the alternator.

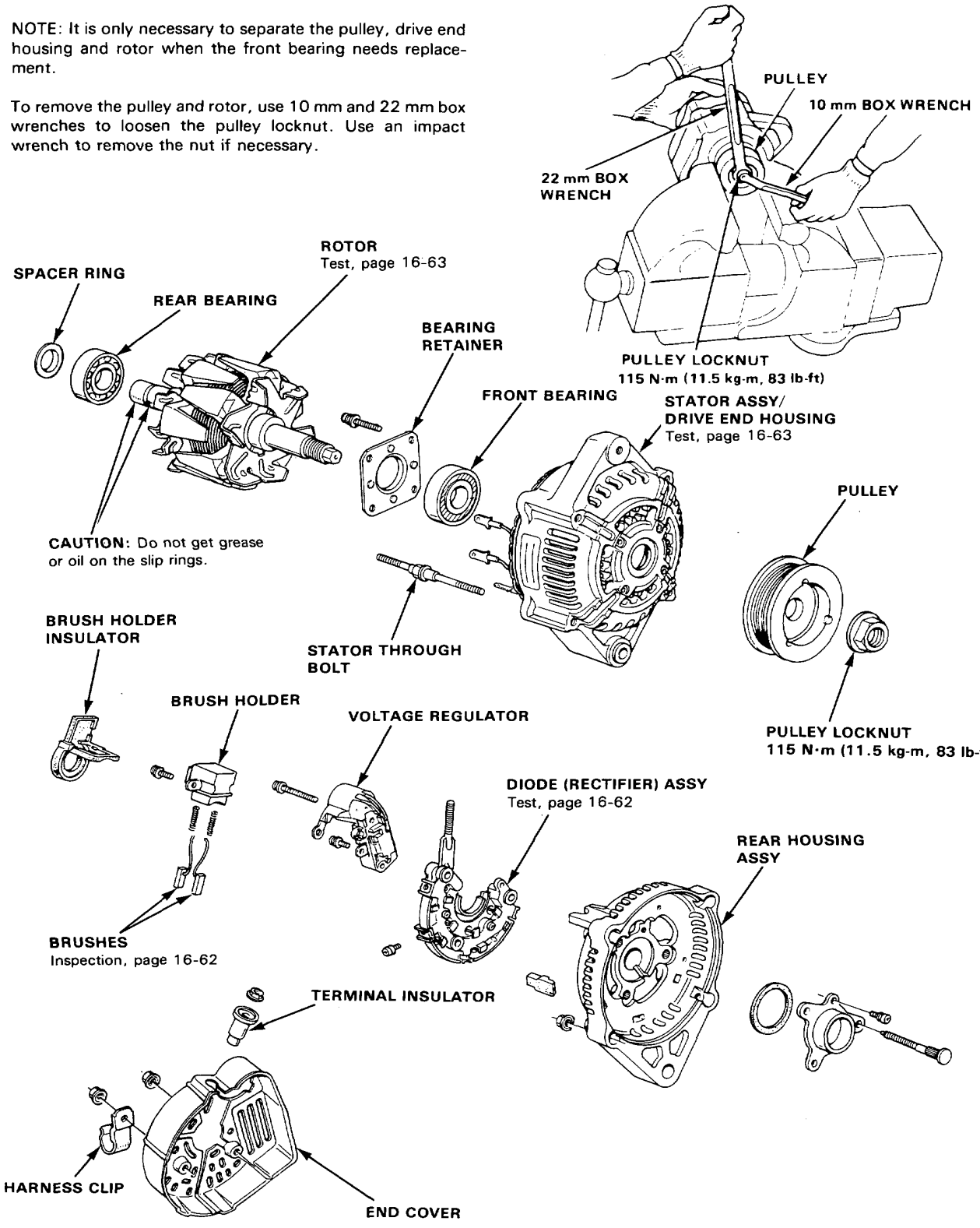


6. If necessary, remove the mount bracket bolts, and the upper and lower mount brackets.
7. adjust the alternator belt tension after installation (see page 16-58).

Alternator Overhaul

NOTE: It is only necessary to separate the pulley, drive end housing and rotor when the front bearing needs replacement.

To remove the pulley and rotor, use 10 mm and 22 mm box wrenches to loosen the pulley locknut. Use an impact wrench to remove the nut if necessary.



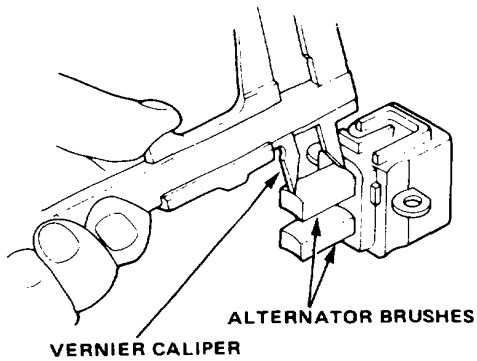
Charging System

Alternator Brush Inspection

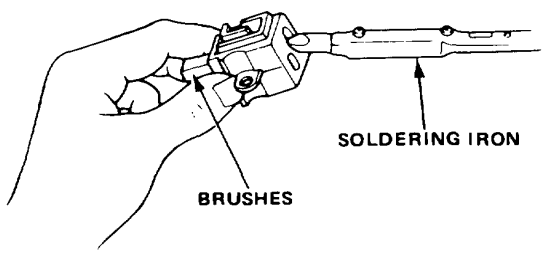
CAUTION: When replacing the brushes, use only a rosin core type solder or solder joints will corrode.

1. Remove the end cover, then take out the brush holder by removing its 2 screws.
2. Measure length of the brushes with a vernier caliper.

Alternator Brush Length:
Standard : 15.5 mm (0.61 in)
Service Limit: 5.3 mm (0.21 in)



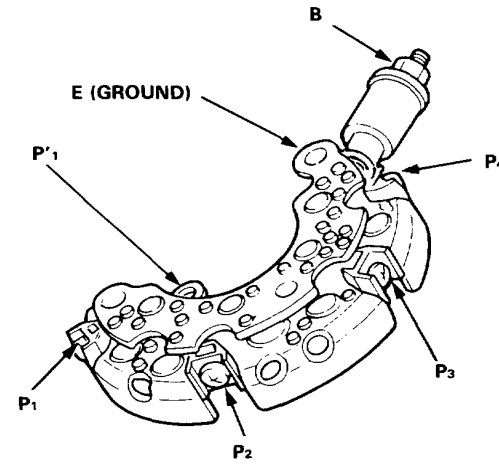
If the brushes are not within the service limit, replace them.

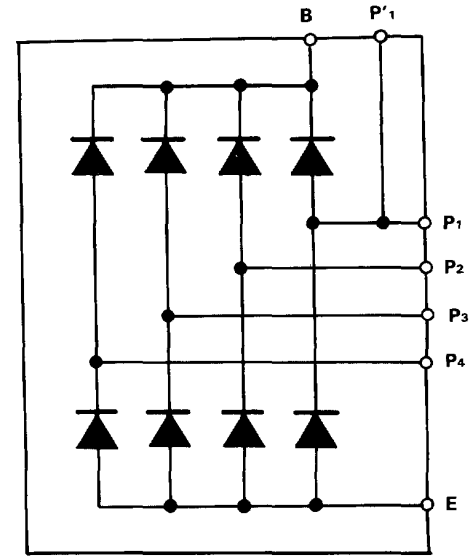


Rectifier Test

NOTE: The diodes are designed to pass current in one direction and block current in the opposite direction. Since the alternator rectifier is made up of eight diodes (4 pairs), each diode must be tested for continuity in both directions; a total of 16 checks.

1. Check for continuity in each direction, between the B and P (of each diode pair) terminals, and between the E (ground) and P (of each diode pair) terminals. All diodes should have continuity in only one direction.

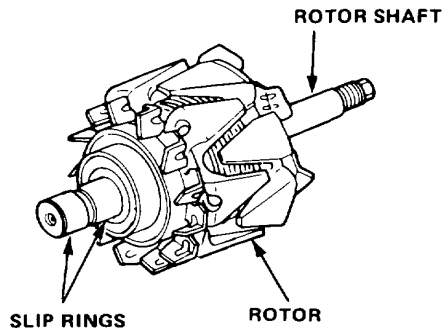




2. If any of the 8 diodes fails, replace the rectifier assembly (diodes are not available separately).

Rotor Slip Ring Test

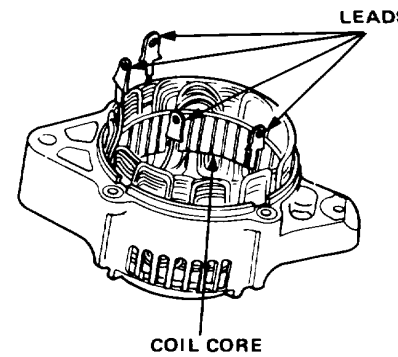
1. Check that there is continuity between the slip rings.
2. Check that there is no continuity between the rings and the rotor or rotor shaft.



3. If the rotor fails either continuity check, replace it.

Stator Test

1. Check that there is continuity between each pair of leads.
2. Check that there is no continuity between each lead and the coil core.



3. If the coil fails either continuity check, replace the stator.

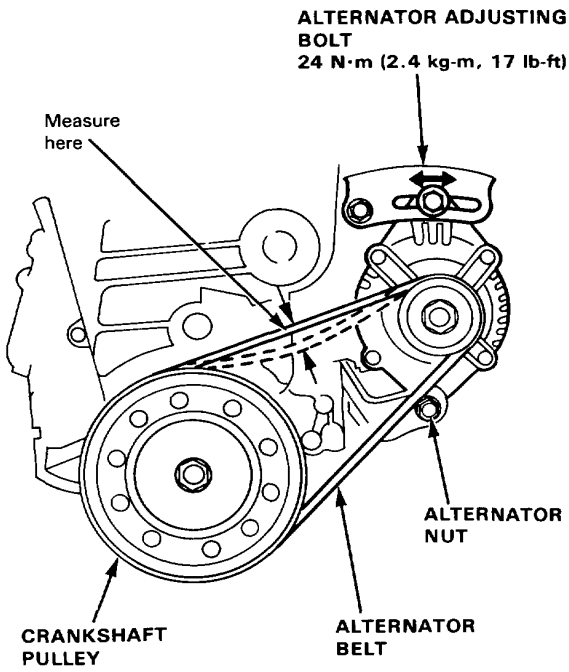
Charging System

Alternator Belt Adjustment

1. Apply a force of 98 N(10 kg, 22 lb) and measure the deflection between the alternator and the crankshaft pulley.

   Deflection: 9—11 mm (0.35—0.43 in)

   NOTE: On a brand-new belt, the deflection should be 7—9 mm (0.25—0.35 in) when first measured.



2. Loosen the alternator adjusting bolt and nut.
3. Move the alternator to obtain the proper belt tension, then retighten the adjusting bolt and nut.
4. Recheck the deflection of the belt.

Cooling Fan System

Component Location Index