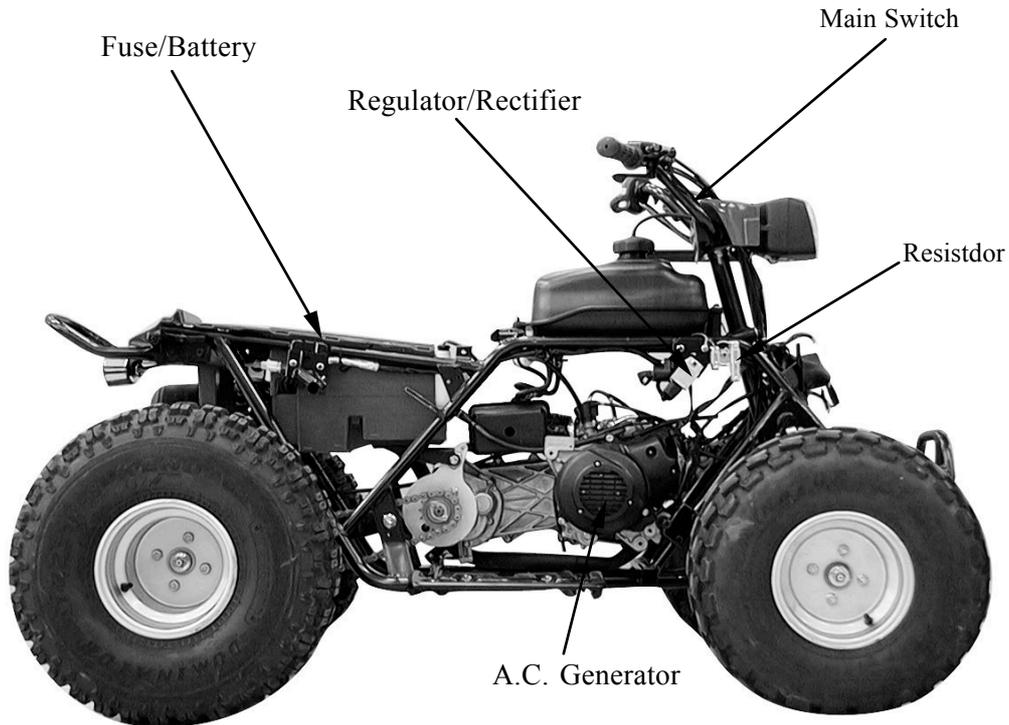
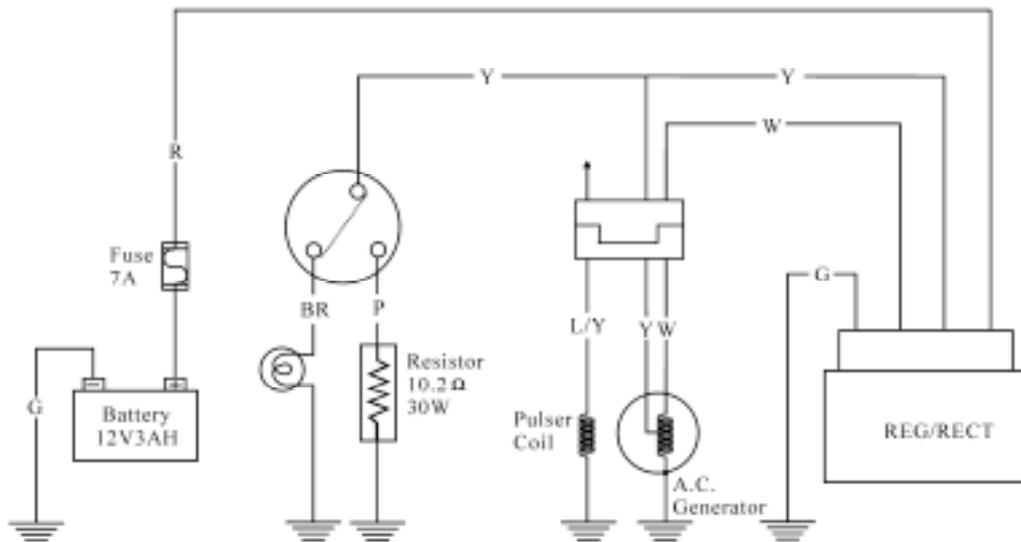

**BATTER/CHARGING SYSTEM/
A.C. GENERATOR**

| | |
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14. BATTERY/CHARGING SYSTEM/ A.C. GENERATOR



CHARGING CIRCUIT



14. BATTERY/CHARGING SYSTEM/ A.C. GENERATOR

SERVICE INFORMATION

GENERAL INSTRUCTIONS

The battery electrolyte (sulfuric acid) is poisonous and may seriously damage the skin and eyes. Avoid contact with skin, eyes, or clothing. In case of contact, flush with water and get prompt medical attention

- The battery can be charged and discharged repeatedly. If a discharged battery is not used for a long time, its service life will be shortened. Generally, the capacity of a battery will decrease after it is used for 2_ 3 years. A capacity-decreased battery will resume its voltage after it is recharged but its voltage decreases suddenly and then increases when a load is added.
- When a battery is overcharged, some symptoms can be found. If there is a short circuit inside the battery, no voltage is produced on the battery terminals. If the rectifier won't operate, the voltage will become too high and shorten the battery service life.
- If a battery is not used for a long time, it will discharge by itself and should be recharged every 3 months.
- A new battery filled with electrolyte will generate voltage within a certain time and it should be recharged when the capacity is insufficient. Recharging a new battery will prolong its service life.
- Inspect the charging system according to the sequence specified in the Troubleshooting.
- Do not disconnect and soon reconnect the power of any electrical equipment because the electronic parts in the regulator/rectifier will be damaged. Turn off the ignition switch before operation.
- It is not necessary to check the MF battery electrolyte or fill with distilled water.
- Check the load of the whole charging system.
- Do not quick charge the battery. Quick charging should only be done in an emergency.
- Remove the battery from the motorcycle for charging.
- When replacing the battery, do not use a traditional battery.
- When charging, check the voltage with a voltmeter.

SPECIFICATIONS

| Item | | Standard | |
|---------------------|--------------------------|----------------------------|-------|
| Battery | Capacity/Model | 12V□4AH | |
| | Voltage (20℃J) | Fully charged | 13.1V |
| | | Undercharged | 12.3V |
| | Charging current | STD: 0.4A Quick: 4.0A | |
| | Charging time | STD: 5 10hr Quick: 30min | |
| A.C. Generator | Capacity | 150W | |
| | | | |
| | Charging coil resistance | 0.2 1.2□ | |
| Regulator/Rectifier | Type | Single-phase half-wave SCR | |
| | Limit voltage | 14.5°”0.5V/8000 | |

TORQUE VALUES

Regulator/Rectifier lock nut 0.7~1.1kgf-m

TESTING INSTRUMENTS

Kowa electric tester

Sanwa electric tester

TROUBLESHOOTING

No power

- Dead battery
- Disconnected battery cable
- Fuse burned out
- Faulty ignition switch

Low power

- Weak battery
- Loose battery connection
- Charging system failure
- Faulty regulator/rectifier

Intermittent power

- Loose battery cable connection
- Loose charging system connection
- Loose connection or short circuit in lighting system

Charging system failure

- Loose, broken or shorted wire or connector
- Faulty regulator/rectifier
- Faulty A.C. generator

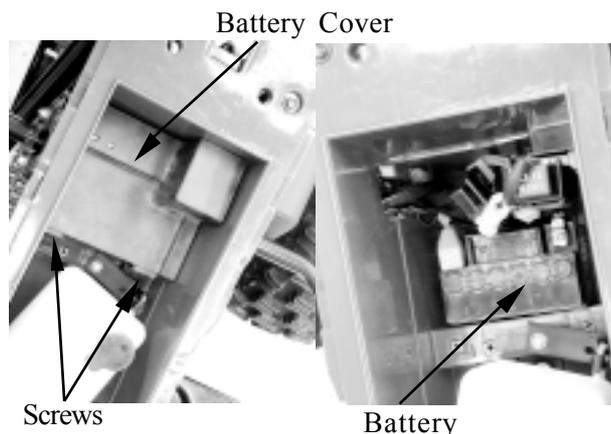
BATTERY

BATTERY REMOVAL

Open the seat and battery cover.
Disconnect the battery cables .

- First disconnect the battery negative (-) cable and then the positive (+) cable.

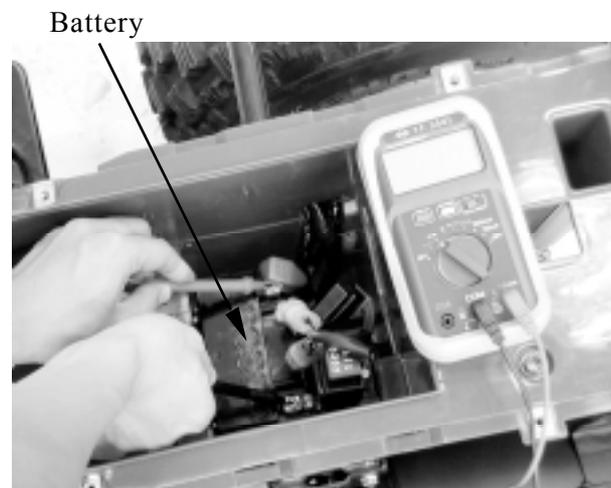
Remove the battery.
The installation sequence is the reverse of removal.



BATTERY CHARGING (OPEN CIRCUIT VOLTAGE) INSPECTION

Remove the battery cover and disconnect the battery cables.
Measure the voltage between the battery terminals.
Fully charged : 13.0V_ 13.2V
Undercharged : 12.3V max.

- Battery charging inspection must be performed with an electric tester.



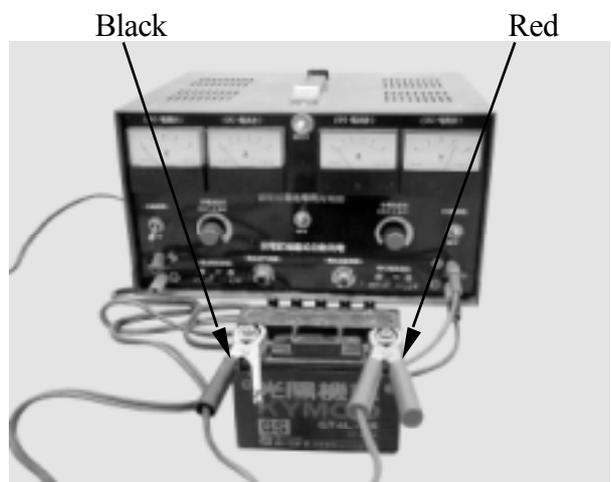
CHARGING METHOD

Connect the charger positive (+) cable to the battery positive (+) cable.
Connect the charger negative (-) cable to the battery negative (-) cable.

- - Keep flames and sparks away from a charging battery.
 - Turn power ON/OFF at the charger, not at the battery terminals to prevent sparks near the battery.
 - Charge the battery according to the current specified on the battery surface.

Charging current : Standard : 0.4A
Quick : 4A
Charging time : Standard : 5 hours
Quick : 0.5 HOUR
After charging Open circuit voltage: 12.8V min.

- - Quick charging should only be done in an emergency.
 - During quick charging, the battery temperature should not exceed 45°C.
 - Measure the voltage 30 minutes after the battery is charged.



PERFORMANCE TEST

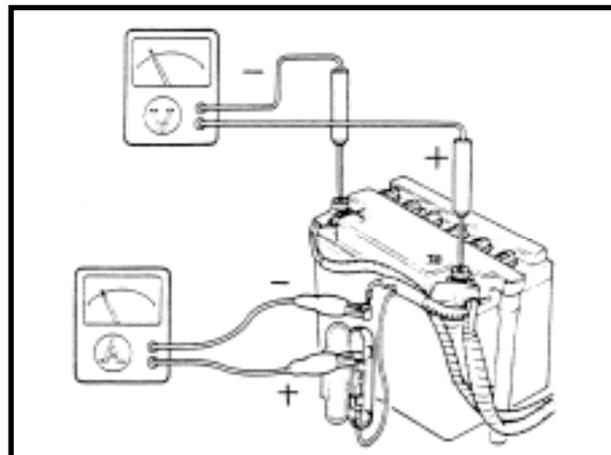
Warm up the engine.
Open the seat and battery cover.

- Use a fully charged battery to check the charging system output.

Stop the engine and open the fuse box. Disconnect the wire lead from the fuse terminal. Connect an ammeter between the wire lead and fuse terminal as shown. Connect the battery positive (+) terminal to the voltmeter positive (+) probe and battery negative (-) terminal to the voltmeter negative (-) probe. Start the engine, gradually increase engine speed to test the output:

| Position RPM | Day | Night |
|-----------------|-----------|-----------|
| 2500 | 0.7A min. | 0.5A min. |
| 6000 | 1.3A min. | 1.3A min. |

Charging Limit Voltage: $14.5 \pm 0.5V/8000rpm$
If the limit voltage is not within the specified range, check the regulator/ rectifier.



A.C. GENERATOR (CHARGING COIL) INSPECTION

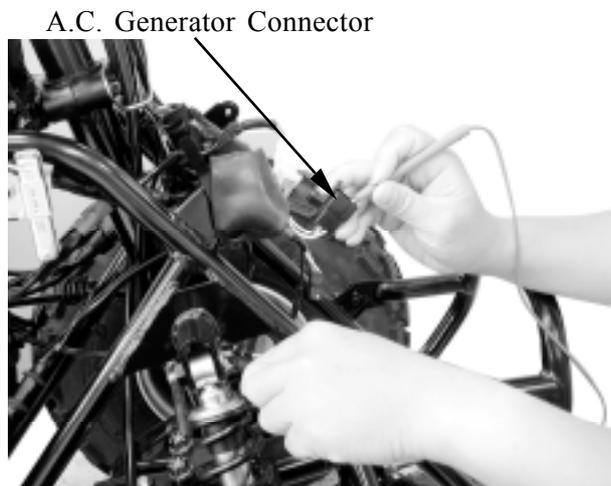
- Inspect with the engine installed.

Disconnect the A.C. generator connector. Measure the resistances between the charging coil terminals (white-green) and lighting coil terminals (yellow-green).

Resistances:

| | | |
|---------------|--------------|----------|
| Charging coil | White-green | 0.2_ 1.2 |
| Lighting coil | Yellow-green | 0.3_ 1.0 |

Refer to 8-3 for A.C. generator removal.



RESISTOR INSPECTION

Measure the resistance between the resistor B pink wire and ground.

Measure the resistance between the resistor A green/black wire and ground.

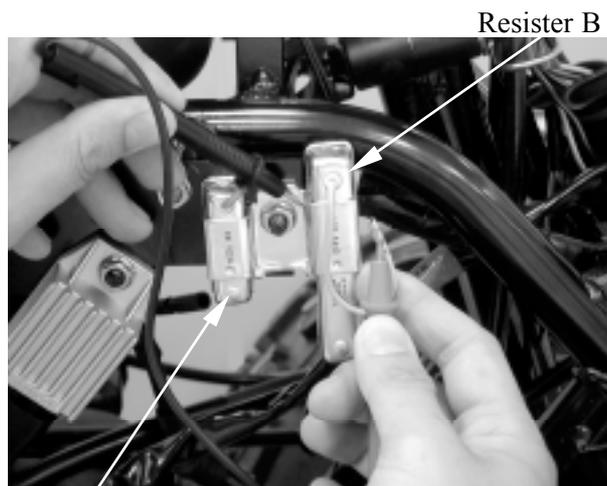
Resistances:

Resistor A: 9.2_ 9.8Ω

Resistor B: 5.6_ 6.2Ω



Faulty resistor is the cause of faulty operation of the auto bystarter.



Resistor A

REGULATOR/RECTIFIER INSPECTION

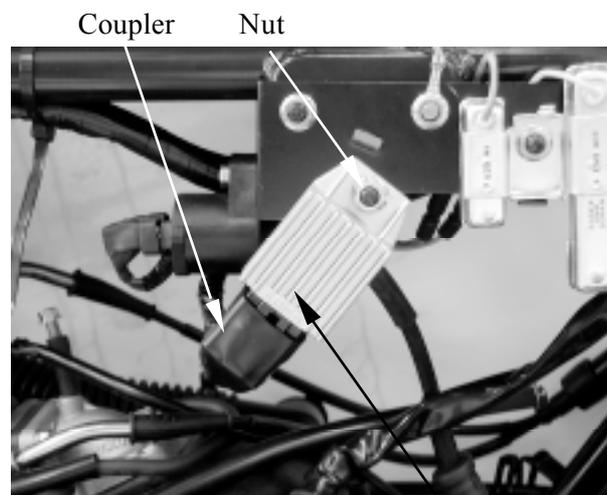
Disconnect the regulator/rectifier wire coupler and remove the nut to remove the regulator/rectifier.

Measure the resistances between the terminals.

Replace the regulator/rectifier if the readings are not within the specifications in the table below.



• Due to the semiconductor in circuit, it is necessary to use a specified tester for accurate testing. Use of an improper tester in an improper range may give false readings.



Regulator/Rectifier

| Model | Brand | Range |
|--------|-------|-------|
| SP-10D | Sanwa | KΩ |
| TH-5H | Kowa | 100Ω |

| Probe⊕ Probe(-) | A (R) | B (W) | C (Y) | D (G) |
|--------------------|--------|-------|---------|---------|
| A (R) | | ○ | ○ | ○ |
| B (W) | 8-10KΩ | | ○ | ○ |
| C (Y) | ○ | ○ | | 33-35KΩ |
| D (G) | ○ | ○ | 33-35KΩ | |

