

17. BATTERY/CHARGING SYSTEM

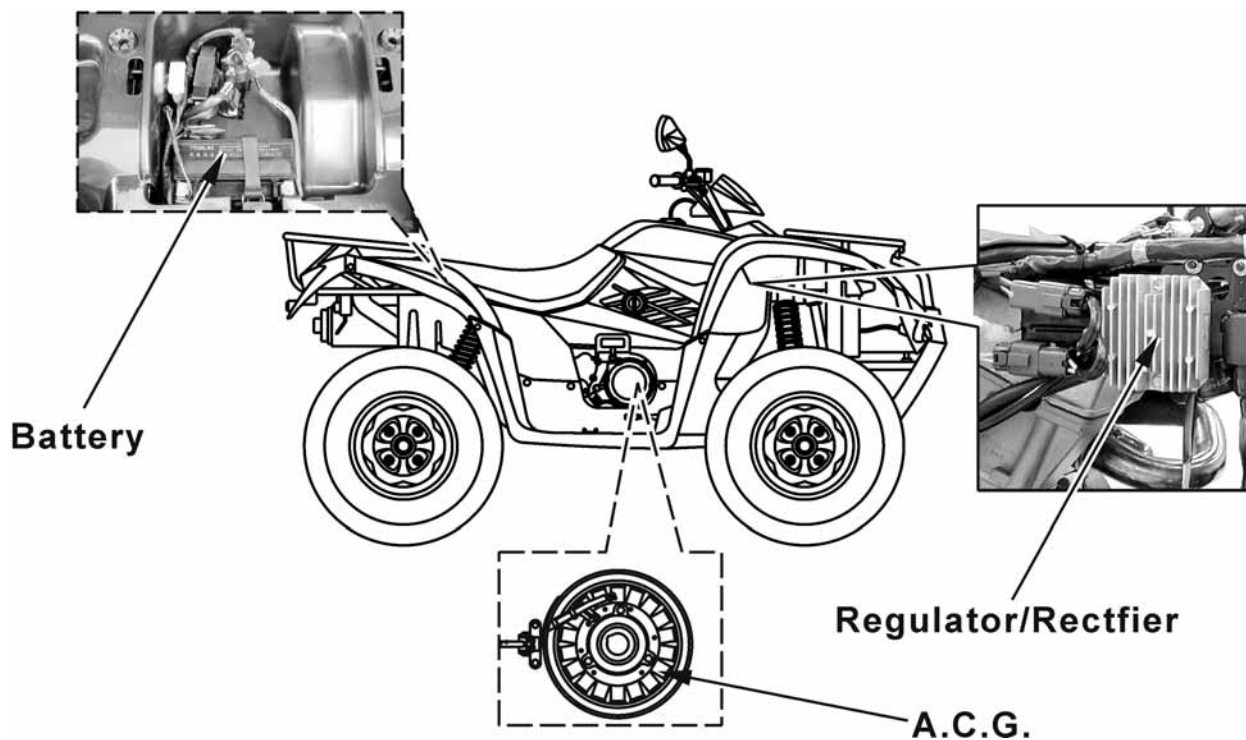
17

BATTERY/CHARGING SYSTEM

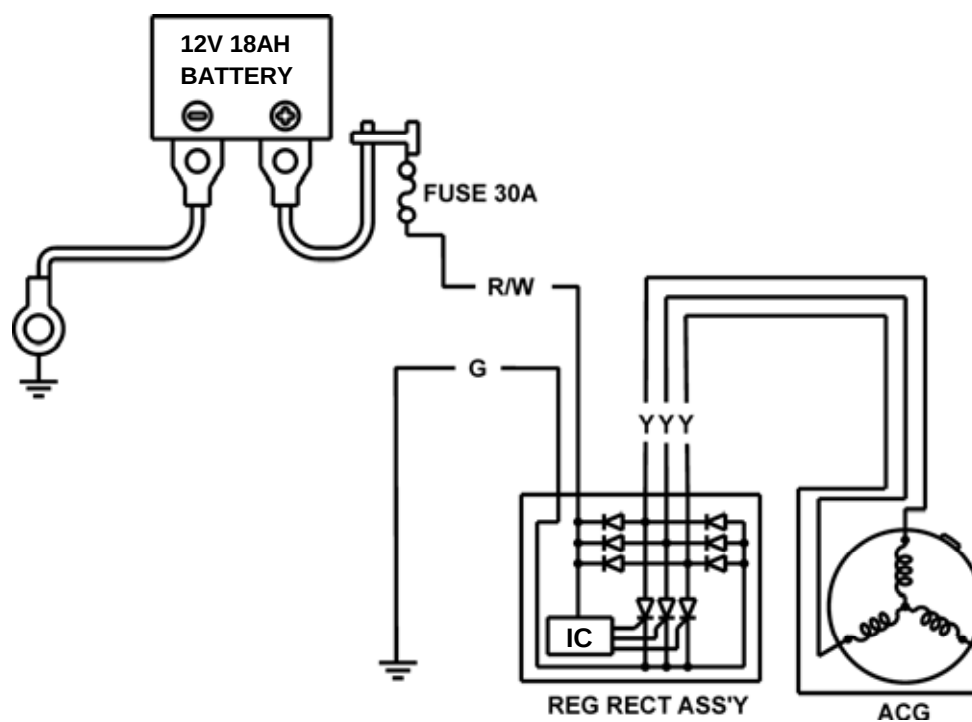
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17. BATTERY/CHARGING SYSTEM

CHARGING SYSTEM LAYOUT



CHARGING CIRCUIT



17. BATTERY/CHARGING SYSTEM

SERVICE INFORMATION

GENERAL

CAUTION

- The battery gives off explosive gases; keep sparks, flames and cigarettes away. Provide adequate ventilation when charging.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
 - If electrolyte gets on your skin, flush with water.
 - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician immediately.
- Electrolyte is poisonous.
 - If swallowed, drink large quantities of water or milk and call your local Poison Control Center or physician immediately, **KEEP OUT OF REACH OF CHILDREN.**

- Always turn off the ignition switch before disconnecting any electrical component.
- Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is turned to “ON” and current is present.
- For extended storage, remove the battery, give it a full charge, and store it in a cool, dry place.
- For a battery remaining in a shorted vehicle, disconnect the negative battery cable from the battery.
- The battery caps should not be removed. Attempting to remove the sealing caps from the cells may damage the battery.
- The maintenance free battery must be replaced when it reaches the end of its service life.
- The battery can be damaged if overcharged or undercharged, or if left to discharge for long period. These same conditions contribute to shortening the “life span” of the battery. Even under normal use, the performance of the battery deteriorates after 2-3 years.
- Battery voltage may recover after battery charging, but under heavy load, the battery voltage will drop quickly and eventually die out. For this reason, the charging system is often suspected as the problem. Battery overcharge often results from problems in the battery itself, which may appear to be an overcharging symptom. If one of the battery cells is shorted and battery voltage does not increase, the regulator/rectifier supplies excess voltage to the battery. Under these conditions, the electrolyte level goes down quickly.
- Before troubleshooting the charging system, check for proper use and maintenance of the battery. Check if the battery is frequently under heavy load, such as having the headlight and taillight on for long periods of time without riding the vehicle.
- The battery self-discharge when the vehicle is not in use, for this reason, charge the battery every 2 weeks to prevent sulfate from occurring.
- Filling a new battery with electrolyte will produce some voltage, but in order to achieve its maximum performance, always charge the battery. Also, the battery life is lengthened when it is initially charged.
- When checking the charging system, always follow the steps in the troubleshooting flow chart (page 17-4)

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BATTERY CHARGING

- This model comes with a maintenance free (MF) battery. Remember the following about MF batteries.
 - Use only the electrolyte that comes with the battery.
 - Use all of the electrolyte
 - Seal the battery properly
 - Never open the seals again
- For battery charging, do not exceed the charging current and time specified on the battery. Using excessive current or extending the charging time may damage the battery.

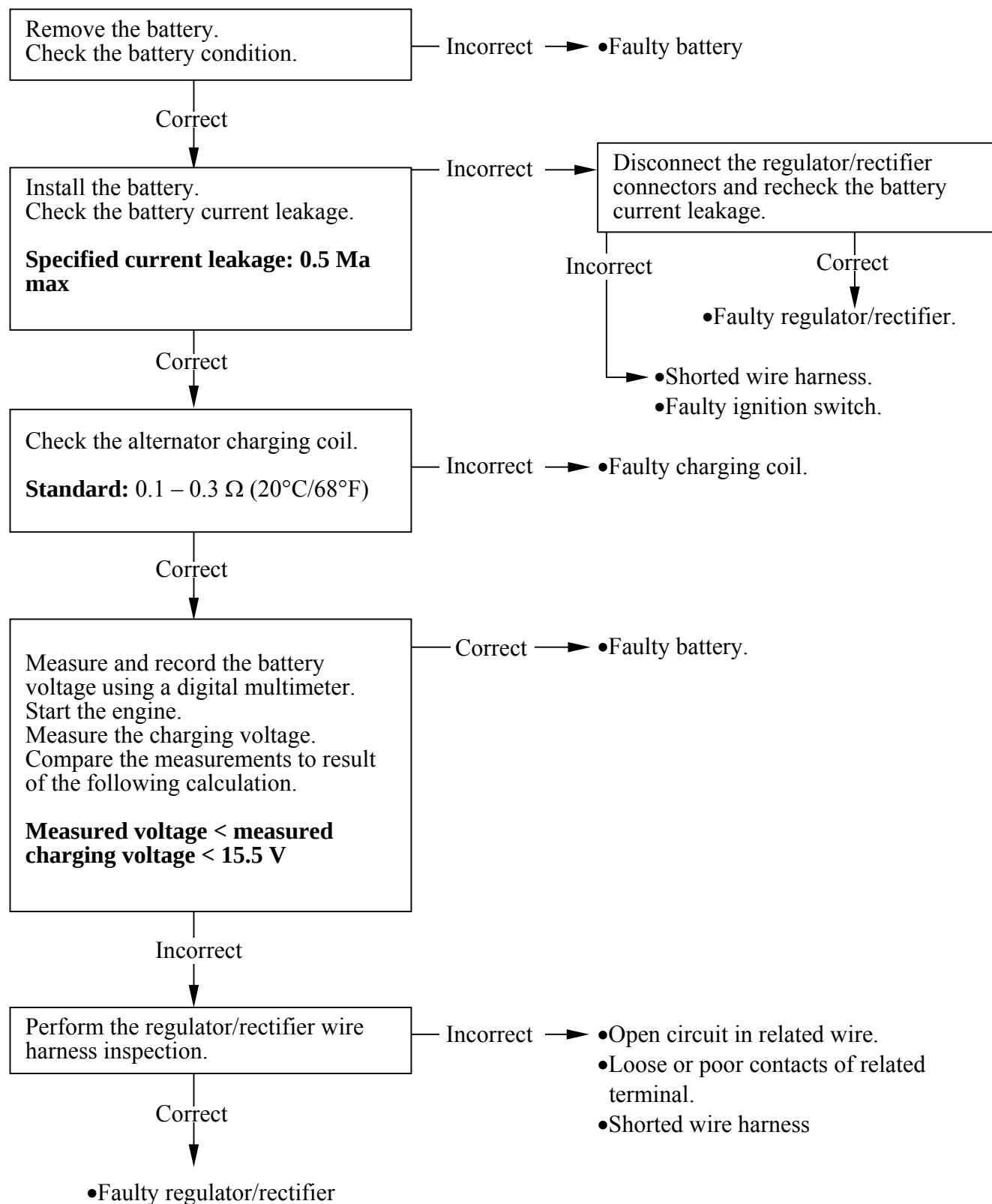
SPECIFICATIONS

ITEM			SPECIFICATIONS
Battery	Capacity		12V – 18 Ah
	Current leakage		0.5 Ma max.
	Voltage (20°C/68°F)	Full charged	13.0 – 13.2 V
		Needs charging	Below 12.3 V
	Charging current	Normal	1.8 A/5 – 10 h
		Quick	9 A/1 h
Alternator	Capacity		310 – 400 W/5000 rpm
	Charging coil resistance (20°C/68°F)		0.1 – 0.3 Ω

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TROUBLESHOOTING

Battery is damaged or weak

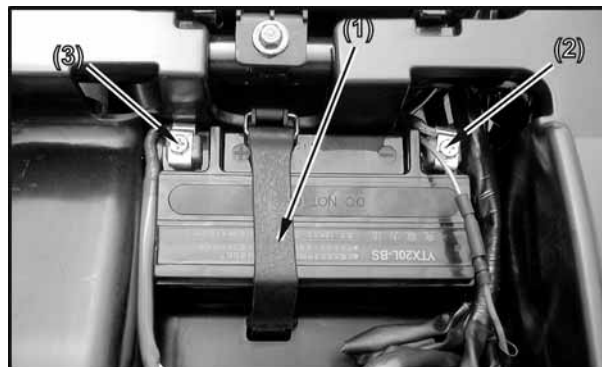


BATTERY

REMOVAL/INSTALLATION

Battery removal

1. Make sure the ignition switch is OFF.
2. Remove the seat (refer to the “**FRAME COVERS**” section in the chapter 2)
3. Release the rings and remove the rubber band (1).
4. Disconnect the negative (-) terminal lead (2) from the battery first, then disconnect the positive (+) terminal lead (3).
5. Remove the battery.



Battery installation

1. Install in the reverse order of removal.
2. After installing the battery, check to see if the battery cables are routed correctly.

After connecting the battery cables, coat the terminals with grease.

VOLTAGE INSPECTION

Remove the battery cover (see above).

Measure the battery voltage using a commercially available digital multi-meter.

Voltage (20°C/68°C):

Fully charged: 13.0 - 13.2 V

Under charged: below 12.3 V



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BATTERY CHARGING

Remove the battery (see page 17-5).

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

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

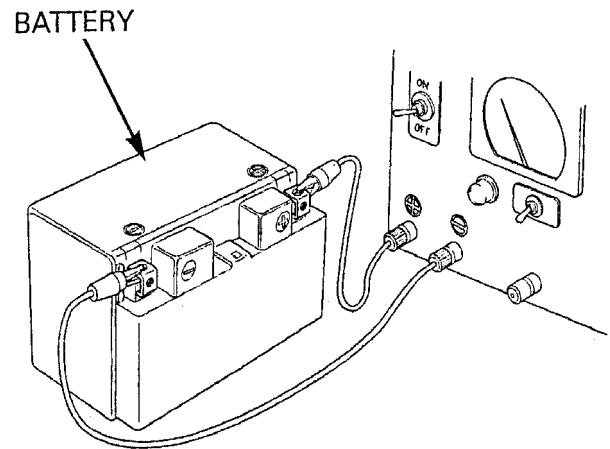
★ Turn the power ON/OFF at the charger, not at the battery terminals.

Charging current time:

Standard: 1.8 A/5 - 10 hours

Quick: 9 A/1 hours

Quick charging should only be done in an emergency; slow charging is preferred. For battery charging, do not exceed the charging current and time specified on the battery. Using excessive current or extending the charging time may damage the battery.



CHARGING SYSTEM INSPECTION

CURRENT LEAKAGE TEST

Turn the ignition switch OFF, disconnect the negative (-) cable from the battery.

Connect the ammeter (+) probe to the negative (-) cable and the ammeter (-) probe to the battery (-) terminal.

With the ignition switch OFF, check for current leakage.

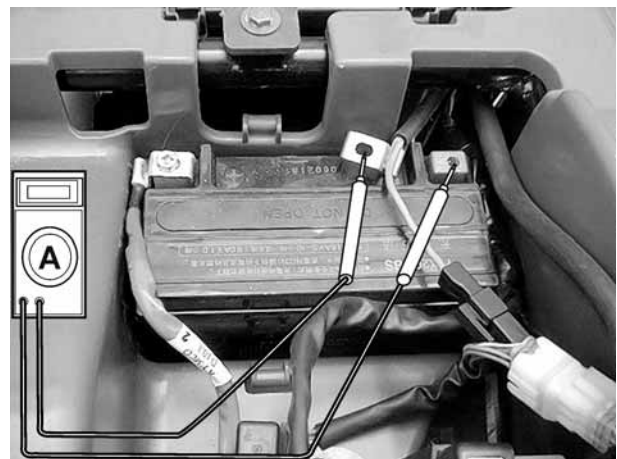
When measuring current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow higher than the range selected may blow out the fuse in the tester.

While measuring current, do not turn the ignition switch ON. A sudden surge of current may blow out the fuse in the tester.

Specified current leakage: 0.5 Ma max.

If current leakage exceeds the specified value, a shorted circuit is likely.

Locate the short by disconnecting connections one by one and measuring the current.

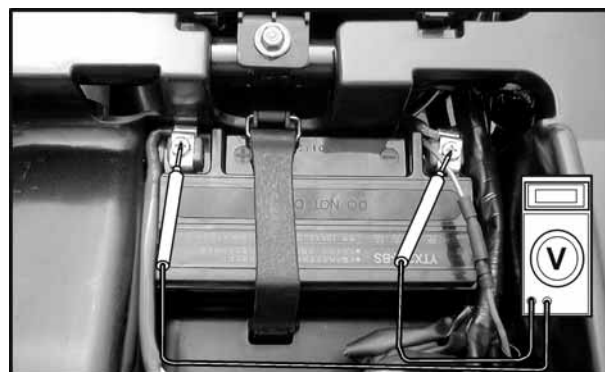


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CHARGING VOLTAGE INSPECTION

Be sure that the battery is in good condition before performing this test.

Do not disconnect the battery or any cable in the charging system without first switching off the ignition switch. Failure to follow this precaution can damage the tester or electrical components.



Start the engine and warm it up to the operating temperature; stop the engine. Connect the multi-meter between the positive and negative terminals of the battery.

To prevent short, make absolutely certain which are the positive and negative terminals or cable.

With the headlight on and turned to the high beam position, restart the engine.

Measure the voltage on the multi-meter when the engine runs at 5000 min-1 (rpm).

Standard:

Measured battery voltage (page 17-5) <

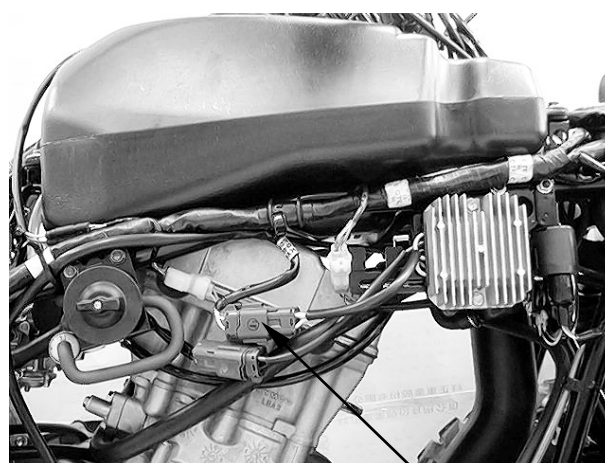
Measure charging voltage (see above) <

15 V

ALTERNATOR CHARGING COIL

INSPECTION

Disconnect the alternator connector.



Alternator Connector

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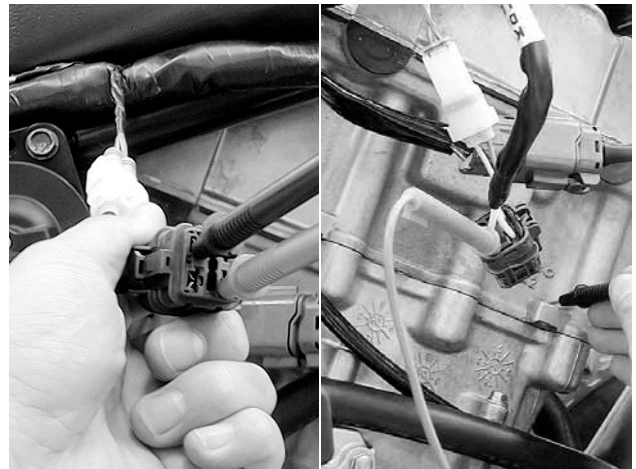
Measure the resistance between each Yellow wire terminals.

Standard: 0.1 - 0.3 Ω (20°C/68°F)

Check for continuity between each Yellow wire terminal of the alternator side connector and ground.

There should be no continuity.

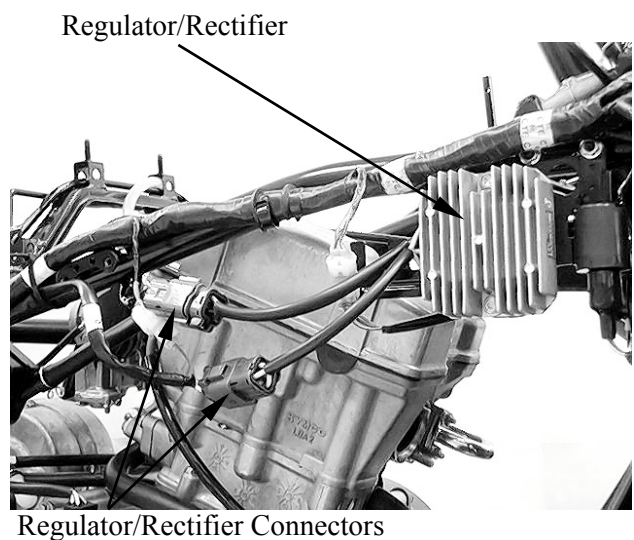
Replace the alternator stator if resistance is out of specification, or if any wire has continuity to ground.



REGULATOR/RECTIFIER

WIRE HARNESS INSPECTION

Disconnect the regulator/rectifier connectors. Check the connectors for loose contacts of corroded terminals.



Battery line

Measure the voltage between the Red/White wire terminal and ground.

There should be battery voltage at all times.

Voltage feedback line

Measure the voltage between the black wire terminal and ground.

There should be battery voltage with the ignition switch "ON", and no voltage with the ignition switch "OFF".



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Ground line

Check the continuity between the Green wire terminal and ground.

There should be continuity at all times.



Charging coil line

Measure the resistance between each Yellow wire terminals.

Standard: 0.1 - 0.3 Ω (20°C/68°F)

Check for continuity between each Yellow wire terminal and ground.

There should be no continuity.



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REMOVAL/INSTALLATION

Disconnect the regulator/rectifier connectors.

Remove the two bolts and then remove the regulator/rectifier.

Installation is in the reverse order of removal.

Regulator/Rectifier Connector



Regulator/Rectifier

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ALTERNATOR STATOR REMOVAL/INSPECTION/ INSTALLATION

REMOVAL

Drain the engine oil (refer to the “**ENGINE OIL**” section in the chapter 3).

Disconnect the alternator stator connectors.

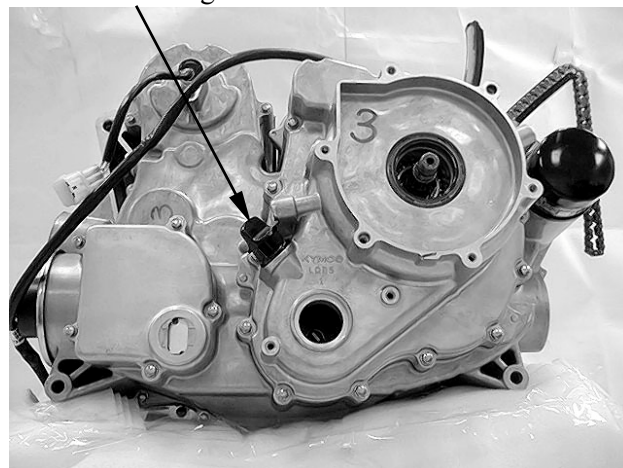


Alternator Stator Connectors

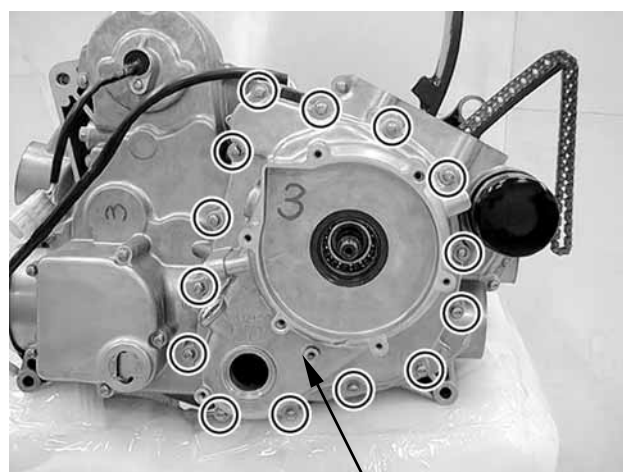
Remove the starter pulley (refer to the “**STARTER PULLEY REMOVAL/INSPECTION/INSTALLATION**” section in the chapter 19).

Remove the oil filler plug.

Oil Filler Plug



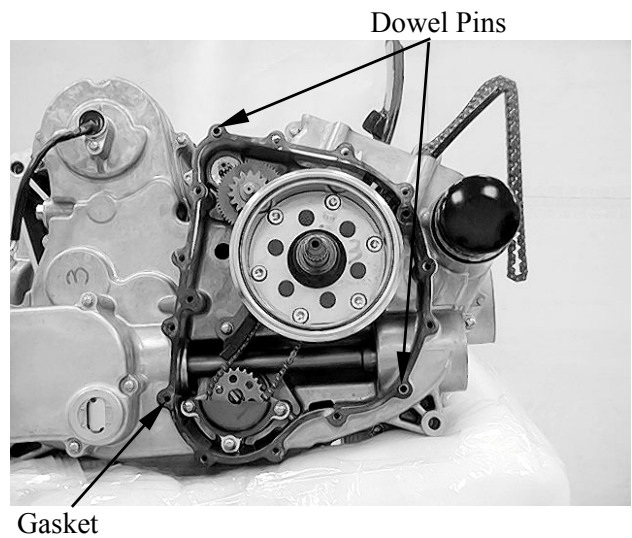
Remove the fourteen bolts and then remove the right crankcase cover.



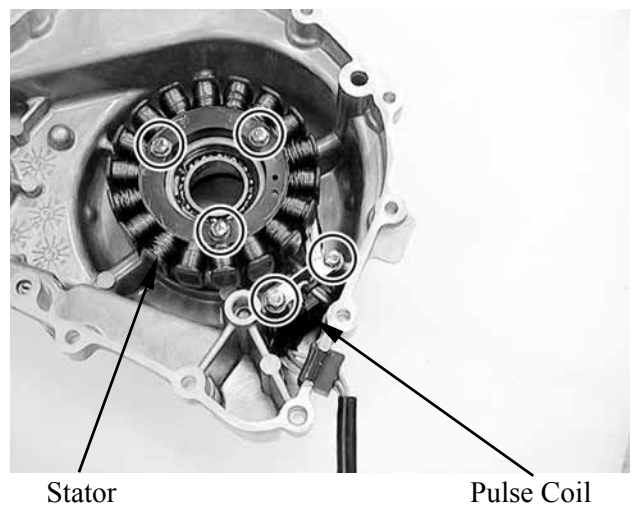
Right Crankcase Cover

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Remove the two dowel pins and gasket.

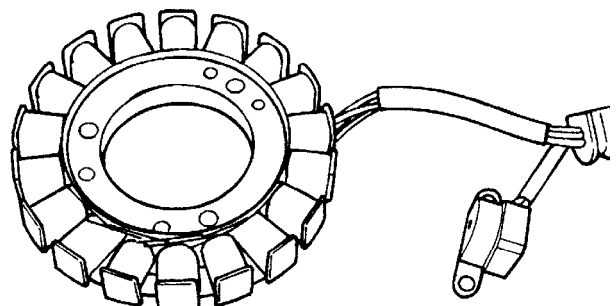


Remove the two pulse coil mount bolts. Remove the three stator mount bolts, grommet and the stator from the right crankcase cover.



INSPECTION

Check the stator and pulse coil for damage.



17. BATTERY/CHARGING SYSTEM

INSTALLATION

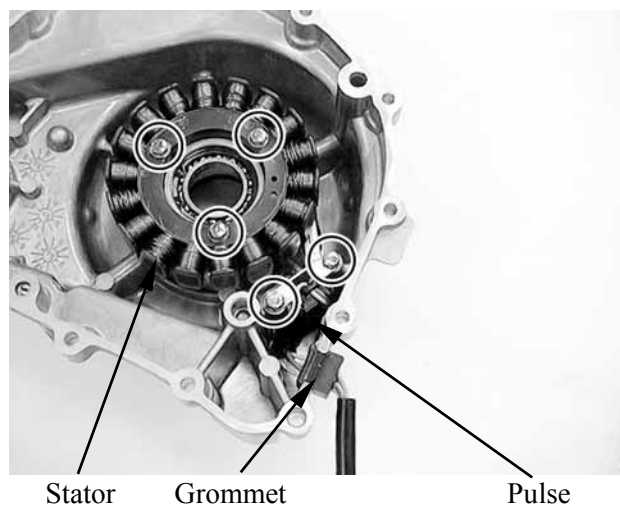
Install the stator and tighten the stator mount bolts to the specified torque.

Torque: 1.2 kgf-m (12 N-m, 9 lbf-ft)

Apply sealant to the grommet seating surface and install it to the cover groove properly.

Install the pulse coil and tighten mount bolts to the specified torque.

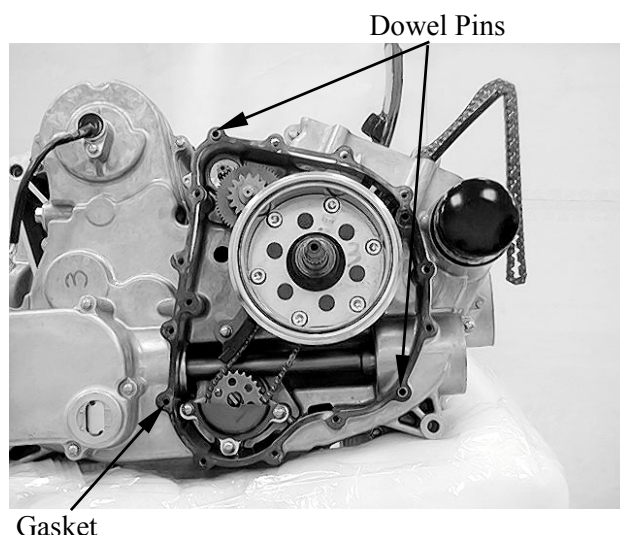
Torque: 1.2 kgf-m (12 N-m, 9 lbf-ft)



Stator Grommet Pulse

Clean the mating surfaces of the right crankcase and cover.

Install the dowel pins and gasket.



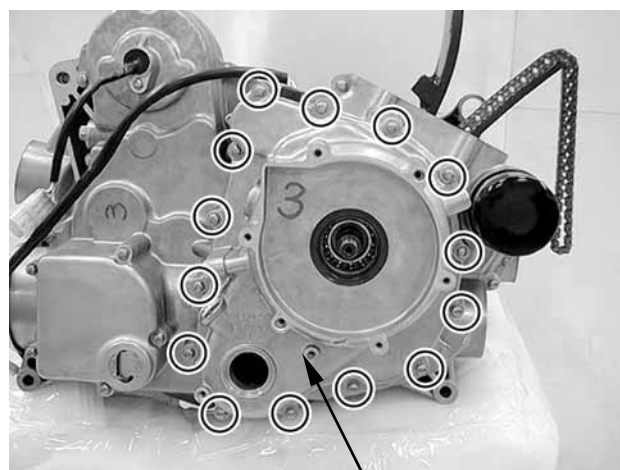
Gasket

Install the right crankcase cover and tighten the bolts in a crisscross pattern in 2 or 3 steps.

★

FLYWHEEL:

Refer to the “STARTER CLUTCH REMOVAL/INSPECTION/INSTALLATION” section in the chapter 19



Right Crankcase Cover