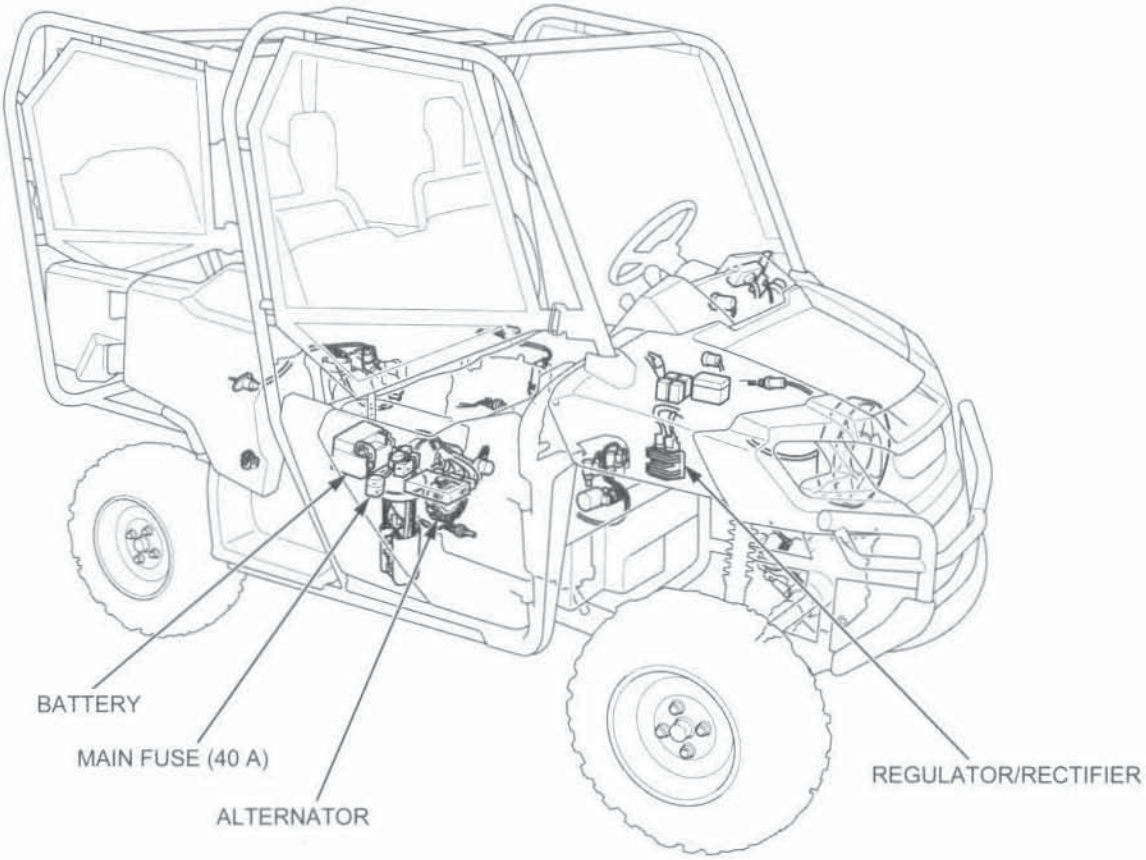
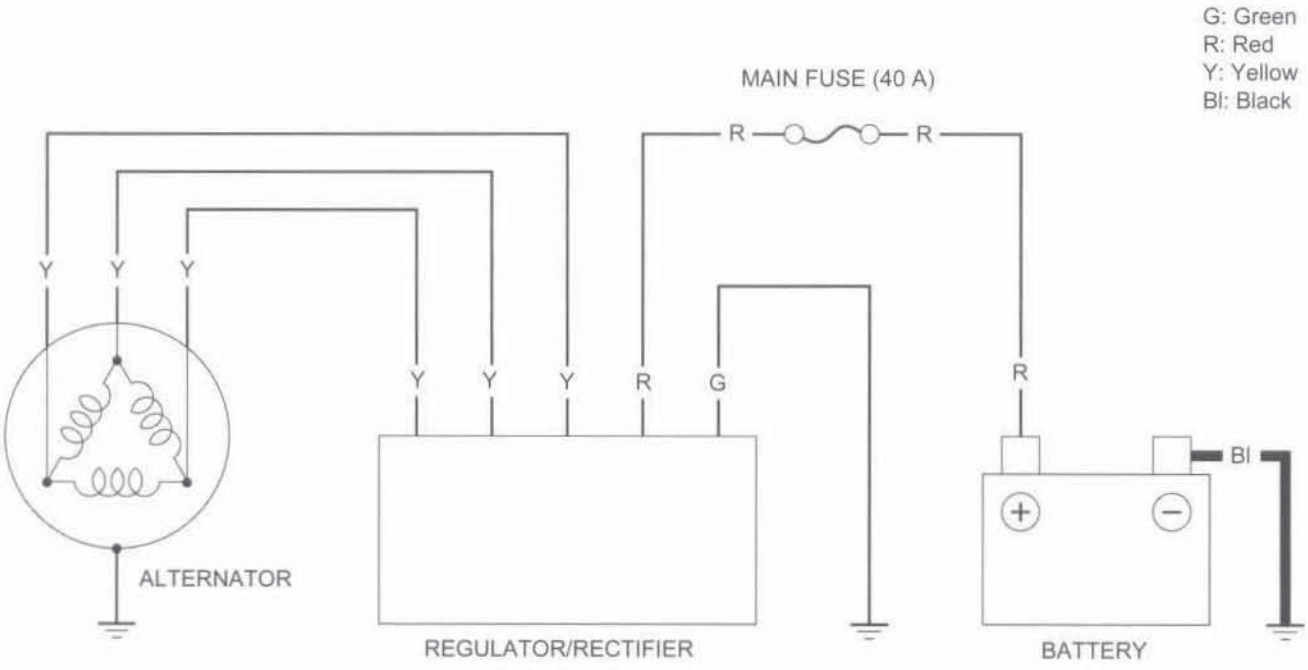
COMPONENT LOCATION



SYSTEM DIAGRAM



SERVICE INFORMATION

GENERAL

⚠WARNING

- 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 a physician immediately.

NOTICE

- *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 ON and current is present.*

- For extended storage, remove the battery, give it a full charge, and store it in a cool, dry space.
- For a battery remaining in a stored vehicle, disconnect the negative battery cable from 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 driving the vehicle.
- The battery will self-discharge when the vehicle is not in use. For this reason, charge the battery every two weeks to prevent sulfation 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 (page 21-4).
- Alternator removal/installation (page 12-5).

BATTERY CHARGING

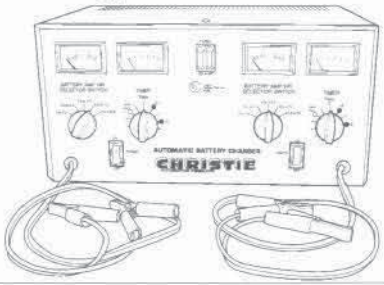
- Turn power ON/OFF at the charger, not at the battery terminal.
- For battery charging, do not exceed the charging current and time specified on the battery. Using excessive current or extending the charging time may damage the battery.
- Quick charging should only be done in an emergency; slow charging is preferred.

BATTERY TESTING

Refer to the instructions in the Operation Manual for the recommended battery tester for details about battery testing. The recommended battery tester puts a "load" on the battery so that the actual battery condition can be measured.

RECOMMENDED BATTERY TESTER: Micro 404XL (U.S.A. only), BM-210 or equivalent

TOOLS

Motorcycle battery analyzer Micro 404XL (U.S.A. only)  or BM-210 or equivalent	Christie battery charger MC1012/2T or Tecmate PRO 4 (U.S.A. only) 

TROUBLESHOOTING

Unusual condition		Probable cause (Check in numerical order)
Battery	Battery is damaged or weak	1. Faulty battery 2. Current leakage higher than specified value – Faulty ignition switch – Shorted wire harness 3. Faulty alternator charging coil 4. Faulty regulator/rectifier 5. Open circuit or loose connection in the wire harness

BATTERY

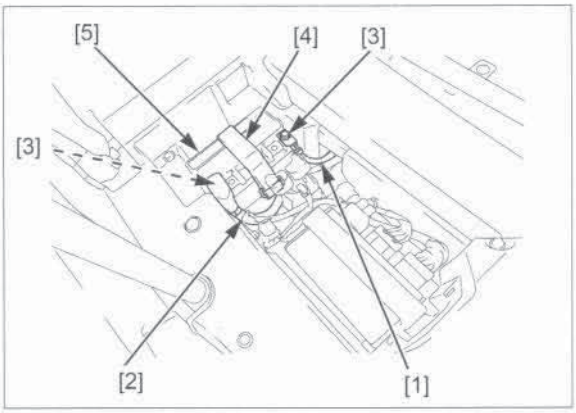
REMOVAL/INSTALLATION

Remove the front seat cushion (page 2-4).

With the ignition switch turned to OFF (o), disconnect the negative (–) cable [1] first, then disconnect the positive (+) cable [2] by removing each terminal bolt [3].
Remove the battery holder band [4].
Remove the battery [5].

Connect the positive (+) cable first and then the negative (–) cable.

Installation is in the reverse order of removal.

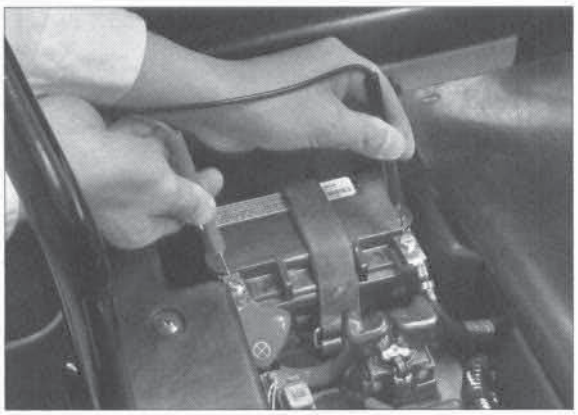


VOLTAGE INSPECTION

Remove the front seat cushion (page 2-4).

Measure the battery voltage using a commercially available digital multimeter.

VOLTAGE (20°C/68°F): Fully charged: 13.0 – 13.2 V
Under charged: Below 12.3 V



BATTERY TESTING

Remove the battery (page 21-4).

Refer to the instructions that are appropriate to the battery testing equipment available to you.

TOOL:
Battery tester — **Micro 404XL (U.S.A. only), BM-210 or equivalent**

BATTERY CHARGING (U.S.A. only)

Remove the battery (page 21-4).

Refer to the instructions that are appropriate to the battery charging equipment available to you.

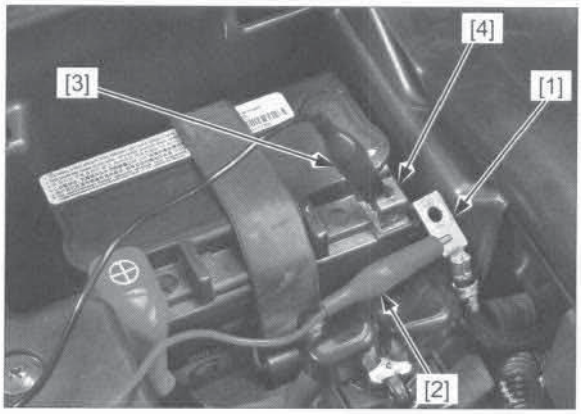
TOOL:
Christie battery charger — **MC1012/2T or Tecmate Pro 4 (U.S.A. only)**

CHARGING SYSTEM INSPECTION

CURRENT LEAKAGE INSPECTION

Remove the front seat cushion (page 2-4).

With the ignition switch turned to OFF (o), disconnect the negative (–) cable [1] from the battery.
Connect the ammeter (+) probe [2] to the negative (–) cable and the ammeter (–) probe [3] to the battery (–) terminal [4].
With the ignition switch turned to OFF (o), check for current leakage.



NOTE:

- 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 the fuse in the tester.
- While measuring current, do not turn the ignition switch to ON (I). A sudden surge of current may blow the fuse in the tester.

SPECIFIED CURRENT LEAKAGE: 0.1 mA maximum

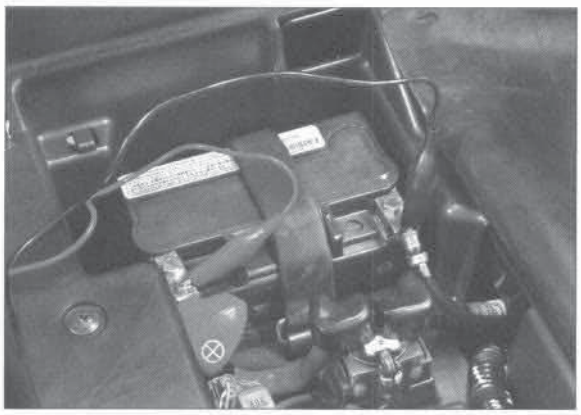
If current leakage exceeds the specified value, a shorted circuit is likely.
Locate the short by disconnecting connections one by one and measuring the current.

CHARGING VOLTAGE INSPECTION

Remove the front seat cushion (page 2-4).

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

Warm up the engine to normal operating temperature.
Connect the multimeter between the battery positive (+) and negative (–) terminals.



NOTE:

- To prevent a short, make absolutely certain which are the positive (+) and negative (–) terminals or cables.
- 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.

With the headlights on, measure the voltage on the multimeter when the engine runs at 5,000 rpm.

STANDARD: Measured BV < Measured CV < 15.5 V
BV = Battery voltage (page 21-4)
CV = Charging voltage

ALTERNATOR CHARGING COIL

INSPECTION

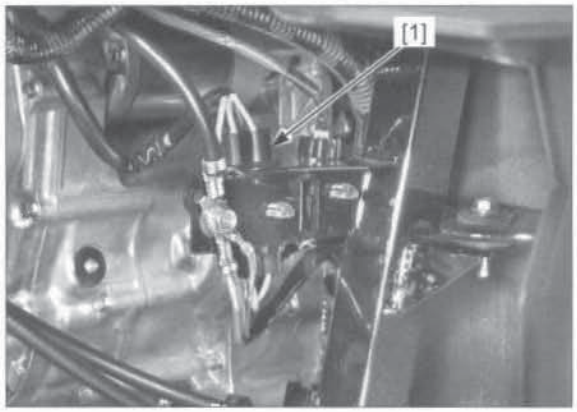
Remove the alternator/CKP sensor 5P (black) connector [1] from the stay and disconnect it.
Check the connector for loose contacts or corroded terminals.
Measure the resistance between the Yellow wire terminals of the alternator side connector.

STANDARD: 0.1 – 1.0 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.

Alternator stator replacement (page 12-5).



REGULATOR/RECTIFIER

WIRE HARNESS INSPECTION

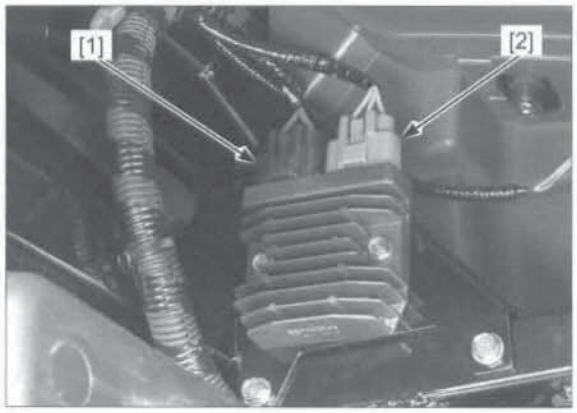
Disconnect the regulator/rectifier 3P (black) connector [1] and 3P (gray) connector [2].
Check the connectors for loose contacts or corroded terminals.

Check the following at the wire harness side connectors.

- Battery Line:
  Measure the voltage between the Red wire terminal and ground.
  There should be battery voltage at all times.
- 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 the Yellow wire terminals.

  STANDARD: 0.1 – 1.0 Ω (20°C/68°F)

  Check for continuity between each Yellow wire terminal and ground.
  There should be no continuity.



REMOVAL/INSTALLATION

Disconnect the regulator/rectifier 3P (black) connector [1] and 3P (gray) connector [2].

Remove the two bolts [3] and regulator/rectifier [4].

Installation is in the reverse order of removal.