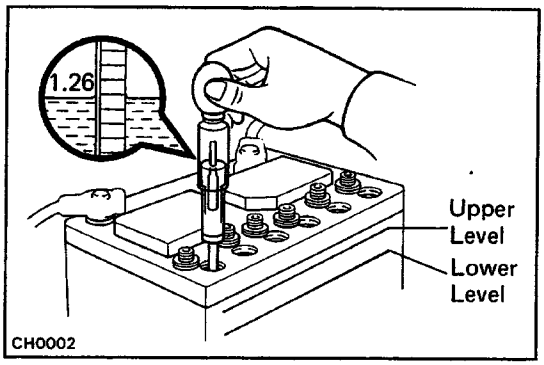
PRECAUTIONS

1. Check that the battery cables are connected to the correct terminals.
2. Disconnect the battery cables when the battery is given a quick charge.
3. Do not perform tests with a high voltage insulation resistance tester.
4. Never disconnect the battery while the engine is running.

ON–VEHICLE INSPECTION



1. INSPECT BATTERY SPECIFIC GRAVITY AND ELECTROLYTE LEVEL

(a) Check the specific gravity of each cell.

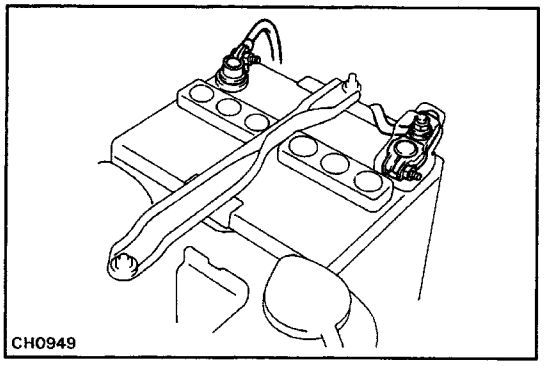
Standard specific gravity

When fully charged at 20°C (68°F):
22R–E 1.25 – 1.27
3VZ–E 55D 23R 1.25 – 1.27
80D 26R 1.27 – 1.29

If not within specifications, charge the battery.

(b) Check the electrolyte quantity of each cell.

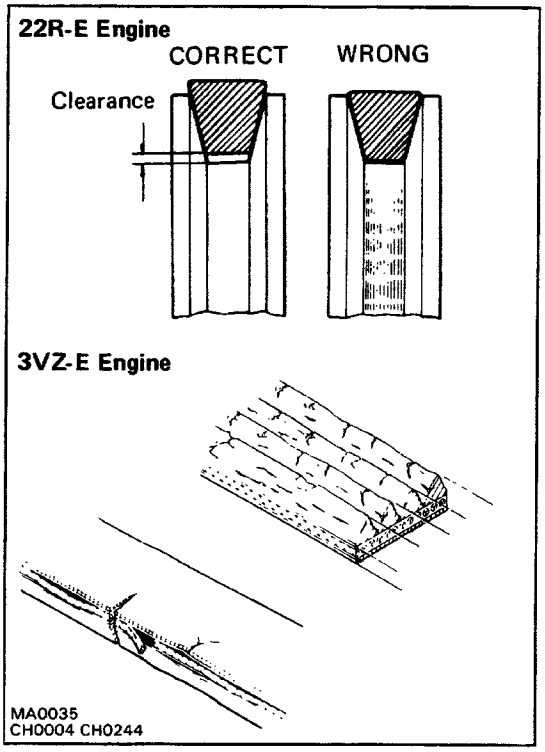
If insufficient, refill with distilled (or purified) water.



2. CHECK BATTERY TERMINALS AND FUSIBLE LINKS

(a) Check that the battery terminals are not loose or corroded.

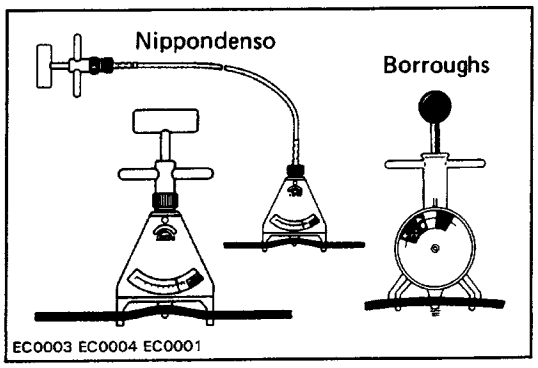
(b) Check the fusible links for continuity.

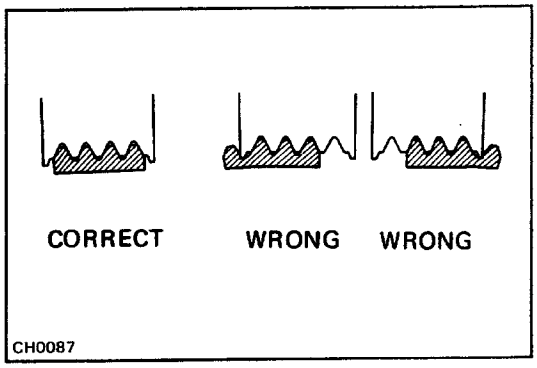


3. INSPECT DRIVE BELT

(a) Visually check the belt for excessive wear, frayed cords etc.

HINT:
22R–E: Check that the belt does not touch the bottom of the pulley groove.
If any defect has been found, replace the drive belt.
3VZ–E: Cracks on the ribbed side of the belt are considered acceptable.
If the belt has chunks missing from the ribs, it should be replaced.





(b) Using a belt tension gauge, check the drive belt tension .

Belt tension gauge:

Nippondenso BTG–20 (95506–00020) or Borroughs No. BT–33–73F

Drive belt tension:

22R–E New belt 125 ± 25 lbf

Used belt 80 ± 20 lbf

3VZ–E New belt 160 ± 20 lbf

Used belt 100 ± 20 lbf ,

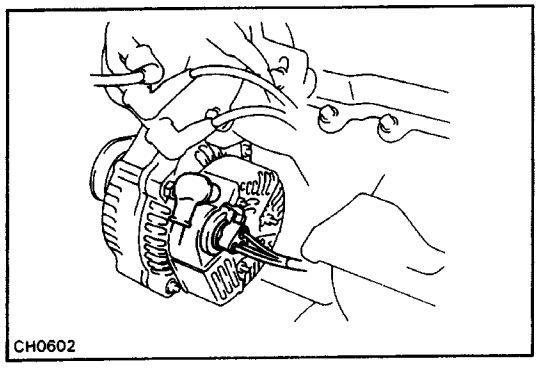
If necessary, adjust the drive belt tension.

HINT:

- ”New belt” refers to a belt which has been used less than 5 minutes on a running engine.
- ”Used belt” refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing the drive belt, check that it fits properly in the ribbed grooves. Check with your hand to confirm that the belt has not slipped out of the groove on the bottom of the crank pulley.
- After installing a new belt, run the engine for approx. 5 minutes and then recheck the tension.

4. INSPECT FUSES FOR CONTINUITY

- ENGINE 10A
- CHARGE 7–5A
- IGN 7.5A



5. VISUALLY CHECK GENERATOR WIRING AND LISTEN FOR ABNORMAL NOISES

(a) Check that the wiring is in good condition.

(b) Check that there is no abnormal noise from the gener–ator while the engine is running.

6. INSPECT DISCHARGE WARNING LIGHT CIRCUIT

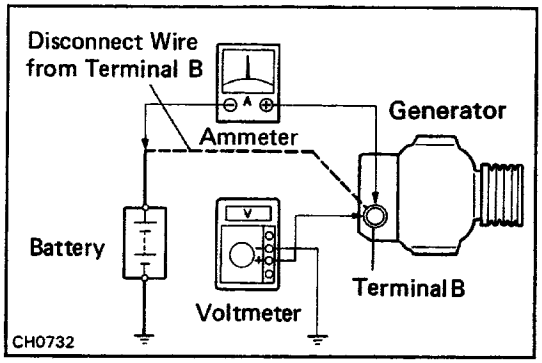
(a) Turn the ignition switch ON. Check that the discharge warning light is lit.

(b) Start the engine. Check that the light goes off.

If the light does not operate as specified, troubleshoot the warning light circuit.

7. CHECK CHARGING CIRCUIT WITHOUT LOAD

HINT: If a battery/generator tester is available, connect the tester to the charging circuit according to the manufac–turer's instructions.



(a) If a tester is not available, connect a voltmeter and ammeter to the charging circuit as follows:

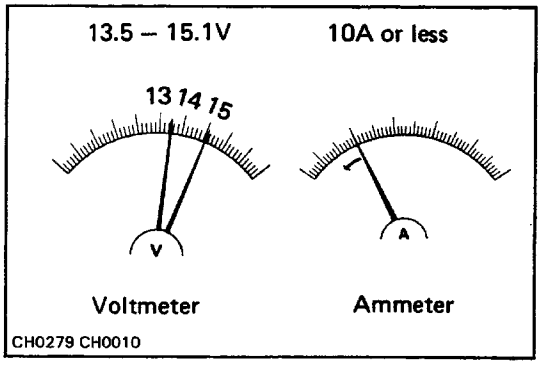
- Disconnect the wire from terminal B of the gener–ator and connect the wire to the negative (–) ter–minal of the ammeter.
- Connect the test lead from the positive (+) termi–nal of the ammeter to terminal B of the generator.
- Connect the positive (+) lead of the voltmeter to terminal B of the generator.
- Ground the negative (–) lead of the voltmeter.

(b) Check the charging circuit as follows:

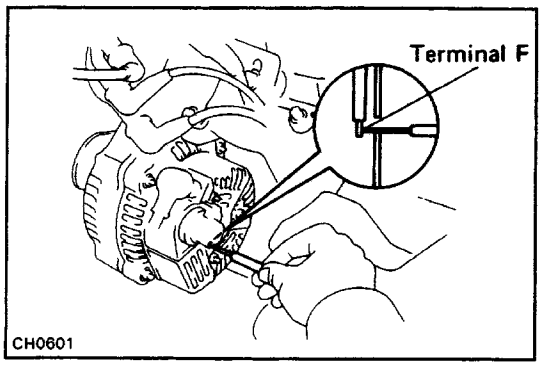
With the engine running from idling to 2,000 rpm, check the reading on the ammeter and voltmeter.

Standard amperage: 10 A or less

Standard voltage: 13.9 – 15.1 V at 250C (770F)
13.5 – 14.3 V at 1150C (239°F)



If the voltage reading is greater than standard voltage, replace the IC regulator.



If the voltage reading is less than standard voltage, check the IC regulator and generator as follows:

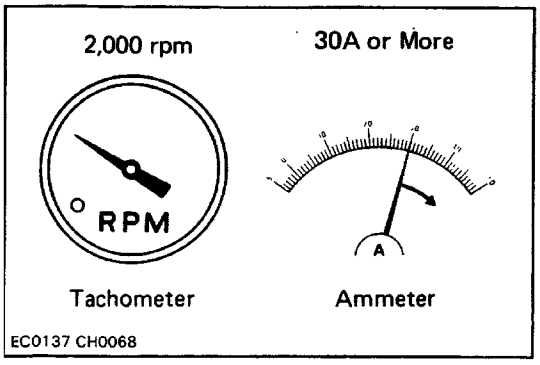
- With terminal F grounded, start the engine and check the voltage reading of terminal B.
- If the voltage reading is higher than standard voltage, replace the IC regulator.
- If the voltage reading is less than standard voltage, repair the generator.

8. INSPECT CHARGING CIRCUIT WITH LOAD

(a) With the engine running at 2,000 rpm, turn on the high beam headlights and place the heater fan control switch at Hl.

(b) Check the reading on the ammeter.

Standard amperage: 30 A or more



If the ammeter reading is less than 30 A, repair the gener–ator. (See page CH–5)

HINT: If the battery is fully charged, the indication will sometimes be less than 30 A.