

# ELECTRICAL SYSTEM

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## ELECTRICAL SYSTEM

The major electrical systems are the starting system, ignition system, charging system, lighting system and the electrical instrument.

Service information for these systems are included in this section.

### 5-A. BATTERY

MAZDA 616 is equipped with a 12-volt battery consisting of six cells. Its capacity is 60 ampere hours of 20 hour rating. The battery is located at the right side of the engine compartment.

#### 5-A-1. Checking of Battery

As the battery has many important functions, check the following points periodically and always keep the battery in perfect condition.

1. Check the electrolyte level in each cell of the battery, add distilled water to maintain the solution 10 to 20 mm (0.4 to 0.8 in) above the plate. Do not overfill.
2. Check the specific gravity of the electrolyte with a hydrometer, as shown in Fig. 5-1. If the reading is 1.26 or more, it indicates that the battery is fully charged. If the reading is below 1.20, the battery requires recharging.

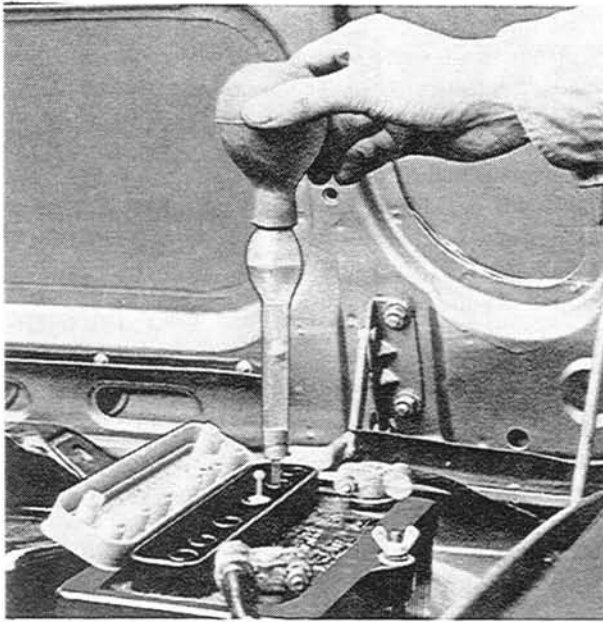


Fig. 5-1 Checking of specific gravity

3. Check tightness of the terminals to ensure good electrical connections. Clean the terminals and coat the terminals with grease.
4. Inspect for corroded or frayed battery cables.

#### 5-A-2. Charging of Battery

##### a. Constant-current charge

1. If the exterior of the battery is dirty with sulphuric acid or dust and dirt, wash this off with clean water and dry thoroughly before charging the battery.

2. Check the electrolyte level and add distilled water if necessary.

**Note:** If addition of distilled water is neglected, the plates and separators will become exposed to air, causing a sulphation to occur on the plates. Do not add dilute sulphuric acid unless the electrolyte has overflowed or leaked out.

3. Connect the battery to a charger, ensuring that the polarities are correct.
4. To charge, apply an electric current of approximately 5 amperes until the specific gravity of the electrolyte reaches 1.25 ~ 1.27.

##### b. Fast charge

As a fast charge causes both the temperature and the level of the electrolyte to rise suddenly, it does not have a favorable effect on the battery.

Therefore, this should not be performed unless in the case of an emergency.

To charge with a fast charger, follow the instructions of the manufacturer.

**Note:** Ensure that the cables are disconnected from the battery terminals before charge is applied. If this is neglected, it could cause a damage to the diodes on the alternator.

### 5-B. SPARK PLUG

The standard spark plug is NGK BP-6ES or NIPPON DENSO W20EP.

Check the spark plugs for burned and eroded electrode, black deposits, fouling, and cracked porcelain.

Clean the spark plugs with a spark plug cleaner or wire brush if they are fouled. Replace the badly burned or eroded spark plug.

Measure the electrode gap of each spark plug with a wire gauge. If it is improper, adjust the gap to the specified 0.8 mm (0.032 in) by bending the outer electrode.

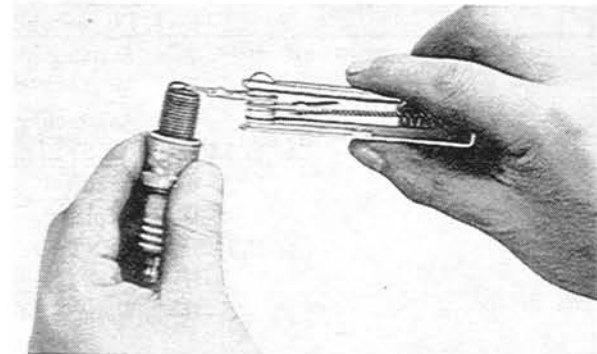


Fig. 5-2 Checking of spark plug gap

### 5-C. DISTRIBUTOR

#### 5-C-1. Adjusting of Point Gap

Adjust the point gap on the distributor as follows:

1. Check the contact point alignment. If necessary,

bend the stationary contact bracket so as to obtain contact in the center of the contact points.

2. Crank the engine and stop when the rubbing block on the contact arm just rests on the highest point of the cam.

3. Insert a feeler gauge of **0.5 mm (0.020 in)** between the contact points, loosen the set screw and turn the adjusting screw until the correct gap is obtained.

4. Tighten the set screw and recheck the point gap.

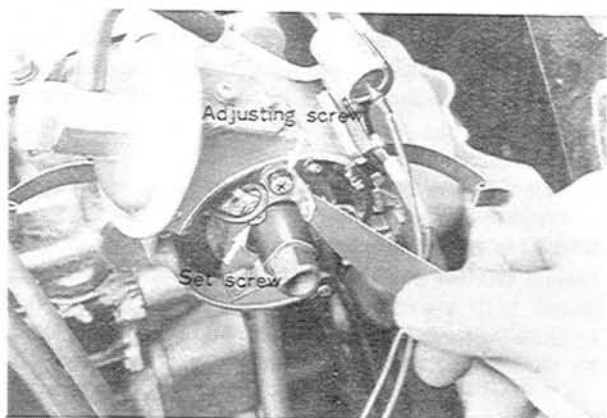


Fig. 5-3 Adjusting of point gap

#### 5-C-2. Adjusting of Ignition Timing

To obtain maximum engine performance, the distributor must be correctly positioned on the engine to give the proper ignition timing (8 degrees before top dead center). If a timing light is available, use it to adjust the ignition timing, as follows:

1. Connect the timing light to the No. 1 spark plug. Start the engine and set the idle to 600 rpm.

2. Using the timing light, observe the position of the timing mark.

3. Loosen the distributor lock nut and rotate the distributor housing so that the timing mark on the crankshaft pulley aligns with the needle on the timing chain cover.

4. Tighten the distributor lock nut and recheck the timing.

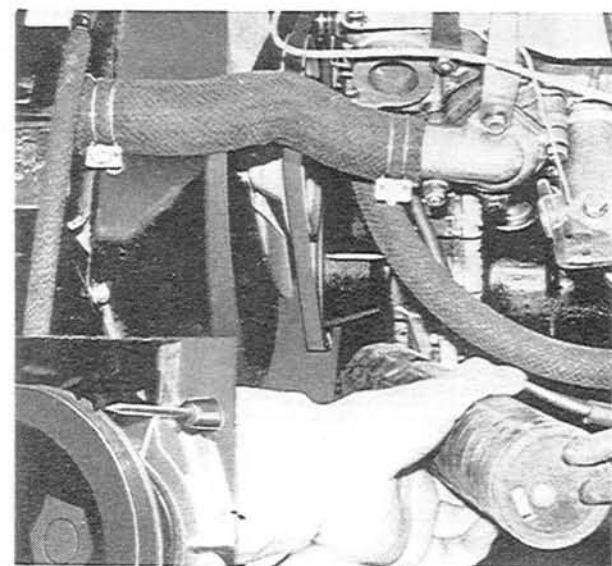


Fig. 5-4 Adjusting of ignition timing

#### 5-C-3. Testing of Distributor

##### a. Dwell angle test

Dwell angle also called cam angle is degrees of rotation through which the contact points remain closed. To test dwell angle, use a distributor tester following the instructions of the manufacturer. If the dwell reading is within **49 and 55 degrees**, it is correct.

If the reading is not within the specifications, it indicates the following troubles.

1. Incorrect point gap
2. Worn cam
3. Worn rubbing block
4. Distorted contact arm

##### b. Advance test

To test the ignition advancing characteristic of the distributor, use a distributor tester. The advancing characteristic of the contact breaker should be within the range shown in Fig. 5-5.

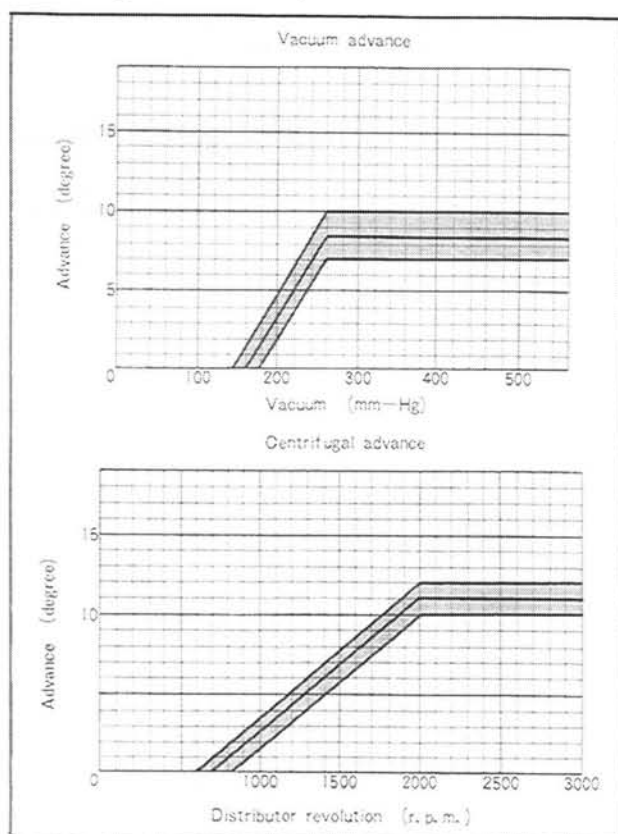


Fig. 5-5 Advancing characteristic

#### 5-C-4. Disassembling of Distributor

1. Unfasten the cap retaining clips and lift off the cap.

2. Remove the rotor.

3. Loosen the primary terminal screw and disconnect the condenser lead and primary lead.

4. Remove the condensers.

5. Remove the screws that attach the cam lubricating felt assembly and the contact point assembly to the breaker base and remove the cam lubricating felt assembly and point assembly.

6. Remove the screws that attach the vacuum control unit to the distributor housing and remove the clip holding the link to the breaker base. Remove the vacuum control unit.
7. Remove the screws attaching the earth wire and breaker base to the housing. Remove the earth wire and breaker base.
8. Remove the cam attaching screw and remove the cam.
9. Drive the lock pin out of the gear with a suitable drift, and remove the gear and washers.
10. Push the shaft up and remove through the top of the housing.
11. The governor can be removed by removing the governor spring and clip.

#### 5-C-5. Distributor Inspection

##### a. Inspection of distributor cap

Inspect the distributor cap for cracks, carbon runners and evidence of arcing. If any of these conditions exists, the cap should be replaced. Clean any corroded high tension terminals.

##### b. Inspection of rotor

Inspect the rotor for cracks or evidence of excessive burning at the end of the metal strip.

If any of these conditions exist, the rotor should be replaced.

##### c. Inspection of contact point

Inspect the points for wear, burning, transferred metal and pitting. If they are slight, the points can be cleaned with a stiff bristled brush or oil stone. If they are severe, replace with new ones.

##### d. Checking of contact arm spring tension

For inspection, hook a spring scale on the contact arm and pull in a straight line at a right angle to the contact arm. Take a reading when the contact point start to separate. If the reading is 0.5 kg (1.1 lb) or less, replace the movable contact arm.

##### e. Checking of condenser

If the condenser is leaky, it will cause a weak spark or burned contact points. Check the capacity of the condenser with a condenser tester. The capacity is **0.20 to 0.24 microfarads**. In the absence of a tester check by substituting a new condenser.

#### 5-C-6. Assembling of Distributor

Assemble the distributor in the reverse order of disassembling.

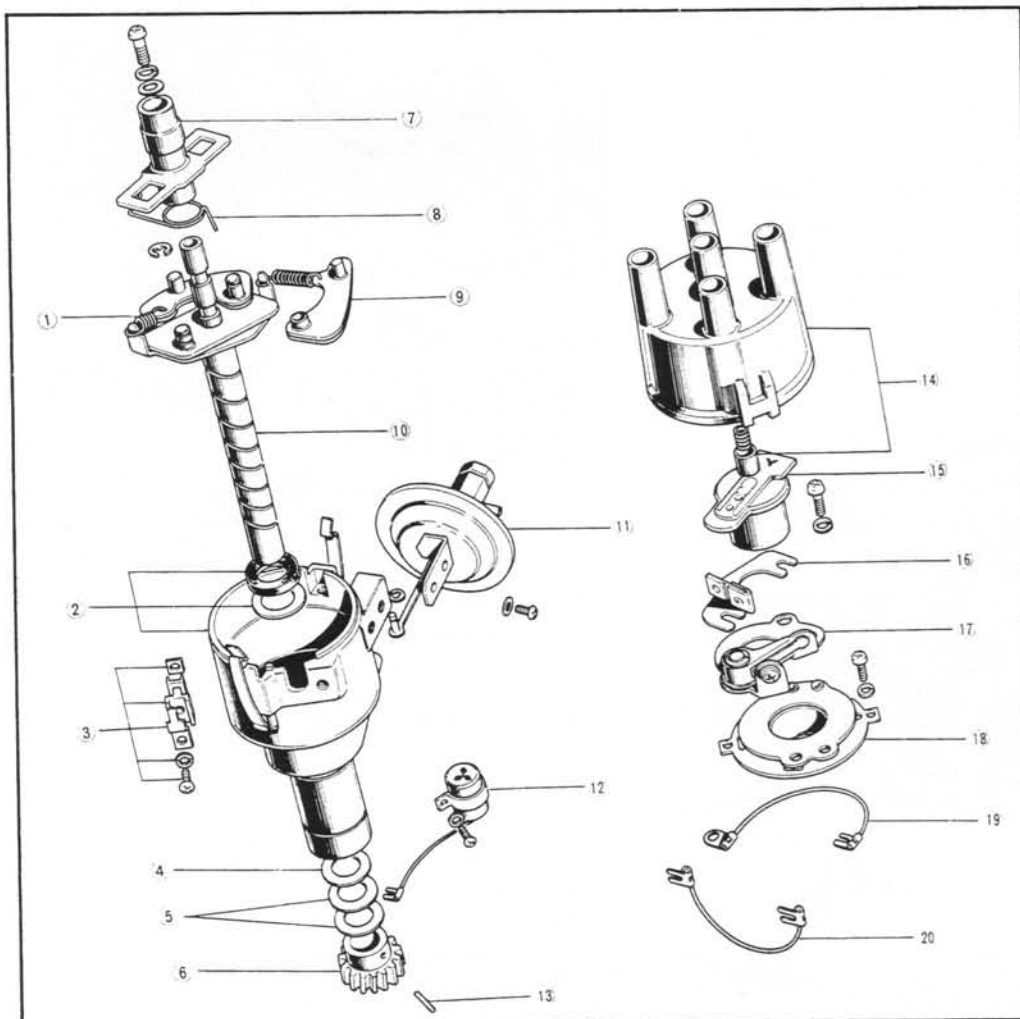


Fig. 5-6

Distributor assembly

1. Spring
2. Housing assembly
3. Terminal assembly
4. Washer
5. Washer
6. Drive gear
7. Cam assembly
8. Spring
9. Governor
10. Shaft
11. Vacuum control unit
12. Condenser
13. Lock pin
14. Cap assembly
15. Rotor
16. Felt assembly
17. Point assembly
18. Breaker base
19. Earth wire
20. Lead wire

## 5-D. ALTERNATOR

## 5-D-1. Precautions on Service

When servicing the charging system, observe the following precautions. If not followed, the result will be in serious damage of the system.

1. Do not short across or ground any of the terminals on the alternator.
2. Never operate the alternator on an open circuit (with the field terminal connected and the armature terminal disconnected).
3. When installing a battery, always make sure that the negative post of the battery is attached to the ground strap securely.
4. Never reverse battery leads, even for an instant as the reverse polarity current flow will damage the diodes in the alternator.
5. When charging the battery with a fast charger, disconnect the positive cable at the battery.

## 5-D-2. Checking of Charging System on Car

If the electrical system is not charging properly, it is advisable to determine whether the trouble is in the alternator or regulator prior to removing the alternator.

1. Disconnect the wire from "B" terminal of the alternator and connect the ammeter with the negative

lead of the ammeter to the wire and the positive lead to the "B" terminal, as shown in Fig. 5-7.

2. Connect the positive lead of the voltmeter to the "B" terminal of the alternator and ground the negative lead of the voltmeter.

3. Switch the headlight on.

4. Start the engine and take the readings of the ammeter and voltmeter, holding the engine speed of 1,800 rpm (alternator speed : 4,000 rpm).

If the ammeter shows 32 amperes or less, the trouble is in the alternator and if the voltmeter shows without the specifications it is in the regulator.

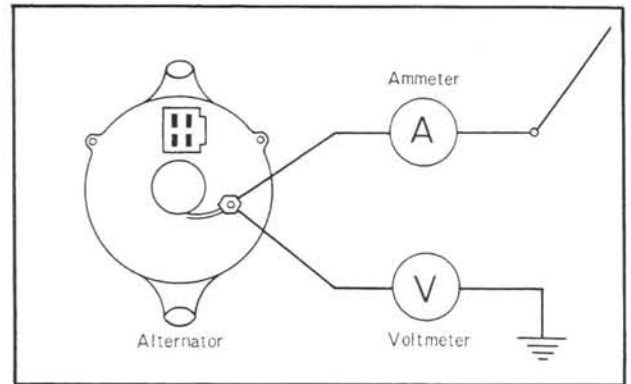


Fig. 5-7 Checking of charging system

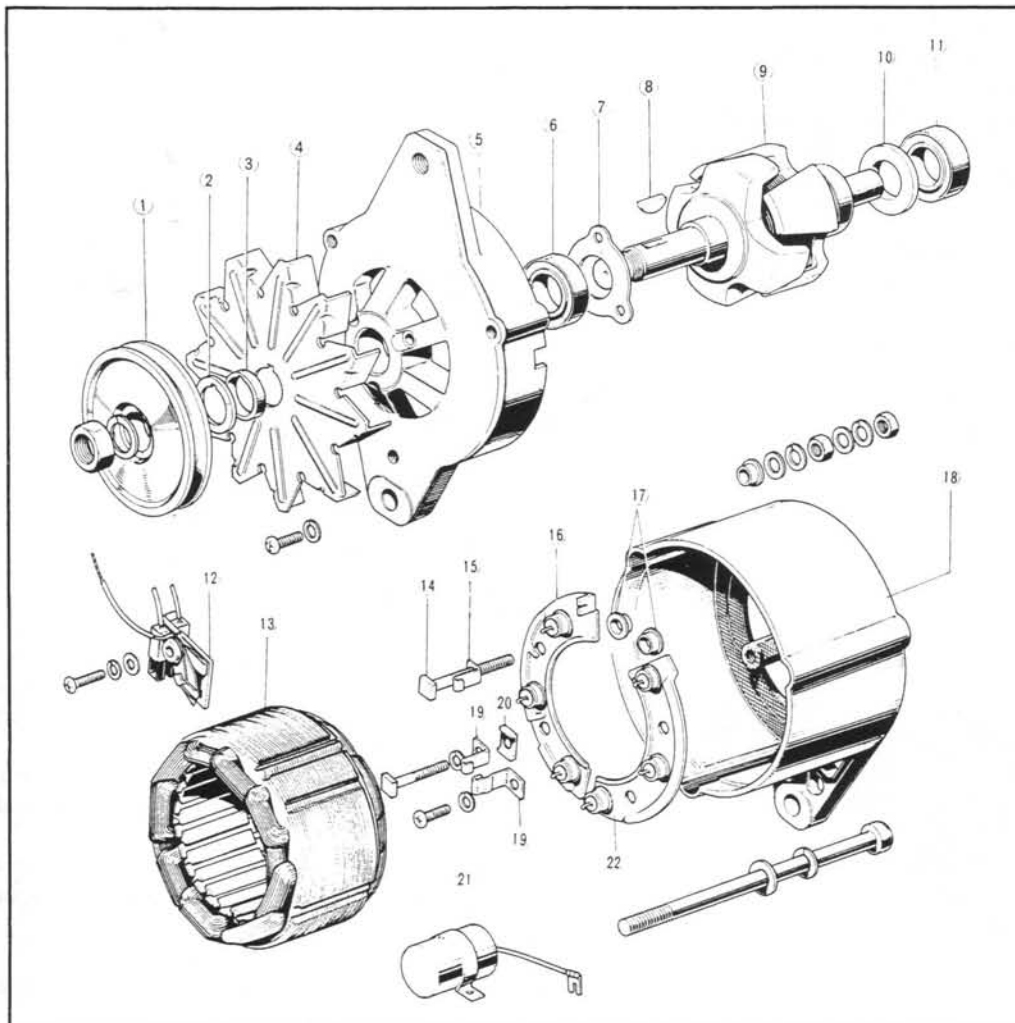


Fig. 5-8

## Alternator

1. Pulley
2. Spacer
3. Bush
4. Fan
5. Front housing
6. Bearing
7. Bearing cover
8. Key
9. Rotor
10. Washer
11. Bearing
12. Brush
13. Stator
14. Bolt
15. Clamp
16. Heat sink cpt. ⊕
17. Insulation plate
18. Rear housing
19. Clamp
20. Insulation
21. Condenser
22. Heat sink cpt. ⊖

### 5-D-3. Disassembling of Alternator

1. Remove the nut attaching the radio noise suppression condenser and remove the condenser.
2. Remove the nut attaching the pulley to the shaft and remove the pulley, fan and spacer.
3. Remove the through bolts.
4. Separate the front housing assembly by prying apart with a screwdriver at the slots of the front housing.
5. Remove the rotor from the front housing.
6. Remove the front bearing retainer attaching screw and remove the retainer. Support the front housing close to the bearing boss, and press out the old bearing from the housing, only if the bearing is defective.
7. Unsolder the diode leads and stator coil leads.
8. Remove the stator from the rear housing.
9. Remove the screws that attach the brush holder to the housing and remove the brush and holder, insulator and terminal.
10. Remove the heat sink attaching screw and the two terminal screws and remove the diodes and heat sink assemblies from the rear housing.

### 5-D-4. Alternator Inspection

#### a. Checking of stator coil

Check the stator coil for both open and grounded circuits with a tester.

To check for open, connect the prods to each of the two leads, as shown in Fig. 5-9. If there is no flow of current, the coil is open circuit and must be repaired or replaced.

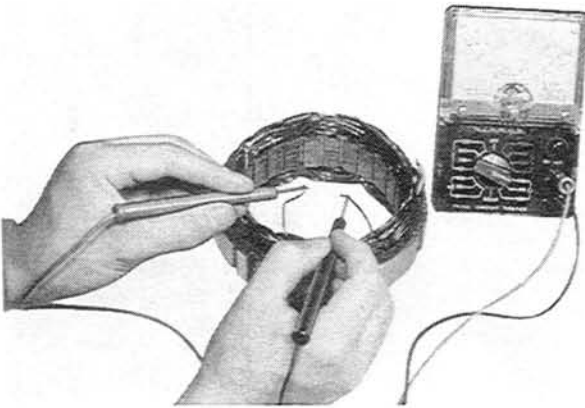


Fig. 5-9 Checking of stator coil for open

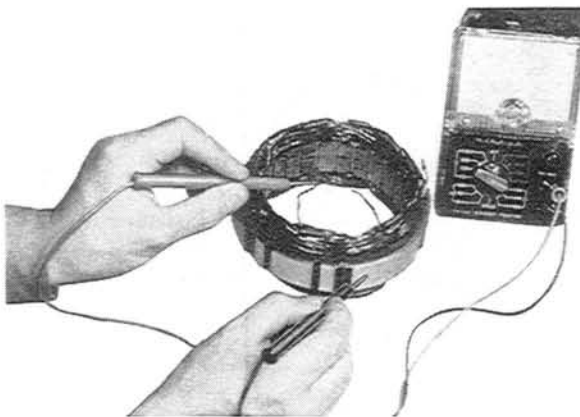


Fig. 5-10 Checking of stator coil for ground

To check for ground, connect one prod to the core and the other to each lead wire, as shown in Fig. 5-10. If a ground is present the current will flow and the stator coil must be repaired or replaced.

#### b. Checking of rotor

To check for open circuit, place both prods of a tester on the slip rings, as shown in Fig. 5-11. If the reading is 5 to 6  $\Omega$ , there is no trouble in the rotor.

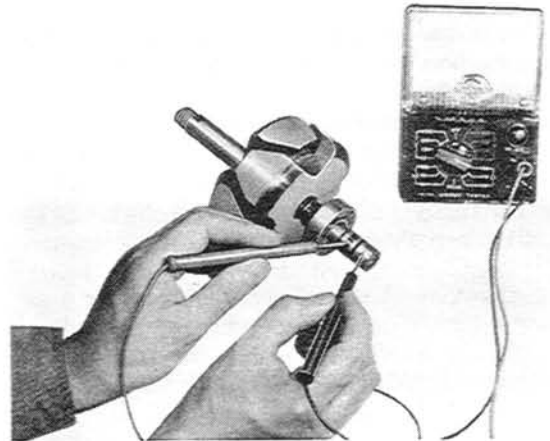


Fig. 5-11 Checking of rotor for open

To check for ground, connect one prod to the slip ring and other prod to the core. If the current flows, the rotor must be repaired or replaced.

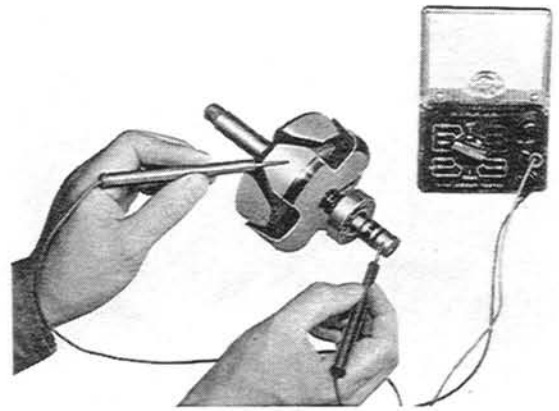


Fig. 5-12 Checking of rotor for ground

#### c. Checking of diodes

Diodes for use in the alternator are available in two different types, the positive diode which allows current to flow from the lead wire to the case but not from the case to the lead wire and the negative diode which has the opposite properties.

To check, read the resistance between the lead wire and case with a tester. Then reverse the tester leads and note the reading.

If both readings are very low or high, the diode is defective. A good diode will give one low reading and one high reading.

**Note:** The diode and heat sink are serviced as an assembly only.

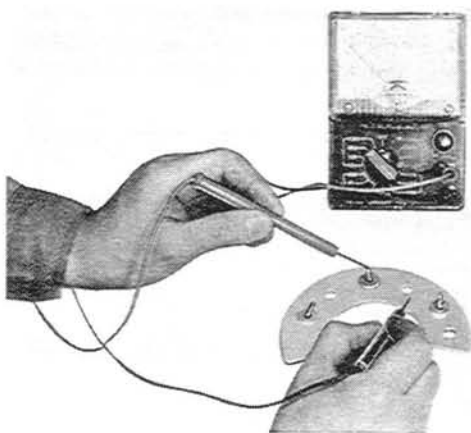


Fig. 5-13 Checking of diode

#### d. Checking of brushes

The brush should be replaced when one third of its original length is worn. The wear limit line is marked on each brush surface for warning.

The standard tension of the brush spring is 350 gr (12.5 oz). If the tension is too low or if excessive corrosion exists, the spring must be replaced.

#### e. Checking of bearings

There is no need of lubricating as the bearing is pre-lubricated. In a long spell of use, when the bearing is worn or damaged, replace it with a new one.

#### 5-D-5. Assembling of Alternator

Assemble the alternator in the reverse order of disassembling, noting the following point.

1. When installing the rotor assembly to the rear housing and stator assembly, hold the brushes in position by inserting a piece of stiff wire into the hole of the brush through the rear housing as shown in Fig. 5-14.

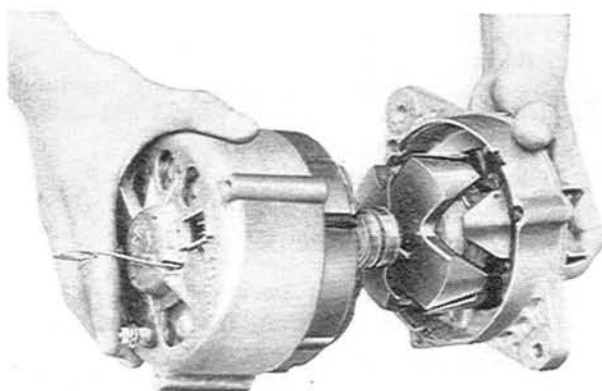


Fig. 5-14 Installing of rotor assembly

### 5-E. REGULATOR

#### 5-E-1. Checking of Constant Voltage Relay

To check, use an almost fully charged battery and connect a voltmeter between the (A) and (E) terminals of the regulator, as shown in Fig. 5-15. Then, hold the alternator revolution to 4,000 rpm (engine revolution 1,800 rpm) and take a reading of

the voltmeter. If the reading is from 14 to 15 volts, it is in proper order. If it is not within the specifications, the voltage relay must be adjusted, as instructed in Par. 5-E-3.

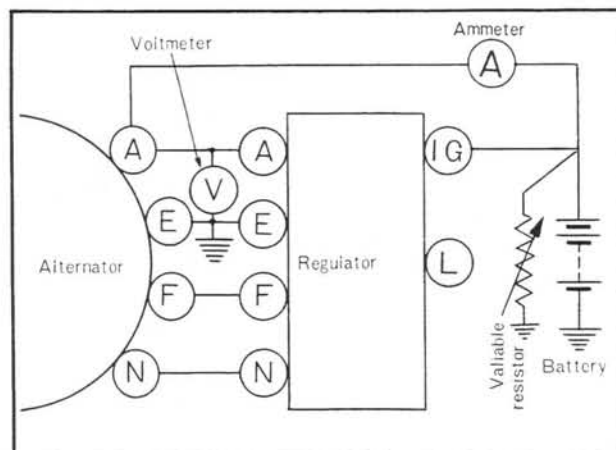


Fig. 5-15 Checking of constant voltage relay

#### 5-E-2. Checking of Pilot Lamp Relay

Make a circuit, as shown in Fig. 5-16, using a voltmeter and variable resistor, and light up the pilot lamp. Then, slide the knob of the variable resistor so that the voltage gradually increases.

Read the voltage between the (N) and (E) terminal when the lamp goes out. If this voltage is 4.2 to 5.2 volts, it is normal.

Next, slide the knob to gradually reduce the voltage and the lamp will light again. If the reading is 0.5 to 3.0 volts at this time, it is proper.

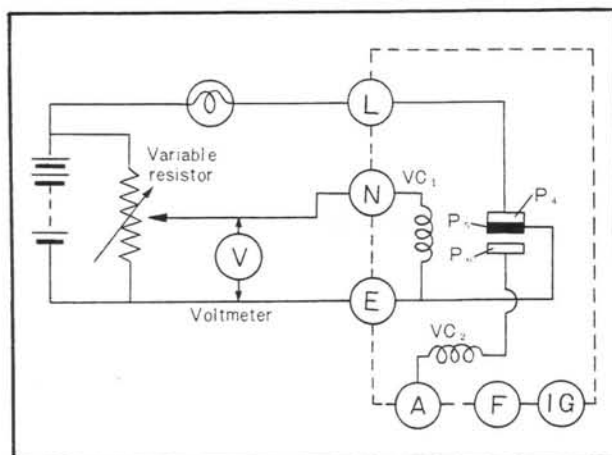


Fig. 5-16 Checking of pilot lamp relay

#### 5-E-3. Adjusting of Regulator

First, check the air gap, back gap and point gap with a wire gauge. If they are not within the specifications, adjust by bending the stationary contact bracket. After correct gaps are obtained, adjust the voltage setting. Bend the upper plate down to decrease the voltage setting, up to increase the voltage setting.

In case of the pilot lamp relay, if the voltage when the lamp lights up is adjusted to the specification, the voltage when the lamp goes out may be within the specification.

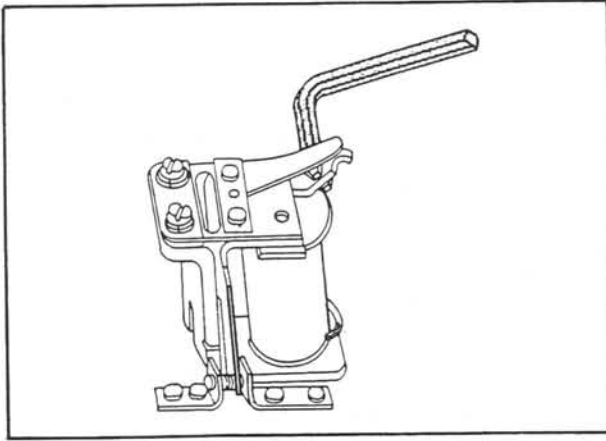


Fig. 5-17 Adjusting of regulator

Constant voltage relay

Air gap	0.7 ~ 1.1 mm (0.028 ~ 0.043 in)
Point gap	0.3 ~ 0.4 mm (0.012 ~ 0.016 in)
Back gap	0.7 ~ 1.1 mm (0.028 ~ 0.043 in)

Pilot lamp relay

Air gap	0.9 ~ 1.2 mm (0.035 ~ 0.047 in)
Point gap	0.7 ~ 1.1 mm (0.028 ~ 0.043 in)
Back gap	0.7 ~ 1.1 mm (0.028 ~ 0.043 in)

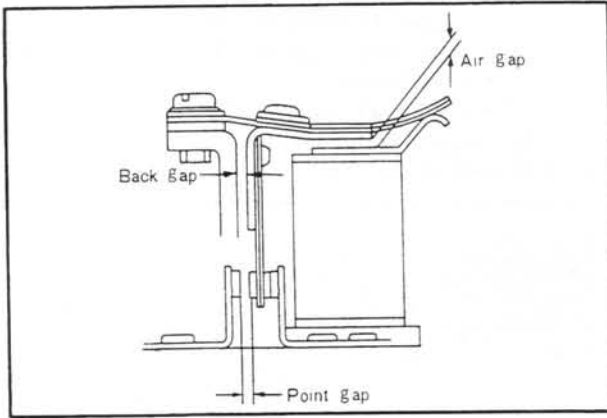


Fig. 5-18 Checking of gap

5-F. STARTING MOTOR

5-F-1. Checking of Starting Circuit

When the starting motor fails to operate or does not satisfactorily operate, check the following points before removing the starting motor:

1. Weak battery
2. Corroded or loose battery terminal
3. Loose starting motor terminal
4. Broken or loose wires of the starting circuit
5. Faulty ignition switch

5-F-2. Testing of Starting Motor

a. Free running test

1. Place the starting motor in a vise equipped with soft jaws and connect a fully-charged 12 volt battery to the starting motor.
2. Connect an ammeter between the (B) terminal of

the starting motor and the battery.  
 3. Operate the starting motor and take a reading. The current draw should be 60 amperes minimum at 6,000 rpm.

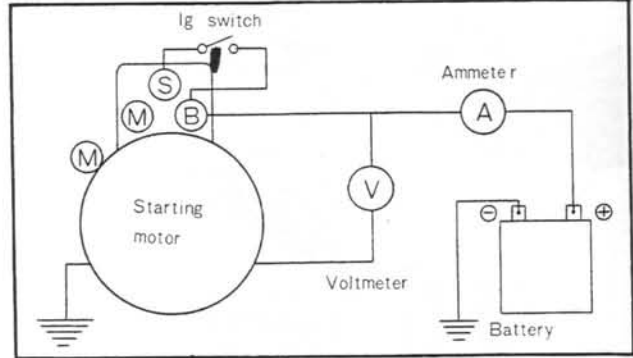


Fig. 5-19 Free running test

b. Lock resistance test

1. Install the starting motor on a test bench.
2. Test the lock resistance of the starting motor, following the instructions of the test equipment manufacturer.
3. With applied battery voltage adjusted to 7.5 volts, the current flow should be 560 amperes and the torque should be 1.3 m-kp (9.4 ft-lb).

If the starting motor does not perform to the above test requirements, repair it referring to the following list.

- 1) Starter rotates slowly with a large current at free running.
  - a) Worn, dirty or defective bearings
  - b) Short circuit of armature
  - c) Grounded armature and field coil
- 2) Starter does not rotate with a large current.
  - a) Defective field circuit
  - b) Defective armature circuit
  - c) Burnt commutator
- 3) Low torque and low current flow. Low free running speed.
  - a) Breakage of field circuit
  - b) Excessive internal resistance
- 4) Low torque. High free running speed.
  - a) Short circuit of field coil

5-F-3. Disassembling of Starting Motor

1. Disconnect the field strap from the terminal on the magnetic switch.
2. Remove the magnetic switch attaching screws and

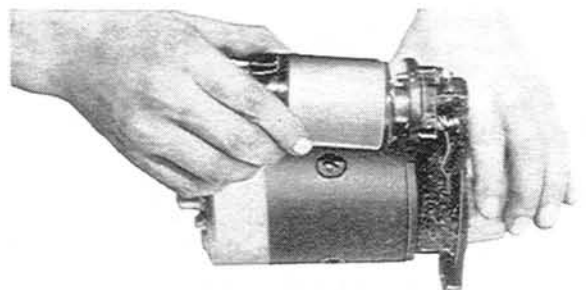


Fig. 5-20 Removing of magnetic switch



remove the magnetic switch, spring and washers from the driving housing.

3. Remove the plunger from the driving lever.

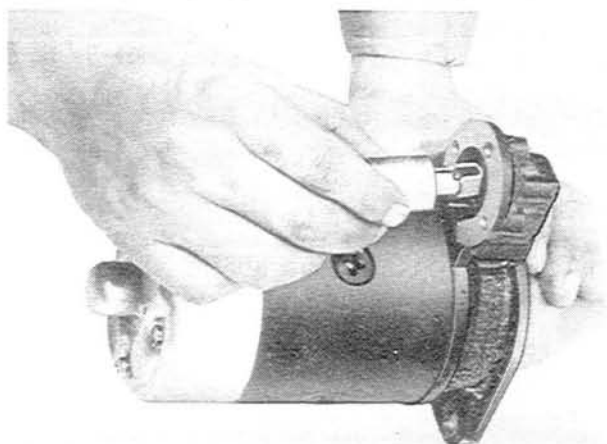


Fig. 5-21 Removing of plunger

4. Remove the through bolts and screws, and remove the rear cover, insulator and washers.

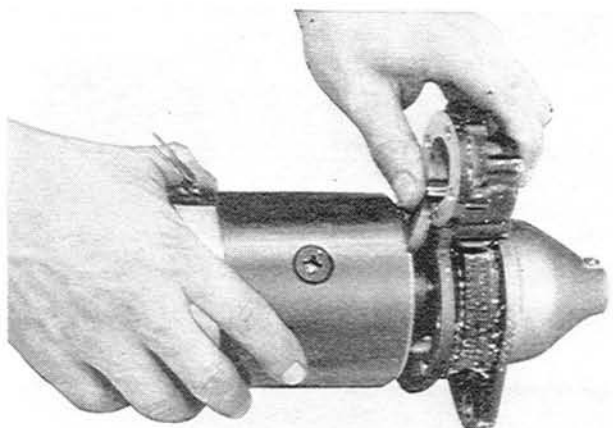


Fig. 5-22 Removing of rear cover

5. Separate the yoke assembly from the driving housing.

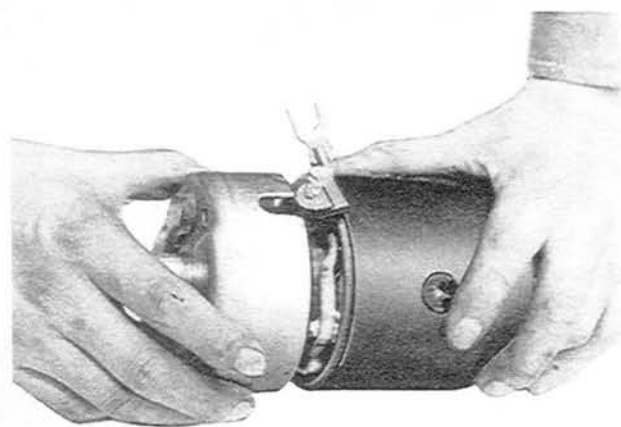


Fig. 5-23 Separating of yoke and housing

6. Remove the rubber packing, springs and spring seat.

7. Remove the armature and over-running clutch assembly from the driving housing.

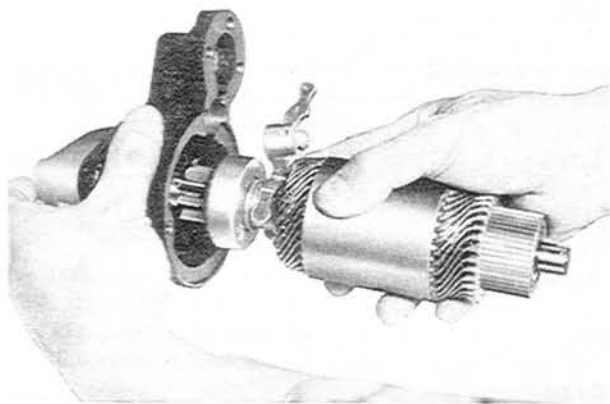


Fig. 5-24 Removing of armature assembly

8. Remove the driving lever.

9. Remove the pinion stop collar by driving the collar with a suitable drift and slide the pinion and over running clutch off the armature shaft.

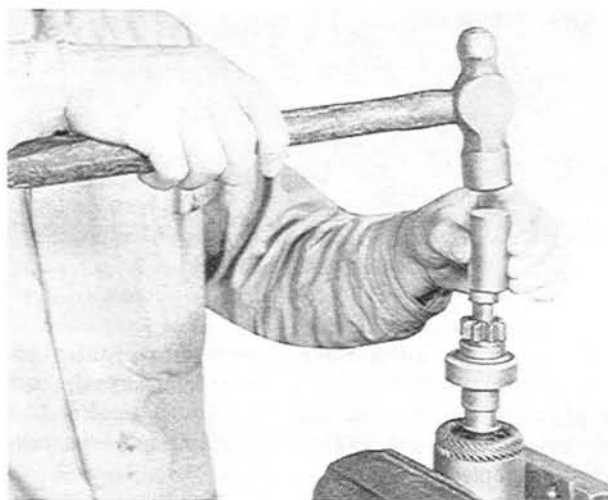


Fig. 5-25 Removing of collar

#### 5-F-4. Starting Motor Inspection

##### a. Checking of armature

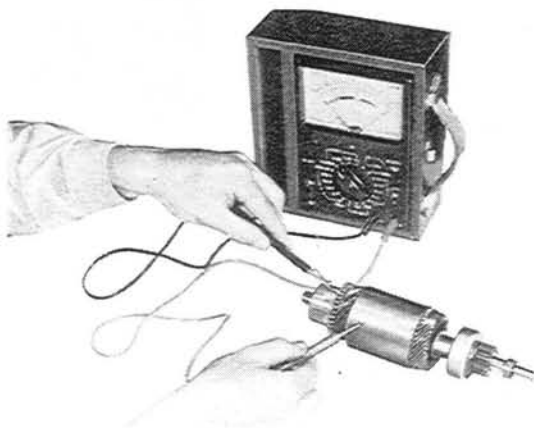


Fig. 5-26 Checking of armature

Check the armature for both ground and short-circuit. To check for ground, touch one prod of a tester to each segment and the other prod to the core or shaft. If the current flows, the coil connected to the segment is grounded.

To check for short-circuit, use a growler tester. Place the armature against the core of the tester, and hold a steel strip on the armature.

Then, rotate the armature slowly by hand. In case of short in the coil, the steel strip will become magnetized and vibrate.

#### b. Checking of commutator

Check the commutator. If it is dirty, discolored or worn, clean it with sand paper and wash with clean solvent. After cleaning, undercut the mica between the segments to a depth of 0.5 to 0.8 mm (0.020 to 0.031 in).

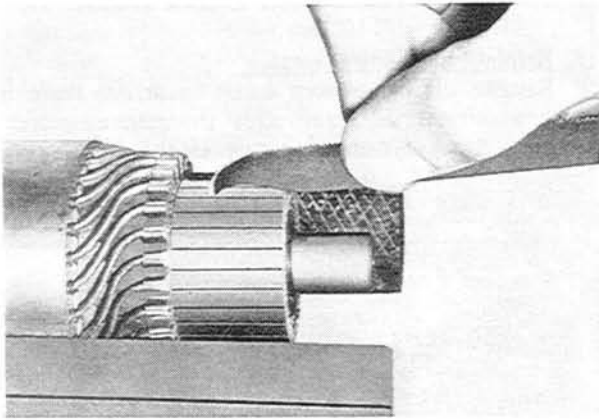


Fig. 5-27 Undercutting

#### c. Checking of field coil

To test the field coil for ground with a tester, place one prod on the yoke or pole core and the other prod to the field terminal. If it is grounded, the current will flow, and the field coil must be repaired or replaced.

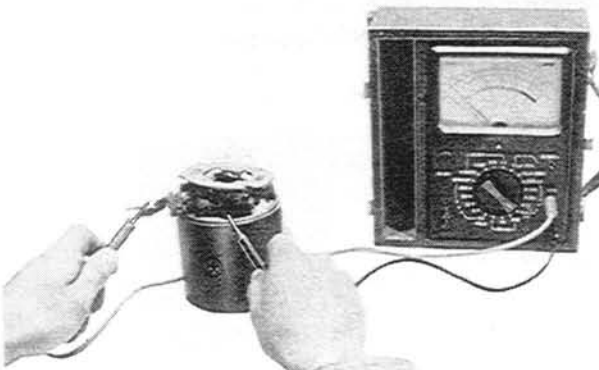


Fig. 5-28 Checking of field coil for ground

#### d. Checking of brush holder

Check the brush holder for ground. Touch one prod of a tester to the brush holder and the other prod to the yoke. If it is grounded, the current flows, and the brush holder must be replaced.

#### e. Checking of brushes and brush springs

Check the brushes and replace if they are worn more than one third of their original length. Otherwise, the brush spring tension will be reduced, leading to an increase in the brush-commutator contact resistance. This will lower the torque and cause the burned surfaces of the commutator.

The spring tension is 1.0 to 1.3 kg (2.2 to 2.9 lb). If the tension is too low, replace with a new one.

#### f. Checking of bushes

Check the clearance between the armature shaft and bush. If it exceeds 0.2 mm (0.008 in), replace the bush.

### 5-F-5. Magnetic Switch Test

#### a. Pull-in coil test

Apply the specified voltage (12 V) between the (S) terminal and (MT) terminal. If the magnetic switch is forcefully attracted, the pull-in coil is in good condition.

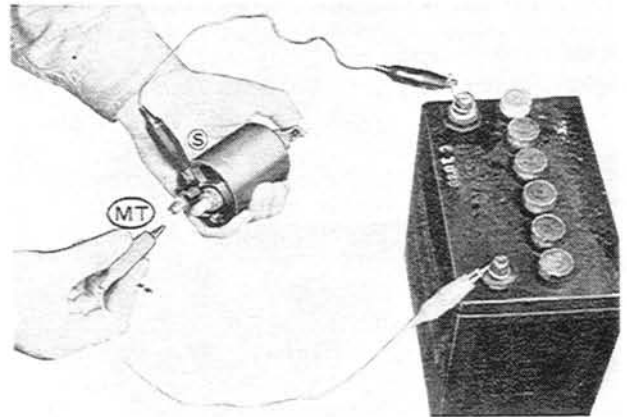


Fig. 5-29 Pull-in coil test

#### b. Holding coil test

Ground the (MT) terminal to the magnetic switch body with lead and impose the specified voltage (8 V) upon the (S) terminal to pull in the plunger.

If the plunger remains attracted after disconnecting the lead at the (MT) terminal, there is no trouble with the holding coil.

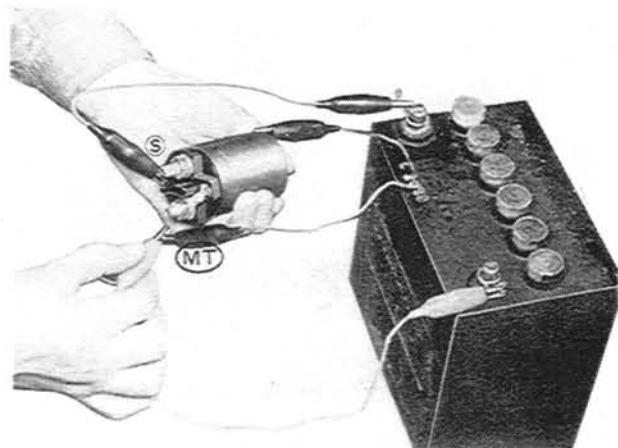


Fig. 5-30 Holding coil test

**c. Return test**

Push in the plunger with hand and apply the specified voltage (12 V) between the (MT) terminal and the magnetic switch body. If the plunger is not attracted, there is no trouble.

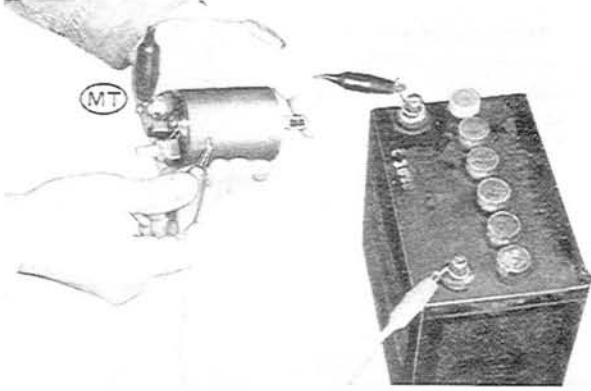


Fig. 5-31 Return test

**5-F-6. Assembling of Starting Motor**

To assemble the starting motor, reverse the procedure of Par. 5-F-3, noting the following points.

1. Adjust the armature shaft end play to 0.2 to 0.5 mm (0.008 to 0.02 in) with a thrust washer on the rear end of the shaft after tightening the through bolts.

2. When the magnetic switch is engaged, the clearance between the pinion and stop collar should be 0.5 to 2.0 mm (0.02 to 0.08 in). This clearance can be adjusted by inserting the adjusting washer between the magnetic switch body and drive housing.

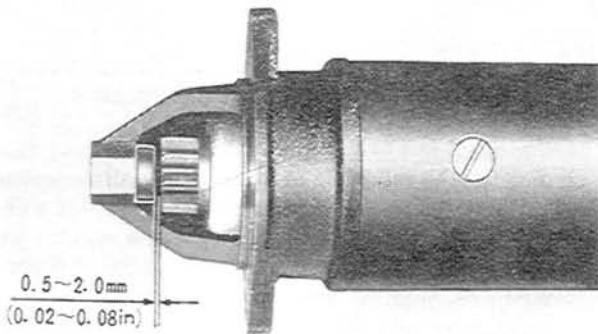


Fig. 5-32 Adjusting of clearance

**5-G. LIGHTING SYSTEM**

The wiring of the lighting system is shown in the wiring diagrams. The wires in the various circuits are of different colors to aid when checking individual circuits.

**5-G-1. Headlight Aiming**

Before adjusting the headlights, make sure that the tires are inflated uniformly to recommended pressure and the vehicle is on level ground without load.

To adjust the headlights, turn the three spring-loaded screws of the sealed beam unit until the headlights are properly aimed.

When the high beam is aimed 1.0 m (39.37 in) straight ahead, the center of the high intensity should be 12.9 mm (0.51 in) lower than the horizontal lamp center line, as shown in Fig. 5-33.

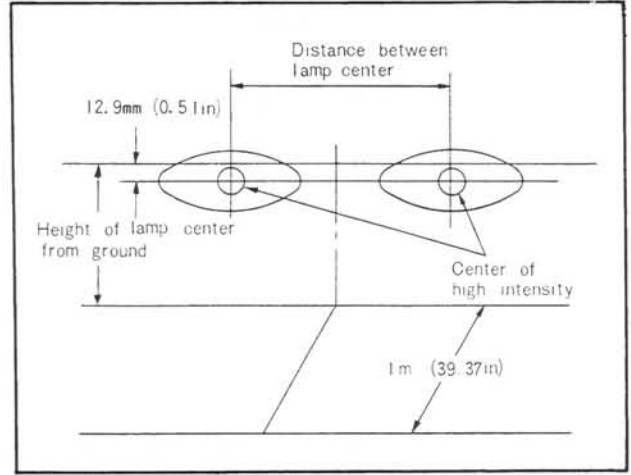


Fig. 5-33 Headlight aiming

**5-G-2. Replacing of Bulbs**

When replacing the bulb, conform to the following table.

Headlamp	50 W / 40 W or 45 W / 40 W
Fog lamp	25 W
Side and front turn signal lamp	5 W / 21 W
Side turn signal lamp	3 W
Tail and stop lamp	5 W / 21 W
Rear turn signal lamp	21 W
Reverse lamp	10 W
License plate lamp	10 W
Interior lamp	5 W
Step lamp	6 W
Glove compartment lamp	5 W
Instrument panel:	
Illumination lamp	3 W
Warning lamp	3 W

**5-H. INSTRUMENT PANEL****5-H-1. Fuel Gauge**

The fuel gauge indicates the quantity of gasoline in the tank only when the ignition switch is turned on. The fuel gauge circuit is composed of the fuel gauge, mounted on the instrument panel, and the fuel tank unit, connected by a single wire through the ignition switch. Should the gauge fail to register, check and repair the fuel gauge circuit, referring to the following list.

- 1) Fuel gauge does not register with ignition "ON".
  - a) Defective panel unit
  - b) Faulty contact in IG terminal of panel unit
  - c) Wiring to tank grounded
  - d) Panel unit improperly grounded
- 2) Fuel gauge shows "F" under all conditions.
  - a) Open circuit in tank unit
  - b) Break in wiring between tank unit and panel unit

- 3) Fuel gauge shows "E" under all conditions.
  - a) Short circuit in tank unit or panel unit
  - b) Break in P coil and S coil of panel unit
  - c) Loose or poor contact of terminals

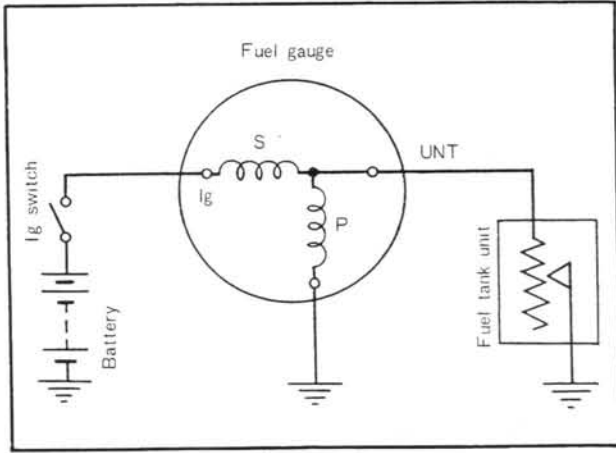


Fig. 5-34 Diagram of fuel gauge

If the checker (49 0187 050C) is available, use it according to the following procedure to confirm whether the trouble lies in the panel unit or in the tank unit.

1. Disconnect the wiring (yellow) of the tank unit and connect it to the positive lead of the checker. Ground the negative lead of the checker.
2. Set the checker knob in the "F" position of the resistor type.
3. Turn on the ignition switch and check whether the fuel gauge at the instrument panel points to "F"

Proceed with the inspection by setting the checker knob in the "1/2" and "E" positions in turn to observe accuracy of the fuel gauge indication.

If the fuel gauge points to "F" "1/2" and "E" accurately, the trouble lies in the tank unit while if the fuel gauges indication is inaccurate, the trouble lies in the panel unit.

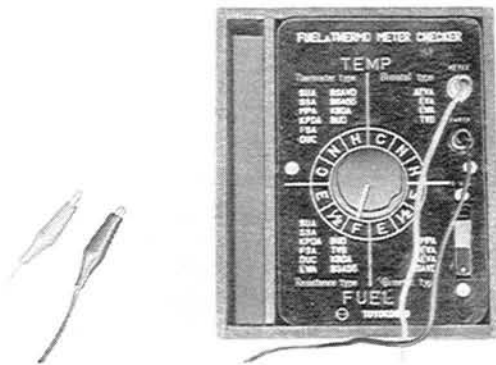


Fig. 5-35 Checker

### 5-H-2. Water Temperature Gauge

The water temperature gauge electrically operated like the fuel gauge, consists of the water temperature gauge in the instrument panel and sending unit installed on the thermostat case.

When the water temperature gauge registers improperly, check the following points by referring to wiring diagram and repair.

- 1) Pointer does not move when ignition switch turned on.
  - a) Defective panel unit
  - b) Faulty contact in IG terminal
- 2) Pointer shows "H" under all conditions.
  - a) Open circuit in sending unit
  - b) Break in wiring between both units
  - c) Loose or faulty contact in terminals
- 3) Pointer shows "C" under all conditions.
  - a) Defective panel unit
  - b) Short circuit in sending unit
  - c) Panel unit improperly grounded

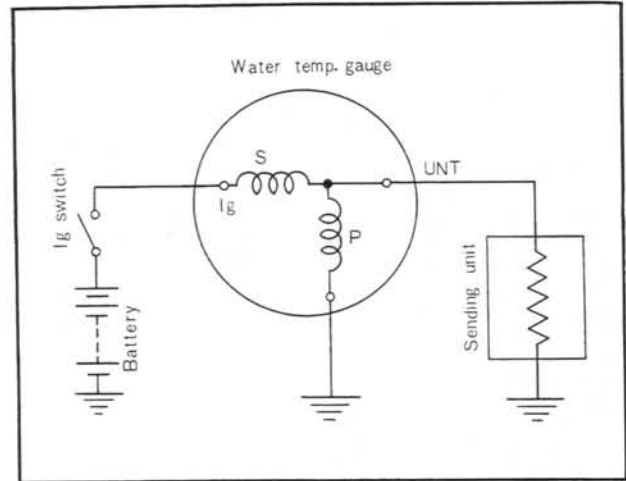


Fig. 5-36 Diagram of water temp. gauge

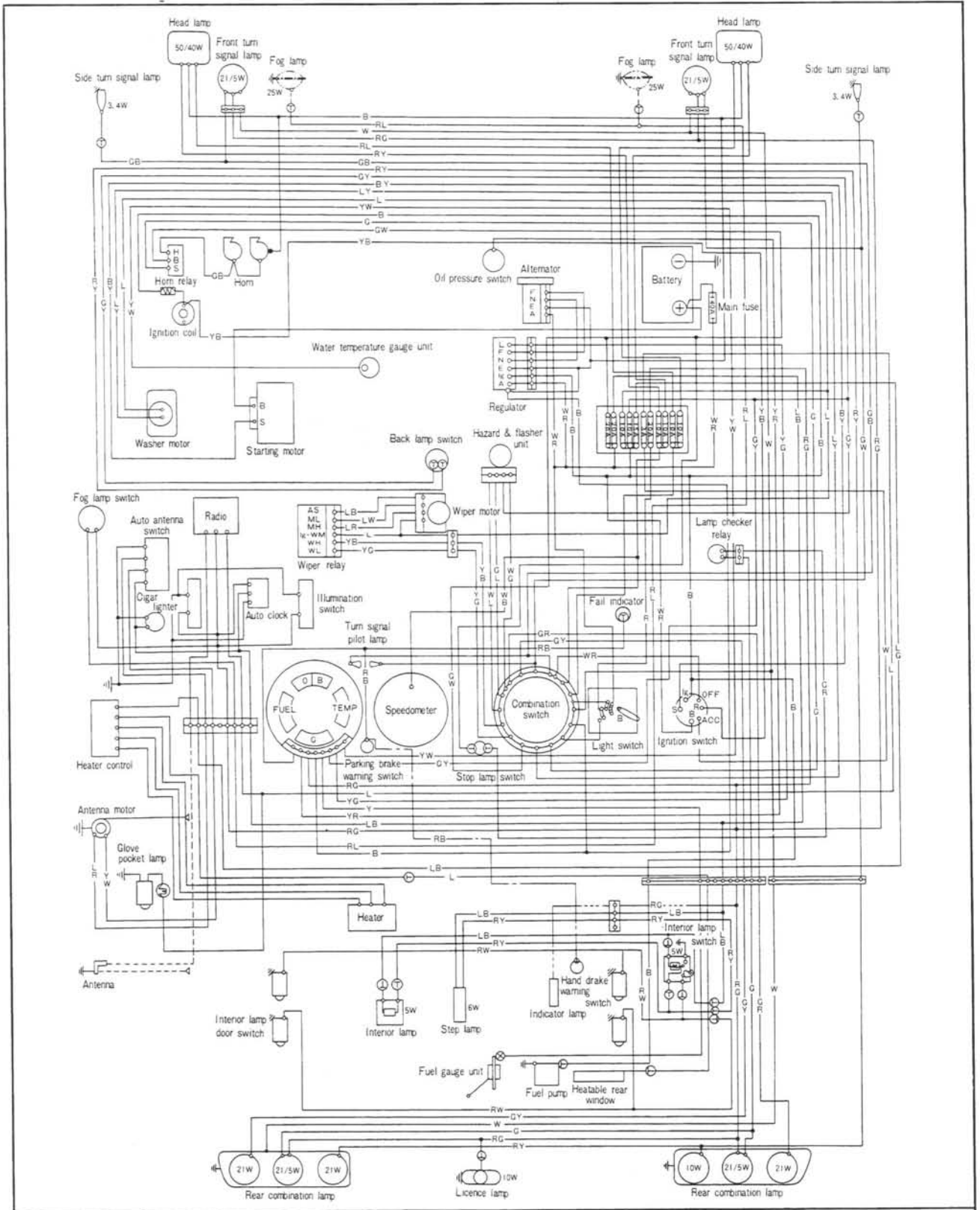
If the checker (49 0187 050C) is available, use it according to the following procedure to confirm whether the trouble lies in the panel unit or in the sending unit.

1. Disconnect the wiring (yellow) of the sending unit and connect it to the positive lead of the checker. Ground the negative lead of the checker.
2. Set the checker knob in the "C" position of the thermistor type.
3. Turn on the ignition switch and check whether the water temperature gauge at the instrument panel points to "C". Proceed with the inspection by setting the checker knob in the "N" and "H" positions in turn to observe accuracy of the water temperature gauge indication. If the water temperature gauge points to "C", "N" and "H" accurately, the trouble lies in the sending unit while if the water temperature gauges indication is inaccurate, the trouble lies in the panel unit.

### SPECIAL TOOL

49 0187 050C

Fuel & thermometer checker



Wiring colour code

- R : Red
- G : Green
- B : Black
- L : Blue
- Y : Yellow
- W : White

Example

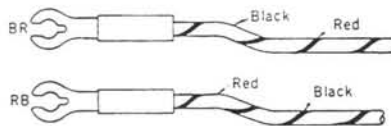
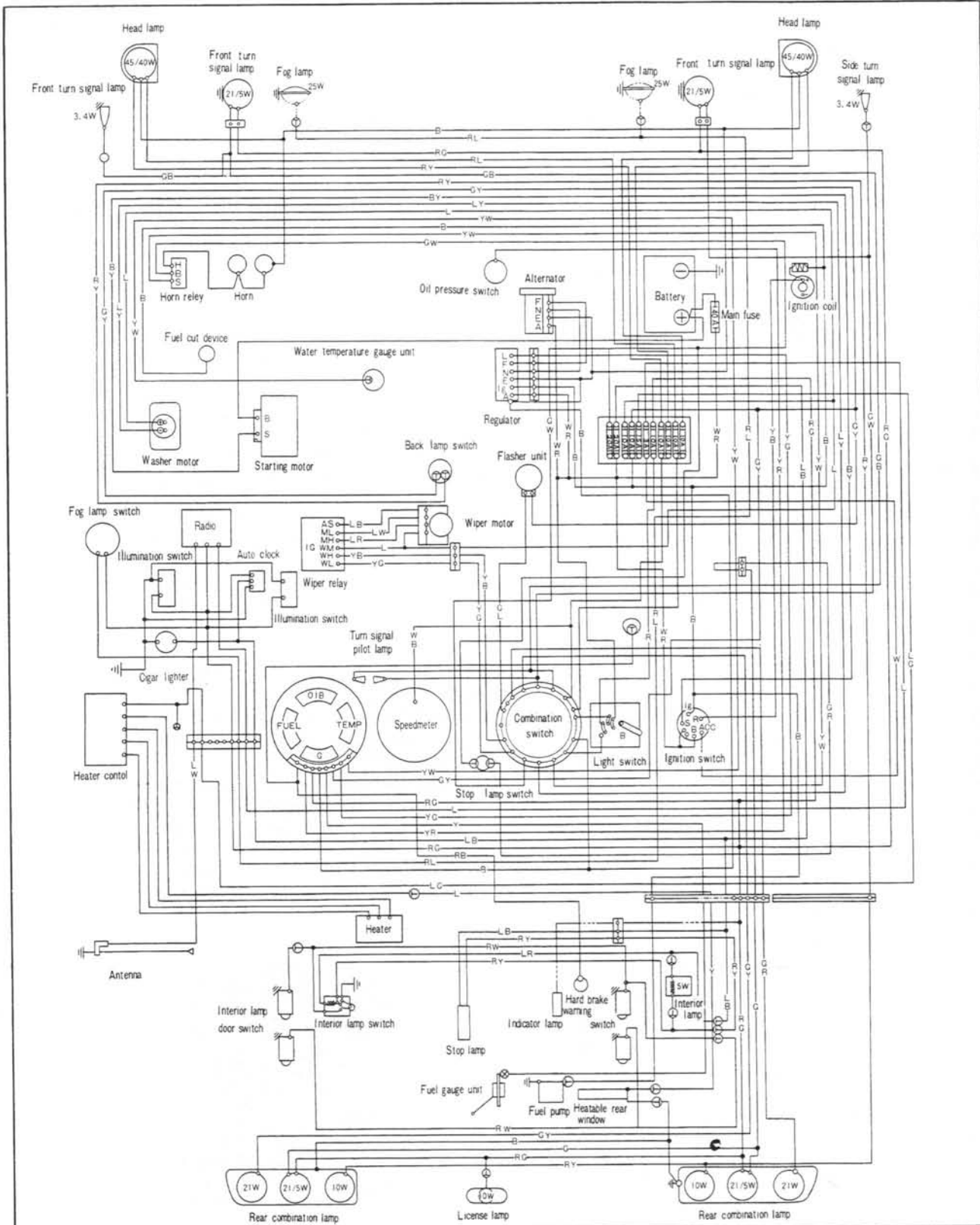


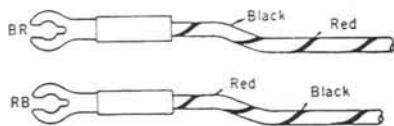
Fig. 5-37 Wiring diagram (right hand drive)



**Wiring colour code**

- R : Red
- G : Green
- B : Black
- L : Blue
- Y : Yellow
- W : White

**Example**



5-38 Wiring diagram (left hand drive)