



Fig. 4-60 ① ⊖ terminal  
② ⊕ terminal

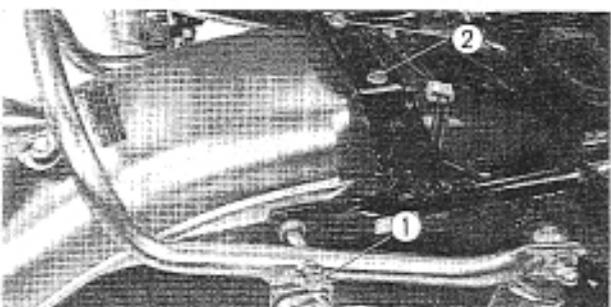


Fig. 4-61 ① 8 mm hex bolts  
② 6 mm hex bolts

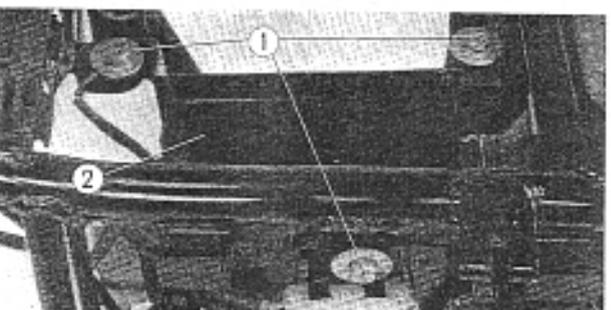


Fig. 4-62 ① 6 mm bolts  
② Air cleaner case

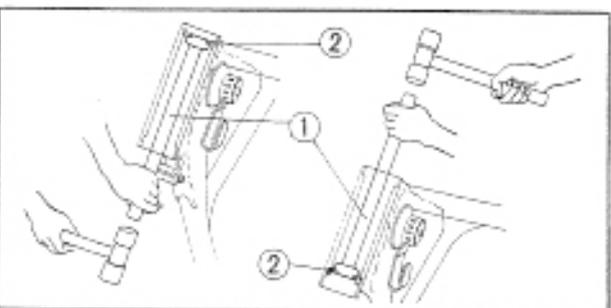


Fig. 4-63 ① Ball race remover  
② Ball races

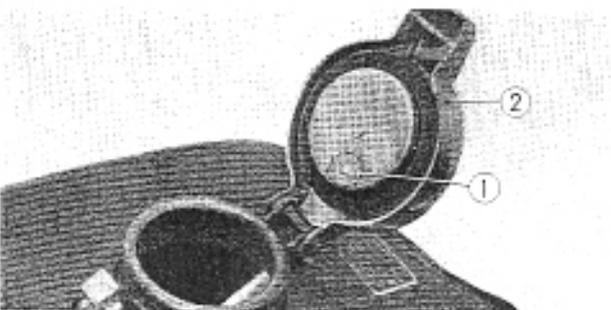


Fig. 4-64 ① Hole  
② Fuel filler cap

### Removal

1. Remove the fuel tank.
2. Remove the seat.
3. Remove the battery.  
Disconnect the ground cable at the negative terminal first and then the starter cable at the positive terminal of the battery.
4. Dismount the engine from the frame.
5. Remove the steering stem.  
Before removing the stem, remove the front wheel, front forks and steering handlebar.
6. Remove the rear fender.  
Disconnect the wire leads of the rear turn signals and tail/stop light.  
Loosen the 6 and 8 mm hex bolts which secure the rear fender.
7. Remove the air cleaner case and battery box.  
Disconnect each wiring at the connector and coupler.  
Remove the silicon rectifier, regulator and starter magnetic switch.  
Loosen the three hex. bolts which secure the air cleaner case.
8. Disconnect the wire harness.
9. Remove the main and side stands.
10. Remove the top and bottom ball races from the steering head pipe using ball race remover (Tool No. 07048-33315).

### Inspection

1. Check the hole in the fuel filler cap for clogging.
2. Check the frame body for bend, cracks, deformation or any other damage.

3. Check the steering head pipe for misalignment or deformation.
4. Check wire harness, coupler and connector for proper connection or any other damage.

5. Check the O-ring of the fuel cock drain and strainer cup for fatigue or any other damage.
6. Check the fuel pipe for any damage.

### Installation

1. Drive the top and bottom ball races into the steering head pipe properly and evenly using ball race driver attachment (Tool No. 07048-33310) and driver handle (Tool No. 07048-61101).
2. Connect the wire harness.  
Route the wirings and secure them with the clips.

3. Install the air cleaner case and battery box.  
Remove any dust from the cleaner case and check the water drain hole for clogging before installation.

4. Install the battery box.  
Connect the starter cable to the positive terminal and then the ground cable to the negative terminal of the battery.  
Route the battery overflow tube in accordance with the battery caution mark.

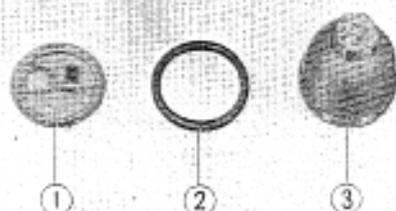


Fig. 4-65 ① Fuel strainer screen  
② O-ring  
③ Fuel strainer cup

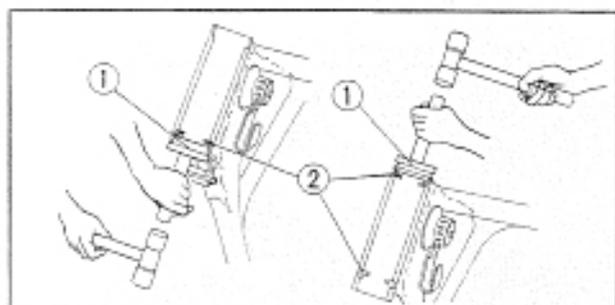


Fig. 4-66 ① Ball race remover  
② Ball races

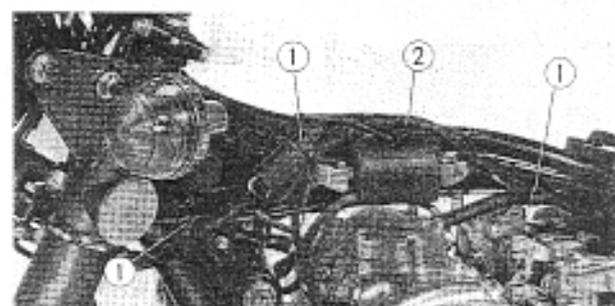


Fig. 4-67 ① Clips  
② Wire harness

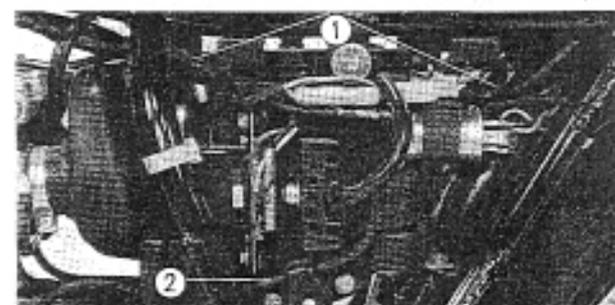


Fig. 4-68 ① Wire harness  
② Starting motor cable

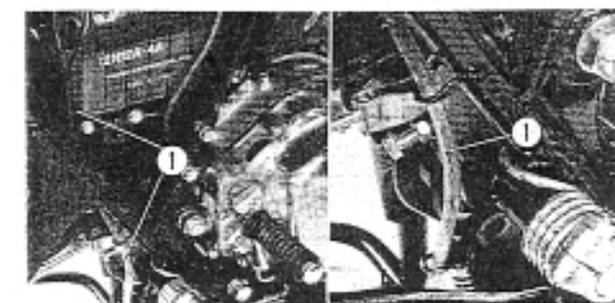


Fig. 4-69 ① Battery over flow tube

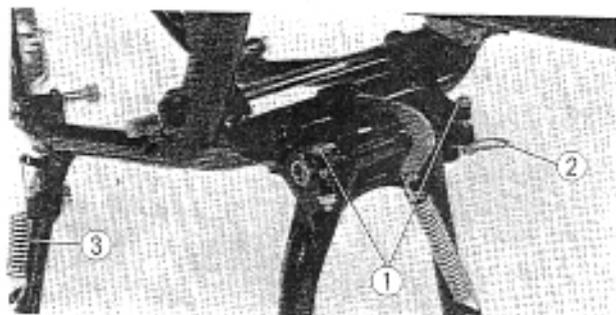


Fig. 4-70 ① Main stand mounting bolts  
② Battery over flow tube guide  
③ Side stand spring

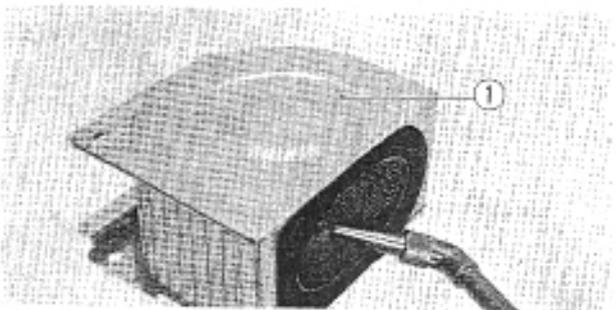


Fig. 4-71 ① Air cleaner

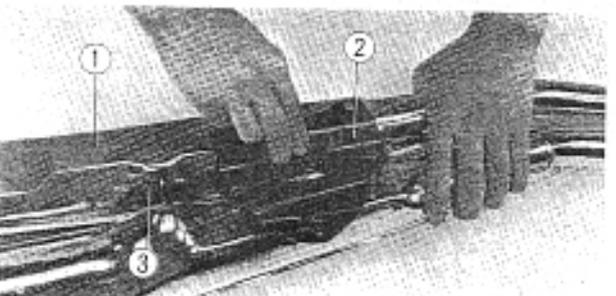


Fig. 4-72 ① Muffler  
② Muffler bracket  
③ Connecting tube

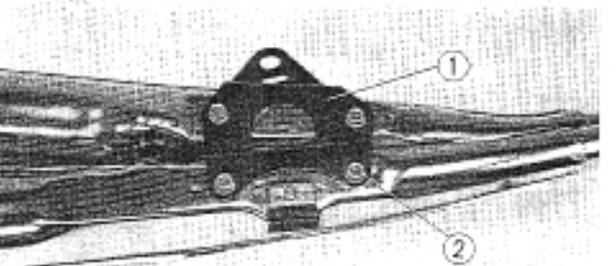


Fig. 4-73 ① Muffler bracket  
② 8 mm nut

5. Install the main stand and side stand.

**NOTE:**

1. Do not overtighten the main stand mounting bolts. Be sure to install the battery over flow tube guide to the left side of the bolt.
2. Install the side stand spring with its longer hook part upward.

6. Clean the air cleaner.

Lightly tap the cleaner element and apply a blast of compressed air from inside to remove dust out.

7. Install the mufflers.

Join the upper and lower mufflers securely with the connecting tube and tighten the connecting pipe. Install the mufflers to the frame with the brackets and tighten the 8 mm nuts.

## V. ELECTRICAL

Courtesy of  Honda4Fun  
www.hondafour.com www.honda4fun.com

### 1. GENERAL DESCRIPTION

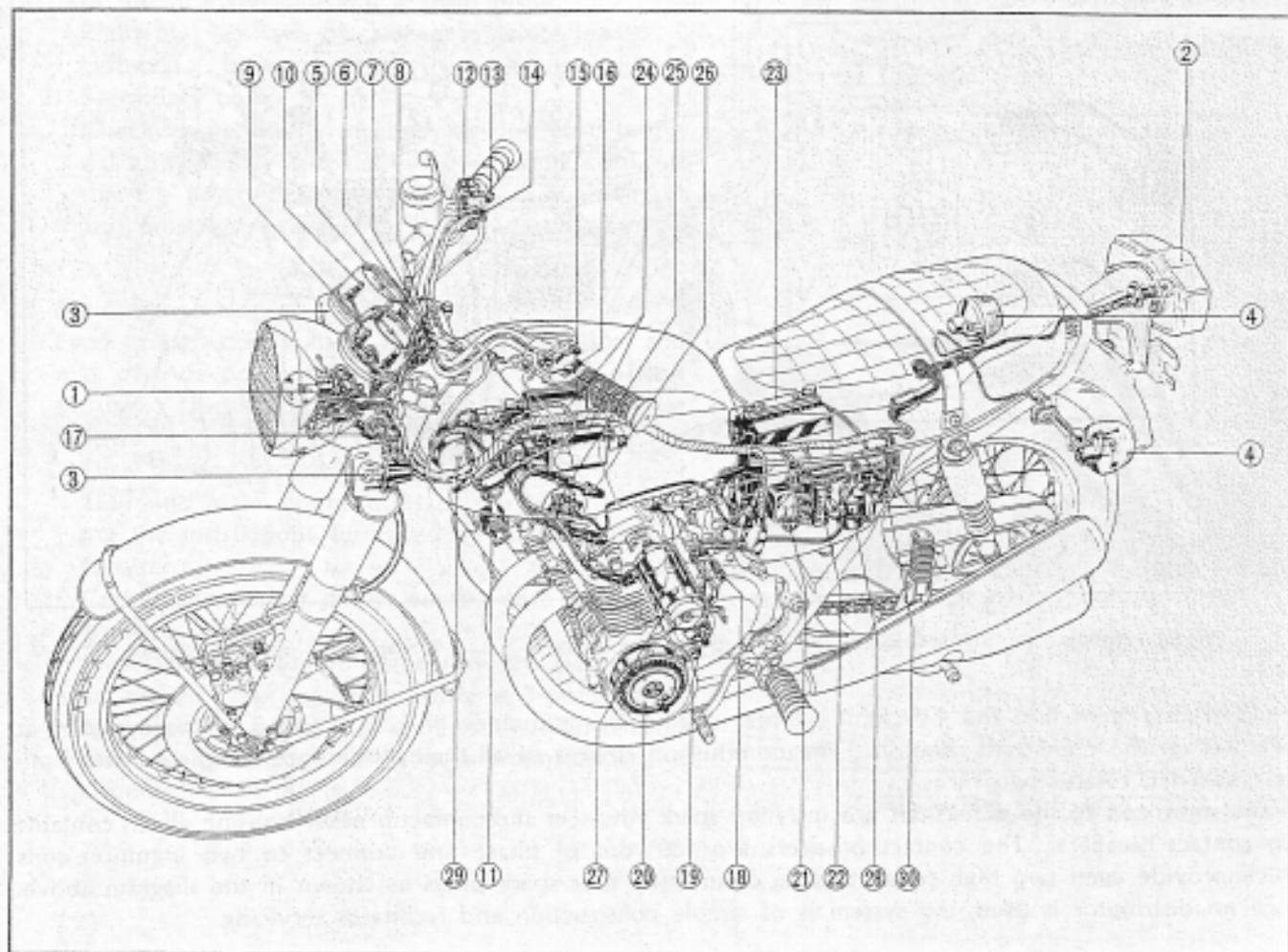


Fig. 5-1

#### LIGHTS

- ① Headlight
- ② Tail/stoplight
- ③ Front turn signal lights
- ④ Rear turn signal lights
- ⑤ Turn signal indicator lamp
- ⑥ Oil pressure warning lamp
- ⑦ Neutral indicator lamp
- ⑧ High beam indicator lamp
- ⑨ Speedometer lamp
- ⑩ Tachometer lamp

#### SWITCHES

- ⑪ Main switch
  - ⑫ Emergency switch
  - ⑬ Headlight control switch
  - ⑭ Starter switch
  - ⑮ Turn signal control switch
  - ⑯ Horn button
  - ⑰ Stop switch
  - ⑱ Neutral switch
  - ⑲ Oil pressure switch
- CHARGING SYSTEM
- ⑳ A-C generator
  - ㉑ Regulator

- ㉒ Silicon rectifier
- ㉓ Battery

#### IGNITION SYSTEM

- ㉔ Ignition coils
- ㉕ Contact breaker
- ㉖ Spark plugs

#### STARTING SYSTEM

- ㉗ Starting motor
- ㉘ Magnetic switch

#### ELECTRICAL EQUIPMENT

- ㉙ Horn
- ㉚ Winker relay

## 2. IGNITION SYSTEM

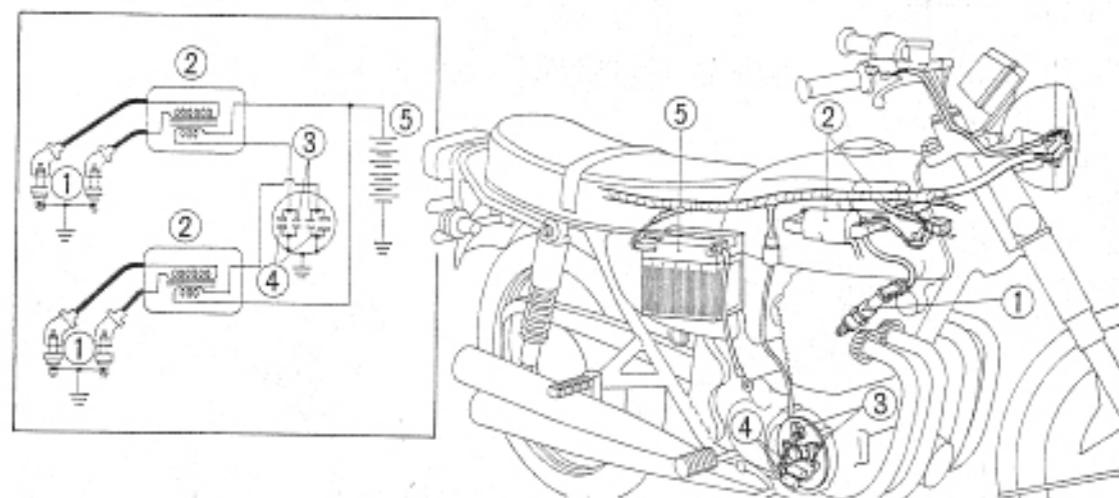


Fig. 5-2

- ① Spark plugs    ② Ignition coils    ③ Contact breakers    ④ Capacitors    ⑤ Battery

The ignition system fires the 4-cycle, 4-cylinder engine in a sequence of 1, 2, 4 and 3 of the cylinders at each 180° of the crankshaft rotation. The combustion strokes of all the cylinders are completed each time the crankshaft rotates two turns.

To the right end of the crankshaft are installed spark advancer and contact breaker housing which contains two contact breakers. The contact breakers are 180° out of phase and connect to two ignition coils which provide each two high tension cords connecting four spark plugs as shown in the diagram above. Since no distributor is used, the system is of simple construction and facilitates servicing.

Ignition coil 3 point spark gap opening	7 mm (0.27 in.), min.
Spark plug Type (standard) Plug gap	D-8ESL (NGK), X-24ES (DENSO) 0.6-0.7 mm (0.024-0.028 in.)
Contact breaker Point gap Spring force	0.3-0.4 mm (0.012-0.016 in.) 650-850 gr. (1.43-1.87 lbs)
Capacitor Capacity Insulation resistance	0.22 $\mu$ F $\pm$ 10% 10 M $\Omega$ (1,000 V with a megger)
Spark advancer Start of advance (crankshaft rotation) Full advance (crankshaft rotation) Advance angle	1,400-1,600 rpm 2,300-2,500 rpm 23.5°-26.5°

## Ignition coils

### Inspection

#### 1. Continuity test

##### 1) Primary coil

Check for continuity between the two terminals of the primary coil with a radio tester.

Right coil: yellow, black lead to white lead.

Left coil: blue, black lead to white lead.

##### 2) Secondary coil

Check for continuity the high tension cord terminal and primary side terminal on each cord. If there is no continuity, the coil has an open-circuit and must be replaced.

#### 2. Performance test

Even though continuity is ensured, an ignition coil may provide poor performance after a long period of use. Check to determine its performance as follows:

##### 1) Turn the service tester selector knob to IGNITION TEST and make connections of the tester following the instructions furnished by the tester manufacturer.

##### 2) Connect the tester power supply cord to a fully charged battery.

Measure the maximum distance where spark jumps across the gap regularly, using a 3-point spark gap appears as B in Fig. 5-5, connect the high tension cords in reverse to make measurement under the condition of A in Fig. 5-5.

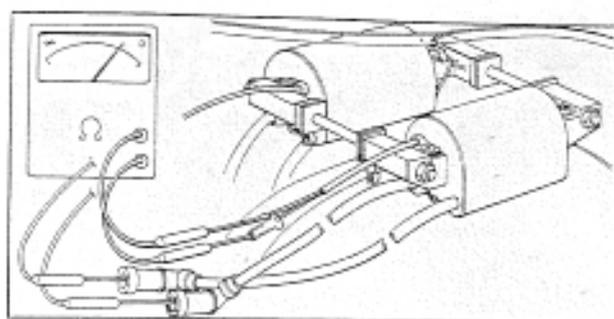


Fig. 5-3 Checking ignition coil for continuity

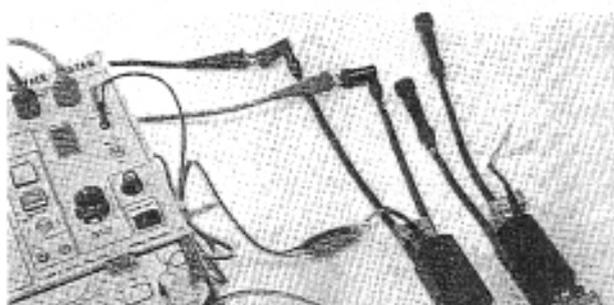


Fig. 5-4 Ignition coil performance test

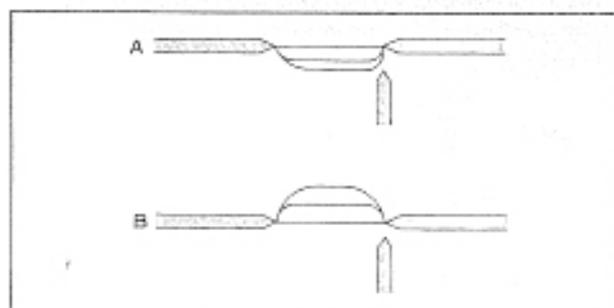


Fig. 5-5 3-point spark tester

## Spark plugs

### Inspection

#### 1. Check the spark plug for worn or pitted electrodes, excessive gap, and damaged insulator.

##### 1) Clean dirty spark plug using a plug cleaner or wire brush.

##### 2) Measure the electrode gap with a thickness gauge, and adjust if necessary.

Gap specification: 0.6~0.7 mm (0.024~0.028 in)

##### 3) Replace the spark plug with a new one, if the insulator or gasket is damaged or distorted.

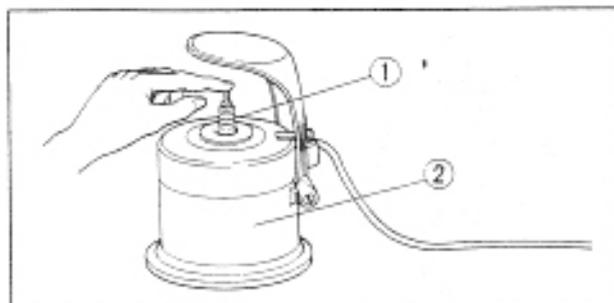


Fig. 5-6 ① Spark plug ② Plug cleaner

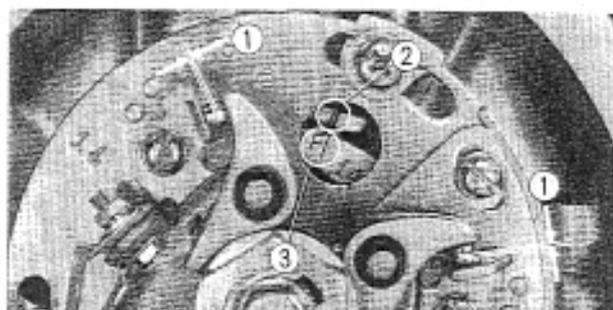


Fig. 5-7 ① Breaker point gap ② Matching mark  
③ "F" mark

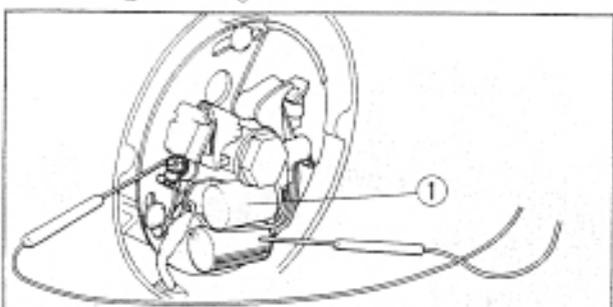


Fig. 5-8 ① Capacitors

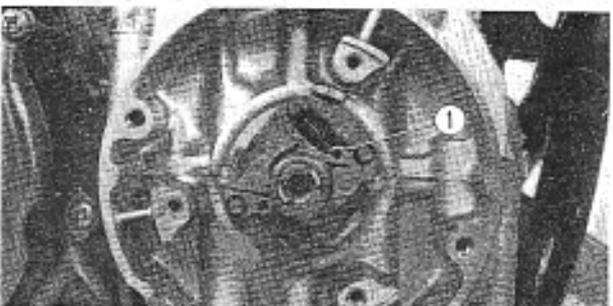


Fig. 5-9 ① Spark advancer

### Contact breakers and capacitors

#### 1. Contact breakers

For the adjustment of the breaker point and ignition timing, refer to the section INSPECTION AND ADJUSTMENT.

#### 2. Capacitors

Measure the capacitance of the capacitors using the service tester.

Capacitance specification :  $0.22 \mu\text{F} \pm 10\%$

#### NOTE:

The point must be kept open when measuring.

### Spark advancer

#### Inspection

1. Wipe off any foreign matter from the friction surfaces and check for smooth operation.
2. Check the advancer pin for excessive wear.
3. Take the readings of the crankshaft rpm at initial and full advance angles using the timing light of the service tester.

MEMO

## 3. CHARGING SYSTEM

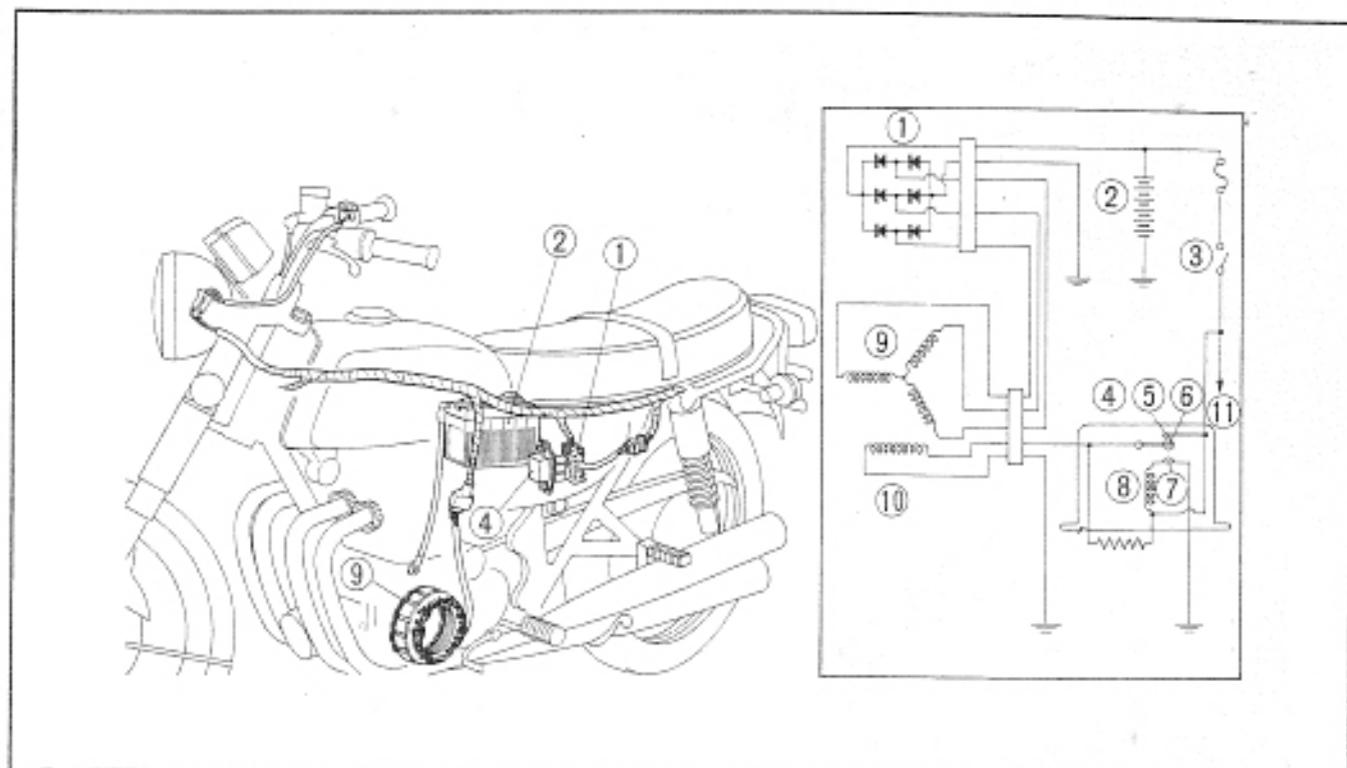


Fig. 5-10

- |                     |                  |                 |              |
|---------------------|------------------|-----------------|--------------|
| ① Silicon rectifier | ④ Regulator      | ⑦ Lower contact | ⑩ Field coil |
| ② Battery           | ⑤ Upper contact  | ⑧ Relay coil    | ⑪ Load       |
| ③ Main switch       | ⑥ Moving contact | ⑨ Stator coil   |              |

The charging system consists of a 3 phase A-C generator, silicon diode rectifier, voltage regulator and storage battery. The 3 phase A-C generator, a brushless exciting type, is capable to generate high voltage output enough to operate all electrical units of this machine. It features compact construction, light weight and reduced wear parts to facilitate its handling and servicing. A dual-contact type Tirrill regulator is used in the charging circuit.

## 1. Charging test

- 1) Use a fully charged battery for the test. (The specific gravity of the electrolyte in each cell must be 1.26~1.28 at 20 C° or 68 F°.)
- 2) Connect the negative probe of an ammeter to the positive terminal of the battery and the positive probe to the harness.
- 3) Connect the probes of a voltmeter to the battery terminals in similar polarity.
- 4) Run the engine under the conditions of NIGHT-TIME RIDING by switching the headlight on, and DAYTIME RIDING, with the headlight off and take the meter readings. If the readings are out of the charging characteristics as specified on next page, check the generator for condition. If it is normal, check and adjust the regulator.

## NOTE:

Remember the generator output may vary with a temperature.

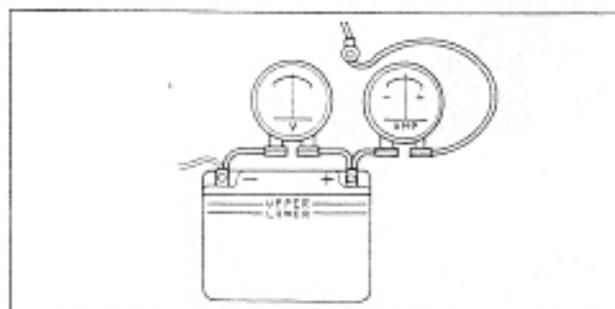


Fig. 5-11 Charging test

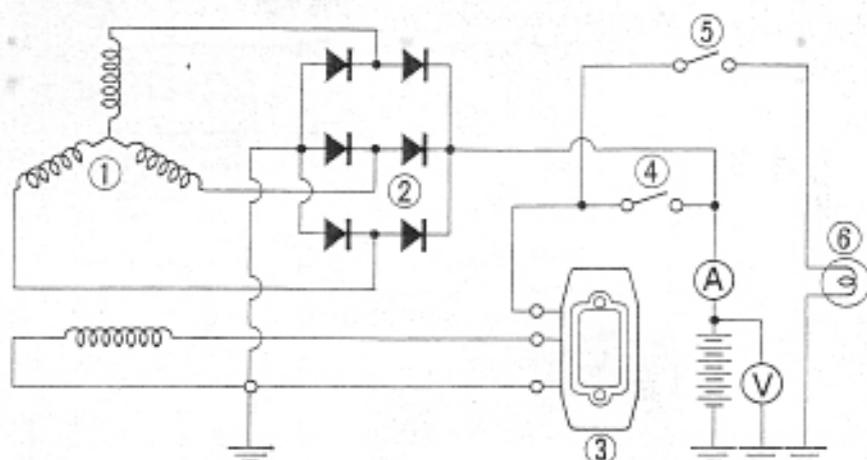


Fig. 5-12 Charging test circuit

- ① A-C generator      ③ Regulator      ⑤ Lighting switch  
② Silicon rectifier      ④ Main switch      ⑥ Load

## Charging characteristics

Engine (rpm)	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000
Charging current (Ampere)								
NIGHTTIME RIDING	1.6	1.9	2.0	1.8	1.6	1.5	1.4	1.4
DAYTIME RIDING	—	—	4	2.6	2.0	1.6	1.4	1.4
Battery terminal voltage (Volt)	12.5	14.2	15	15	15	15	15	15

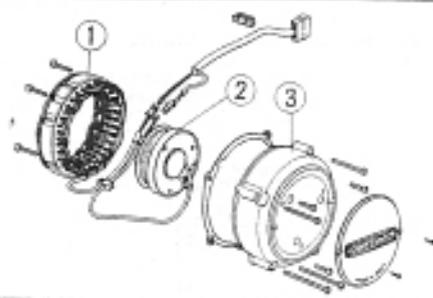


Fig. 5-13 ① Stator coil  
② Field coil  
③ Dynamo cover

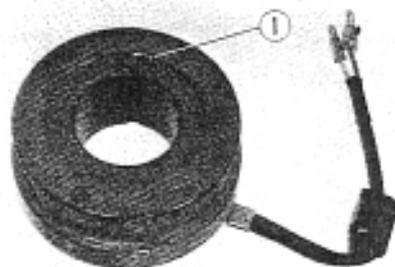


Fig. 5-14 ① Field coil

## A-C generator

Rated current output	14.5V 13A
Rated charging speed	5,000rpm
Ground polarity	⊖

## Inspection

- Checking field coil for continuity  
Check for continuity between the two leads (white and green) with a radio tester.  
Resistance specification : 4.6~5.0Ω

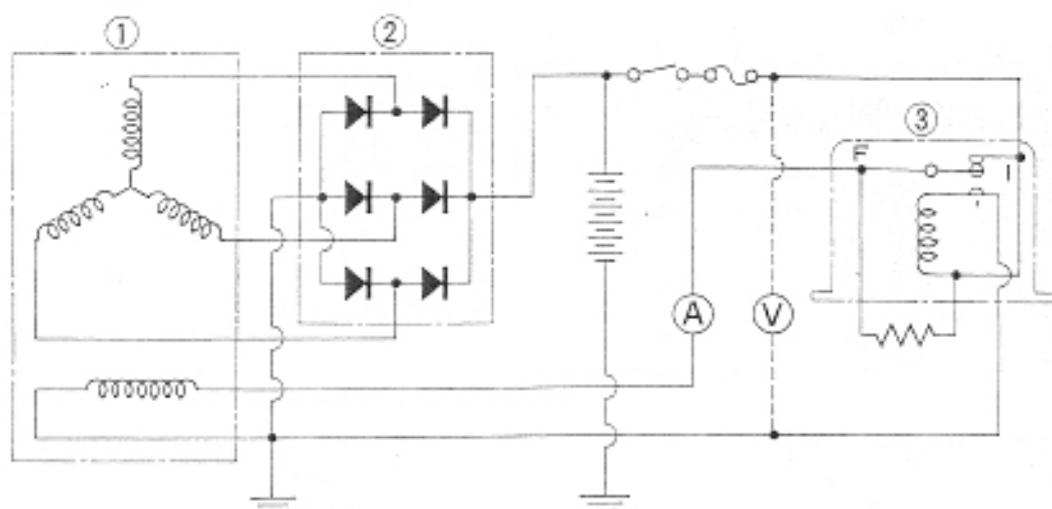


Fig. 5-15 ① A-C generator ② Silicon diode rectifier ③ Regulator

2. Checking resistance of the stator coil windings: Using an ohmmeter set to its lowest scale range, measure the resistance between one yellow wire lead and each of the remaining two. Test all three leads in this manner.

**Specification:** 0.61–0.69 ohms resistance between leads

### Silicon diode rectifier

Test each diode for forward and reverse continuity with an ohmmeter or test light. Touch one of the yellow wire coupling pins ③ with either of the test instrument leads, then touch the second test lead to pins ④ and ⑤ in turn. Note the continuity indication. Repeat this procedure at each of the two remaining yellow wire coupling pins ③ (Fig. 5-18).

Reverse the test instrument leads and repeat the above procedure.

The rectifier is good if the test shows continuity in one direction only at all diodes. The rectifier is defective if:

- There is continuity in both directions at any diode.
- There is no continuity in either direction at any diode.

### CAUTION:

Do not use an ohmmeter's megohm range (ohms X 1,000,000) for this test.

Do not operate the engine with the red/white rectifier lead disconnected.

When installing a battery, be careful to connect battery terminal wires in correct polarity.

Disconnect the rectifier coupling plug when charging the battery from an external power source.

Failure to observe these precautions may result in damage to the diodes.

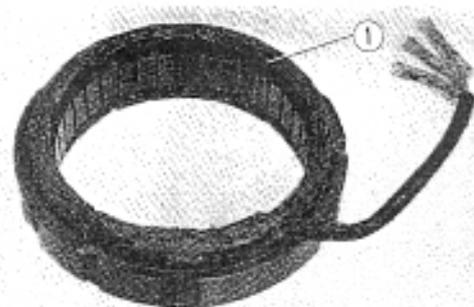
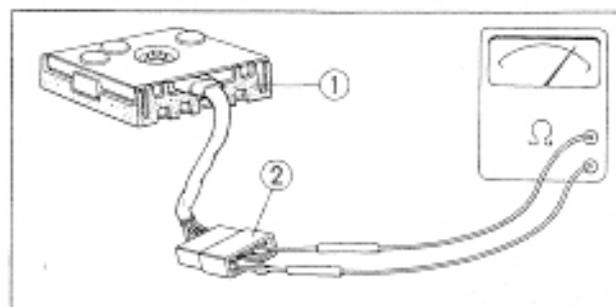
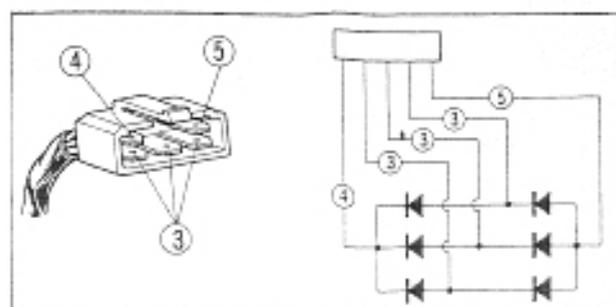


Fig. 5-16 ① Stator coil

Fig. 5-17 ① Silicon diode rectifier  
② CouplerFig. 5-18 ④ Yellow leads  
⑤ Red/white lead  
③ Green lead

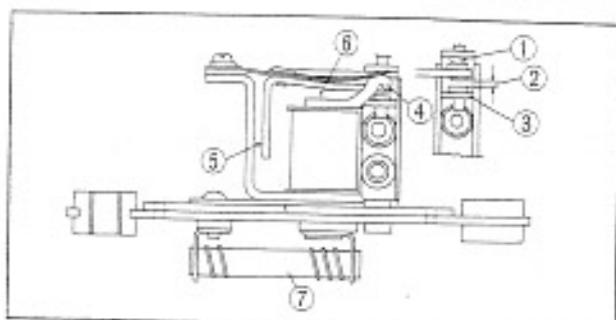


Fig. 5-19 ① Upper contact point  
② Point gap  
③ Lower contact point  
④ Charging rate adjustment arm  
⑤ Angle gap  
⑥ Armature gap  
⑦ Resistor

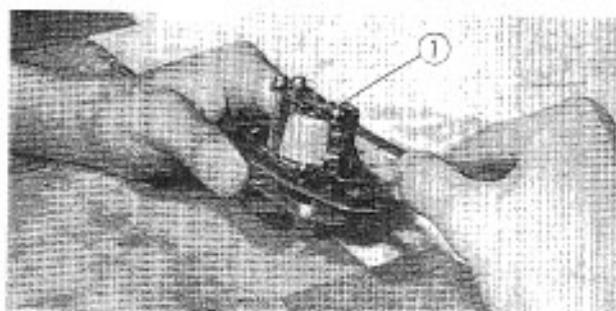


Fig. 5-20 ① Checking point gap with a feeler gauge

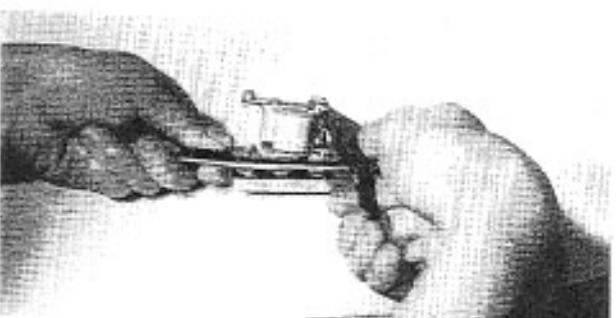


Fig. 5-21 Bending the adjusting arm to adjust the charging rate

### Regulator

Intermittent opening of the regulator contact points during operation creates a resistance in the field circuit, reducing alternator output. The voltage level at which this occurs may be adjusted as necessary.

### Testing

Test regulator with battery fully charged.

1. Connect a DC voltmeter from regulator ignition terminal (I) to ground. Remove the white lead from the field terminal (F), and connect an ammeter between the wire and the terminal.
2. With the engine idling, note the field current. If value exceeds Mode I limits in the table below, the regulator or alternator field coil is faulty.
3. Slowly increase engine speed until the ammeter needle deflects to half the Mode I value. Note the voltage reading at the moment the ammeter needle deflects and compare with Mode II in the table below.
4. Increase engine speed to 4000rpm or more, and note the maximum voltage reading. Field current and voltage should agree with Mode III in the table below.

MODE	FIELD CURRENT	VOLTAGE
I (idle)	2.4-2.6 A	to 13.2 V
II	1.2-1.3 A	13.5-14.5 V
III	0-1.2 A	14.0-15.0 V

If field current does not decrease as voltage increases, the regulator is faulty.

If field current to voltage values are higher or lower than the limits in the table, adjustment is indicated.

If voltage exceeds 15.0V at any speed, system is overcharging.

### Adjustment

1. **Armature gap: 0.6-1.0 mm (0.020-0.040 in.)**  
If adjustment is required, loosen the point base screw, and raise or lower the point assembly to obtain the correct armature gap.
2. **Angle gap: 0.6 mm (0.024 in.)**  
Adjustment of the armature gap simultaneously adjusts the angle gap.
3. **Point gap: 0.3 mm (0.012 in.)**  
If adjustment is required, carefully bend the lower point bracket to obtain the correct point gap.
4. **Adjusting arm**  
After checking armature gap and point gap, bend the adjusting arm up or down to obtain the correct voltage readings. Bend the adjusting arm up to increase the charging rate or down to decrease the charging rate.