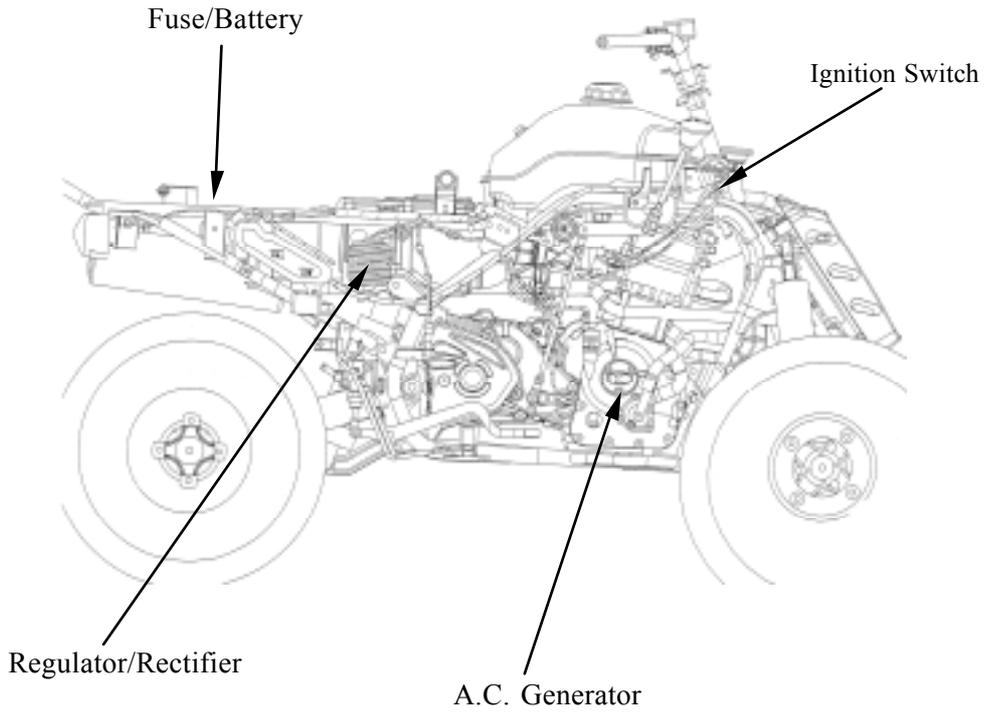


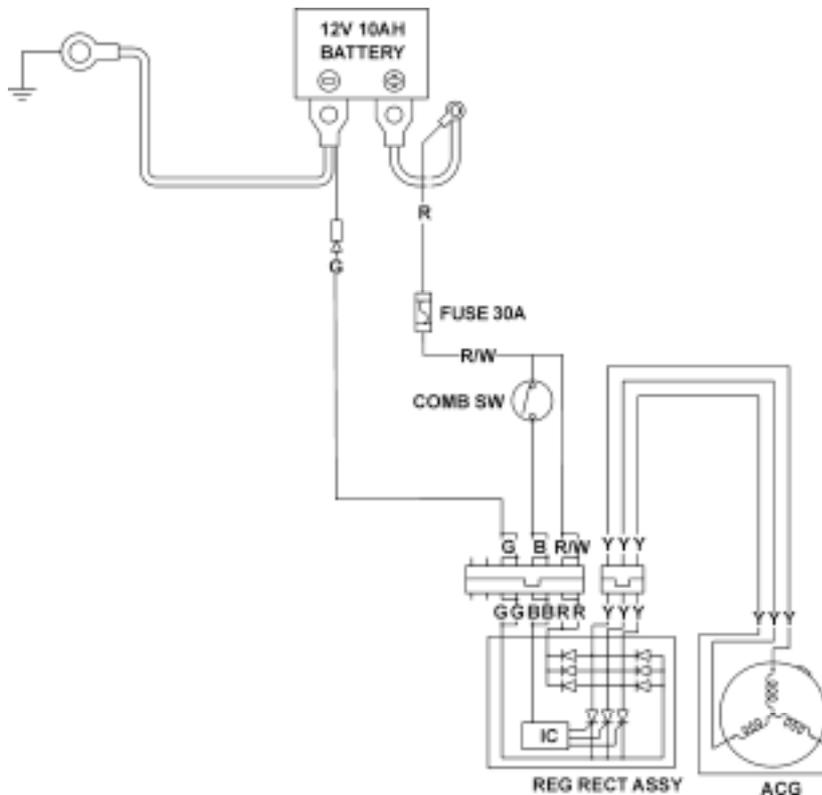
**BATTER/CHARGING SYSTEM/  
A.C. GENERATOR**

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# 16. BATTERY/CHARGING SYSTEM/ A.C. GENERATOR



## CHARGING CIRCUIT



## 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 an voltmeter.

### SPECIFICATIONS

Item		Standard	
Battery	Capacity/Model	12V□12AH	
	Voltage (20℃J)	Fully charged	13.1V
		Undercharged	12.3V
	Charging current	STD: 1.2A Quick: 3.0A	
	Charging time	STD: 5 10hr Quick: 30min	
A.C. Generator	Capacity	150W	
Regulator/Rectifier	Limit voltage	Lighting	12.0 14.0V
			10 13.0V
		Charging	13.5 15.5V

## TESTING INSTRUMENTS

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

# 16. BATTERY/CHARGING SYSTEM/ A.C. GENERATOR

## BATTERY REMOVAL

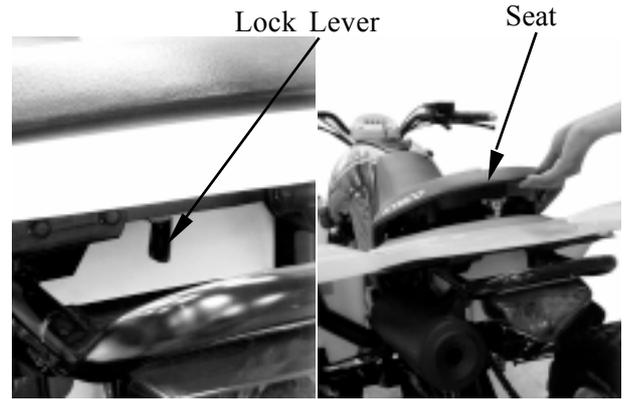
Pull right the lock lever and pull up the seat at the rear.

Remove the battery holder, by removing the mount bolts. (Make sure the ignition switch is OFF)

Remove the battery by removing the bolt. First disconnect the battery negative (-) cable and then the positive (+) cable.



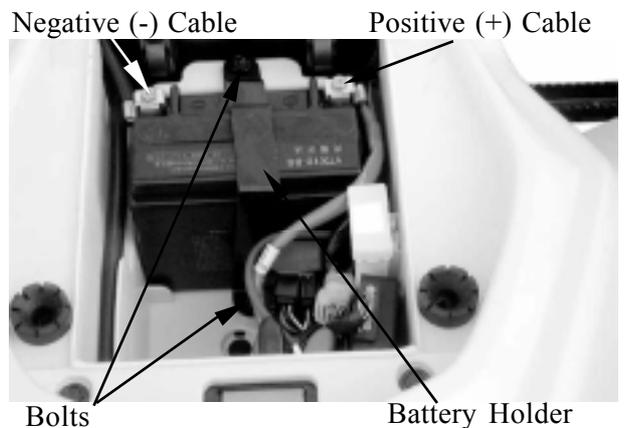
When disconnecting the battery positive (+) cable, do not touch the frame with tool; otherwise it will cause short circuit and sparks to fire the fuel.



The installation sequence is the reverse of removal.



First connect the positive (+) cable and then negative (-) cable to avoid short circuit.



## BATTERY VOLTAGE (OPEN CIRCUIT VOLTAGE) INSPECTION

Remove the seat.

Disconnect the battery cables.

Measure the voltage between the battery terminals.

**Fully charged** : 13.1V

**Undercharged** : 12.3V max



Battery charging inspection must be performed with a voltmeter.



# 16. BATTERY/CHARGING SYSTEM/ A.C. GENERATOR

## CHARGING

Connect the charger positive (+) cable to the battery positive (+) terminal.

Connect the charger negative (-) cable to the battery negative (-) terminal.



- 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 to avoid explosion.
- Charge the battery according to



- Quick charging should only be done in an emergency.
- Measure the voltage 30 minutes after the battery is charged.



Charging current : Standard : 1.2A  
Quick : 3.0A

Charging time : Standard : 5\_ 10 hours  
Quick : 30 minutes

After charging Open circuit voltage: 12.8V min.

## CHARGING SYSTEM

### SHORT CIRCUIT TEST

Disconnect the ground wire from the battery and connect an ammeter across the battery negative (-) terminal and the ground wire. Turn the ignition switch OFF and check for short circuit.

- Connect the electric tester positive (+) terminal to ground wire and the tester negative (-) terminal to the battery negative (-) terminal.

If any abnormality is found, check the ignition switch and wire harness for short circuit.

### CURRENT TEST

This inspection must be performed with an electric tester when the battery is fully charged.

Warm up the engine for inspection.

Connect the electric tester across the battery terminals. Disconnect the red wire from the fuse terminal and connect an ammeter between the red wire lead and the fuse terminal as shown.

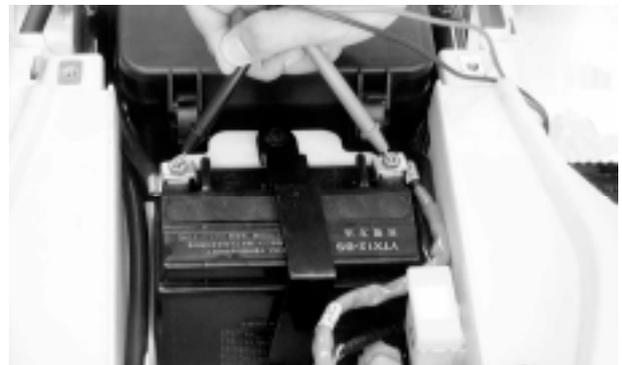
Attach a tachometer to the engine.

Start the engine and gradually increase the engine speed to measure the limit voltage and current.

#### Limit Voltage/Current:

13.5\_ 15.5V/0.5  
A max

If the limit voltage is not within the specified range, check the regulator/rectifier.

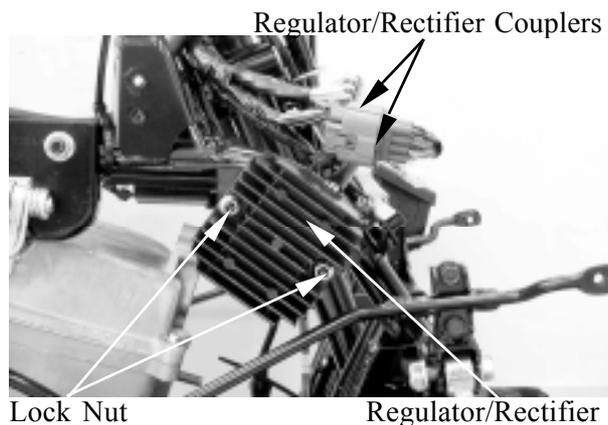


# 16. BATTERY/CHARGING SYSTEM/ A.C. GENERATOR

## REGULATOR/RECTIFIER

### INSPECTION

Remove the front fender. (Refer to chapter 2)  
Remove the regulator/rectifier wire coupler.  
Check the continuity between the wire terminals.

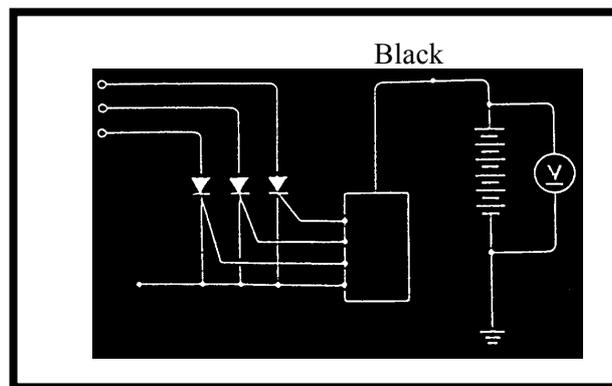
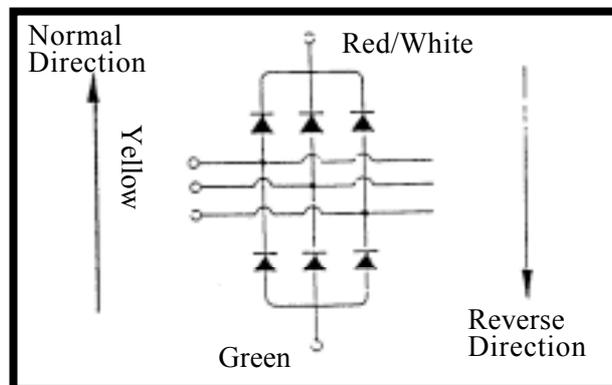


Normal Direction: Continuity

	(+) Probe	(-) Probe
I	Yellow	Green
II	Red/White	Yellow

Reverse Direction: No Continuity

	(+) Probe	(-) Probe
I	Green	Yellow
II	Yellow	Red/White



### VOLTAGE REGULATION TEST

Connect a voltmeter across the battery terminals.  
Start the engine and gradually increase the engine speed.  
The battery terminal voltage should be within 14.0\_ 15.0V.

## A.C. GENERATOR INSPECTION

Ⓢ This test can be made without removing the stator from the engine.

Disconnect the A.C. generator connector. Check the continuity between the yellow wires and ground. There should be continuity between the yellow wires and no continuity between each yellow wire and ground.

**Resistance** (at 20°C):

Yellow_ Yellow	1.6_ 2.5Ω
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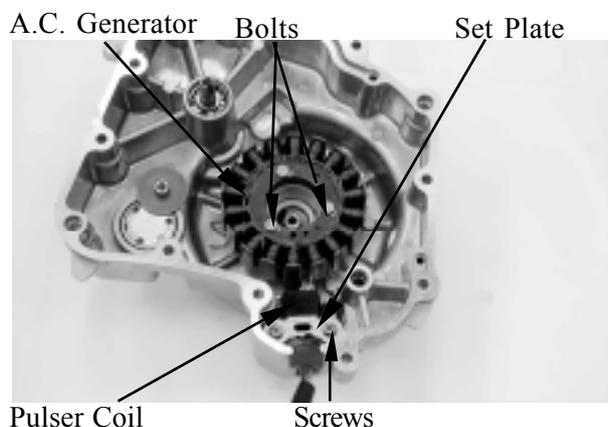


## A.C. GENERATOR/FLYWHEEL REMOVAL

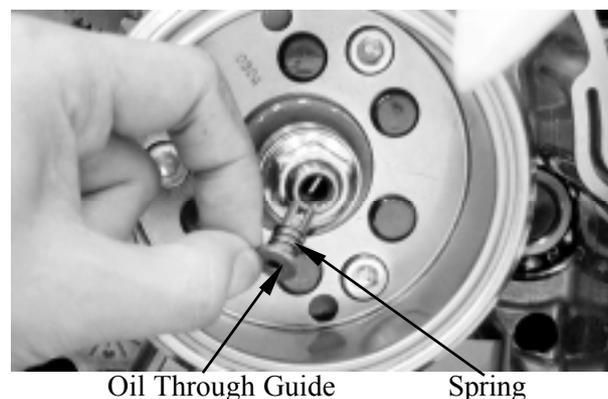
Remove the right crankcase cover. (Refer to the “WATER PUMP SHAFT REMOVAL” section in the chapter 12)

Remove the pulser coil screws and then remove the A.C. generator wire set plate. Remove the A.C. generator bolts and then remove A.C. generator and pulser coil from right crankcase cover.

Ⓢ When removing the pulser coil and stator, be careful not to damage them to avoid shorted or broken wire.



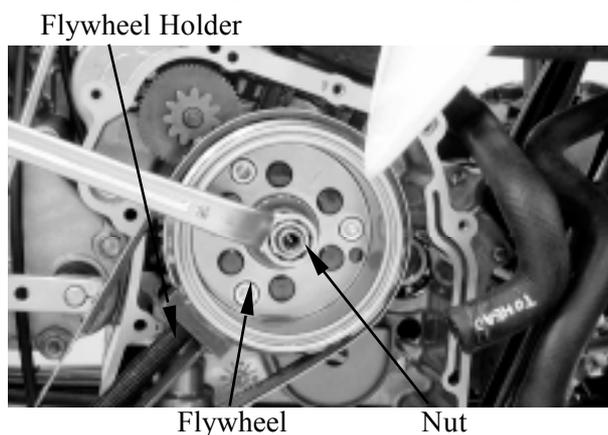
Remove the oil through guide and spring.



Hold the flywheel with a flywheel holder and remove flywheel nut and wash.

**Special**

Flywheel holder E021



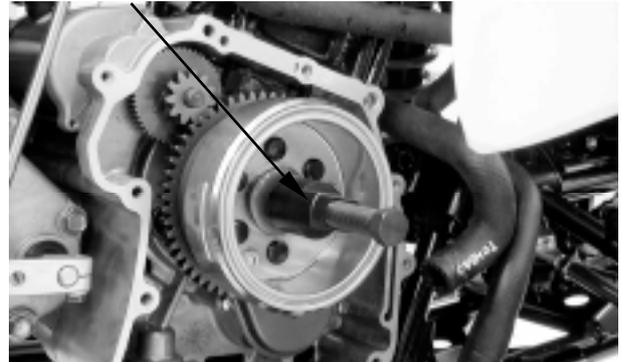
# 16. BATTERY/CHARGING SYSTEM/ A.C. GENERATOR

Remove the flywheel with a flywheel puller.

Special

Flywheel puller E003

Flywheel Puller



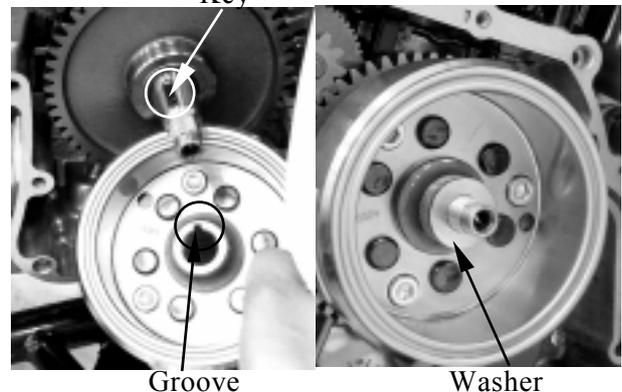
## INSTALLATION

Reverse the “REMOVAL” procedures.  
Install the flywheel, washer and tighten the nut.

**Torque:** 5.5\_ 6.5kgf-m

- Before installation, check and make sure that the inside of the flywheel is not contaminated.
- Make sure install the flywheel onto the crankshaft by aligning the key on the crankshaft with the groove in the flywheel.

Key



Groove

Washer

Install the oil through guide and spring.

Install the A.C. generator onto the right crankcase cover and tighten the bolts.

**Torque:** 0.8\_ 1.0kgf-m

Install the right crankcase cover.