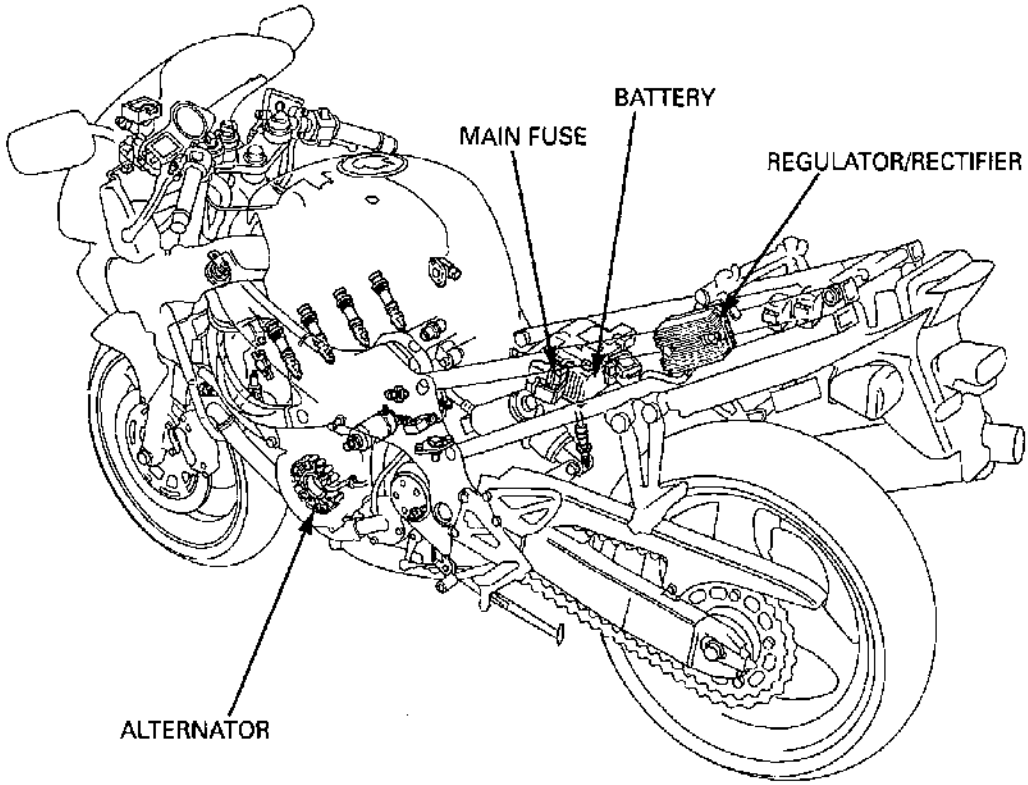
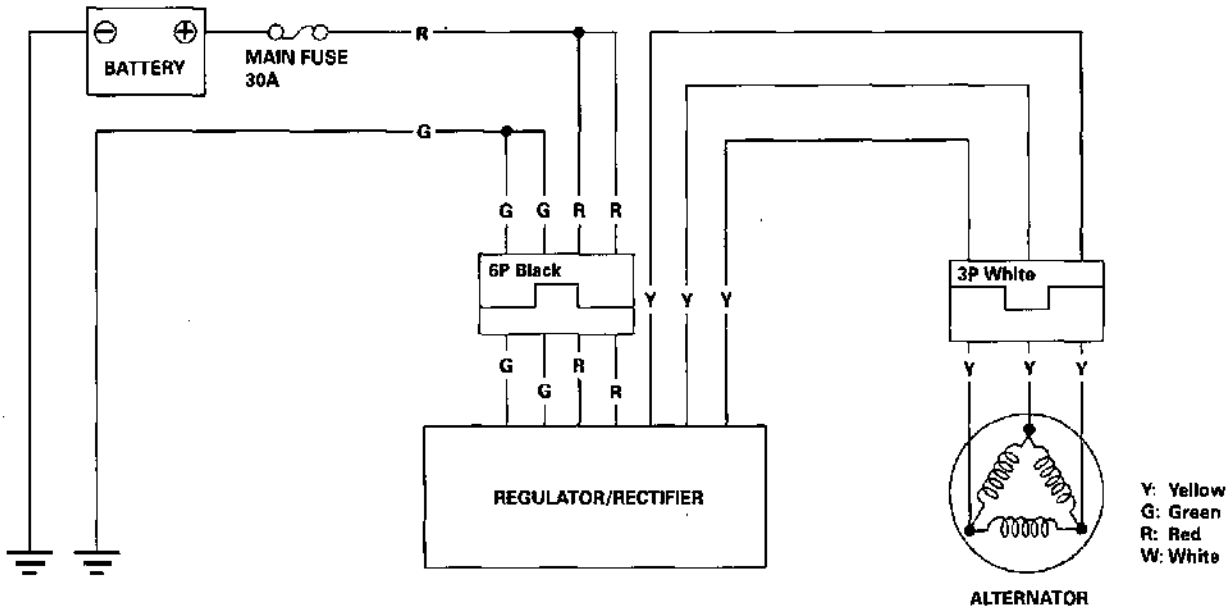
SYSTEM DIAGRAM





16. BATTERY/CHARGING SYSTEM

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 call a physician immediately.

- 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 space. For maximum service life, charge the stored battery every two weeks.
- For a battery remaining in a stored motorcycle, disconnect the negative battery cable from the battery terminal.
- The maintenance free battery must be replaced when it reaches the end of its service life.
- The battery can be damaged of overcharged or undercharged, or of 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, 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 motorcycle.

- The battery will self-discharge when the motorcycle is not in use. For this reason, charge the battery every 2 weeks to prevent sulfation from occurring.
- When checking the charging system, always follow the steps in the troubleshooting flow chart (page 16-3).
- For battery charging, do not exceed the charging current and time specified on the battery. Use of excessive current or charging time may damage the battery.

BATTERY TESTING

Refer to the instruction of the Operation Manual for the recommended battery tester. The recommended battery tester puts a "load" on the battery so that the actual battery condition of the load can be measured.

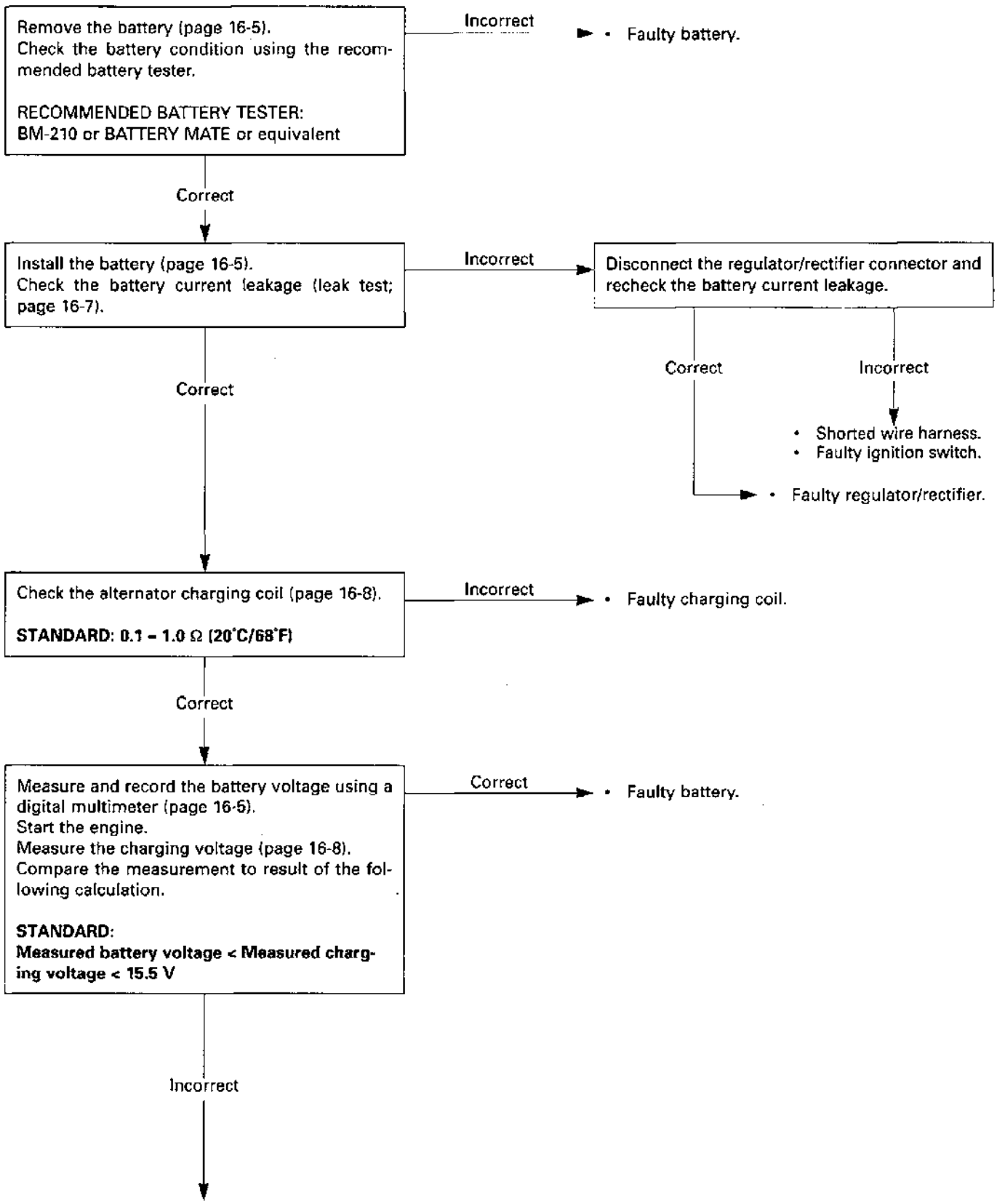
Recommended battery tester **BM210-AH (U.S.A. only), BM-210 or BATTERY MATE or equivalent**

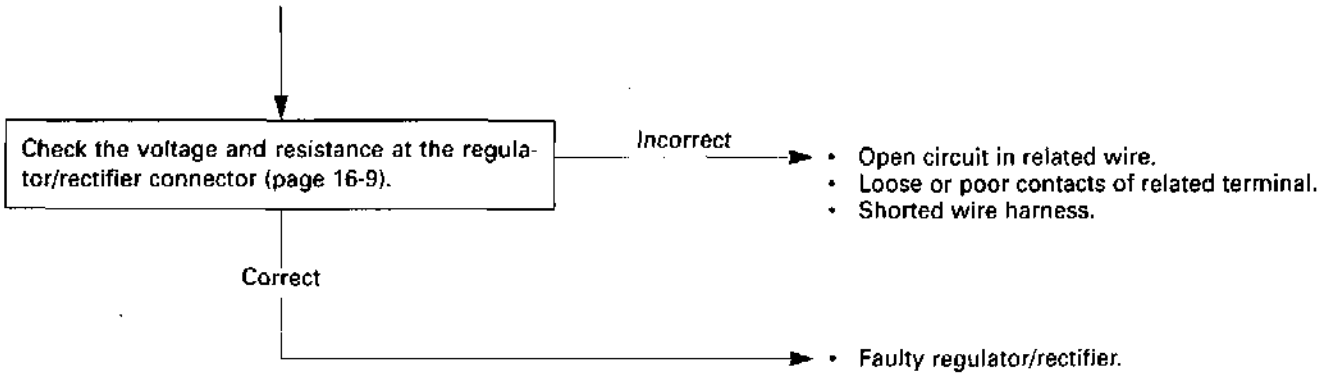
SPECIFICATIONS

ITEM			SPECIFICATIONS
Battery	Capacity		12V – 8.6 Ah
	Current leakage		2.0 mA max.
	Voltage (20°C/68°F)	Fully charged	13.0 – 13.2 V
		Needs charging	Below 12.3 V
	Charging current	Normal	0.9 A/5 – 10 h
		Quick	4.5 A/0.5 h
Alternator	Capacity		0.433 kW/5,000 rpm
	Charging coil resistance (20°C/68°F)		0.1 – 1.0 Ω

TROUBLESHOOTING

BATTERY IS DAMAGED OR WEAK




Check the voltage and resistance at the regulator/rectifier connector (page 16-9).
Incorrect
• Open circuit in related wire.
• Loose or poor contacts of related terminal.
• Shorted wire harness.
Correct
• Faulty regulator/rectifier.

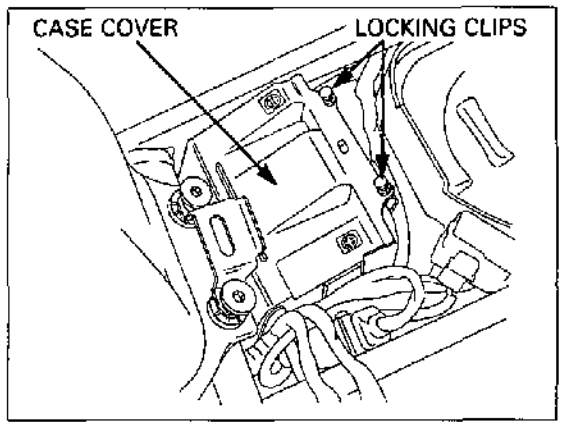
BATTERY

REMOVAL/INSTALLATION

Always turn the ignition switch to "OFF" before removing the battery.

Remove the ECM (page 5-85).

Open the battery case cover by releasing the two locking clips.

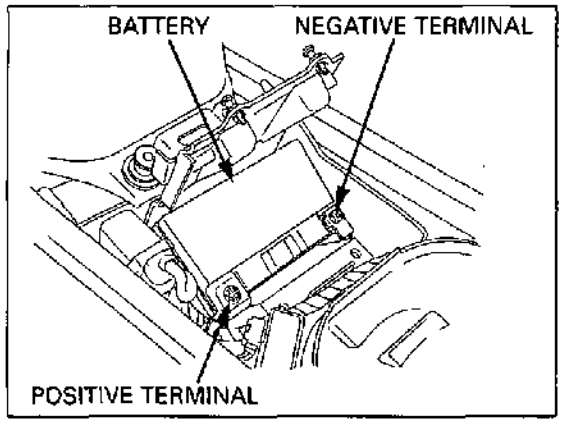


Disconnect the negative cable and then the positive cable, and remove the battery.

Install the battery in the reverse order of removal with the proper wiring as shown.

Connect the positive terminal first and then the negative cable.

After installing the battery, coat the terminals with clean grease.



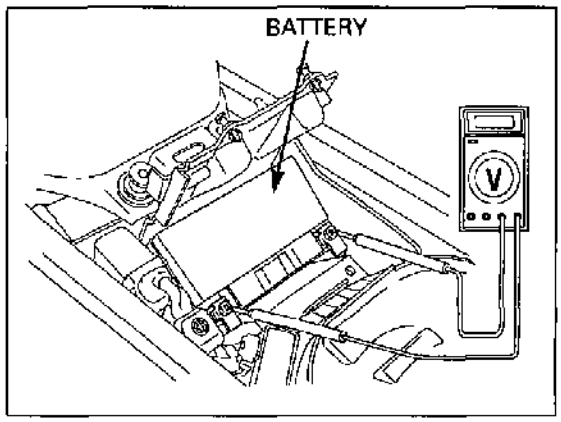
VOLTAGE INSPECTION

Measure the battery voltage using a digital multimeter.

VOLTAGE:
Fully charged: 13.0 – 13.2V
Under charged: Below 12.3V

TOOL:

Digital multimeter	**Commercially available**



BATTERY TESTING

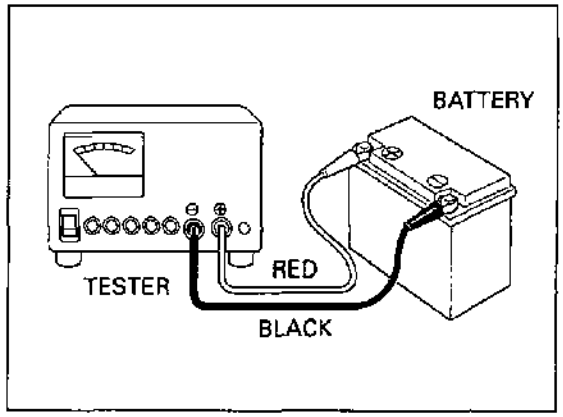
Always clear the work area of flammable materials such as gasoline, brake fluid, electrolyte, or cloth towels when operating the tester. The heat generated by the tester may cause a fire.

Remove the battery (see above).

Securely connect the tester's positive (+) cable first, then connect the negative (–) cable.

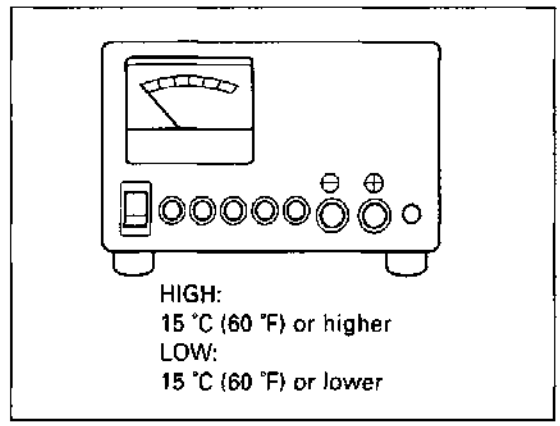
TOOL:

Battery tester	**BM-210-AH (U.S.A. only), BM210 or BATTERY MATE or equivalent**



For accurate test results, be sure the tester's cables and clamps are in good working condition and that a secure connection can be made at the battery.

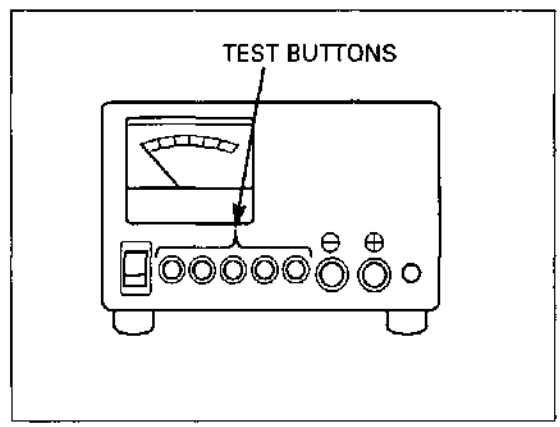
Set the temperature switch to "HIGH" or "LOW" depending on the ambient temperature.



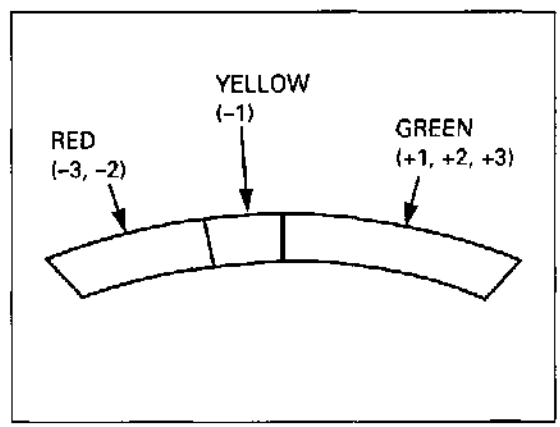
For the first check, DO NOT charge the battery before testing; test it in an "as is" condition.

Push in the appropriate test button for 3 seconds and read the condition of the battery on the meter.

To avoid damaging the tester, only test batteries with an amperage rating of less than 30 Ah.
Tester damage can result from overheating when:
- The test button is pushed in for more than 3 seconds.
- The tester is used without being allowed to cool for at least 1 minute when testing more than one battery.
- More than 10 consecutive tests are performed without allowing at least a 30-minute cool-down period.



The result of a test on the meter scale is relative to the amp. hour rating of the battery. ANY BATTERY READING IN THE GREEN ZONE IS OK. Batteries should only be charged if they register in the YELLOW or RED zone.



BATTERY CHARGING

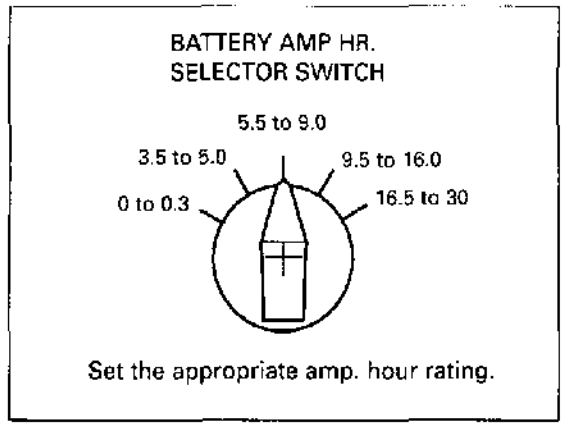
Remove the battery (page 16-5).

- Clean the battery terminals and position the battery as far away from the charger as the leads will permit.
- Do not place batteries below the charger–gases from the battery may corrode and damage the charger.
- Do not place batteries on top of the charger. Be sure the air vents are not blocked.

TOOL:
Christie battery charger MC1012/2 (U.S.A. only)

1. Turn the Power Switch to the OFF position.
2. Set the battery Amp. Hr. Selector Switch for the size of the battery being charged.
3. Set the Timer to the position indicated by the Honda Battery Tester; RED–3, RED–2, or YELLOW 1.
   If you are charging a new battery, set the switch to the NEW BATT position.
4. Attach the clamps to the battery terminals; RED to Positive, BLACK to Negative.

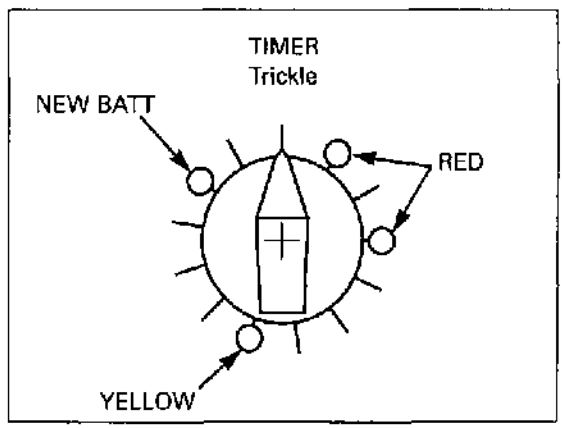
Connect the battery cables only when the Power Switch is OFF.



Set the appropriate amp. hour rating.

The charger will automatically switch to the "Trickle" mode after the set charging time has elapsed.

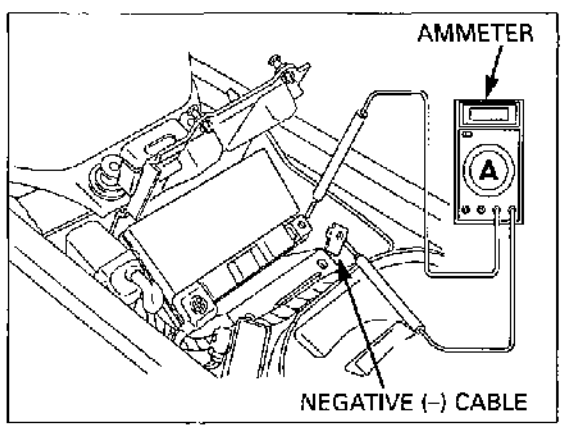
5. Turn the Power Switch to the ON position.
6. When the timer reaches the "Trickle" position, the charging cycle is complete. Turn the Power Switch OFF and disconnect the clamps.
7. Let the battery cool for at least 10 minutes or until gassing subsides after charging.
8. Reset the battery using the Honda Battery Tester and recharge if necessary using the above steps.



CHARGING SYSTEM INSPECTION

CURRENT LEAKAGE INSPECTION

Turn the ignition switch off and disconnect the negative battery cable from the battery.
Connect the ammeter (+) probe to the ground cable and the ammeter (–) probe to the battery (–) terminal.
With the ignition switch off, check for current leakage.

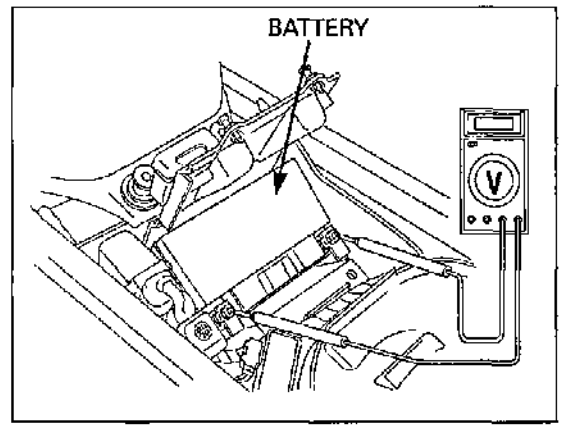


- When measuring current using a tester, set it to a high range, and then bring the range down to an appropriate level. Current flow higher than the range selected may blow out the fuse in the tester.
- While measuring current, do not turn the ignition on. A sudden surge of current may blow out the fuse in the tester.

SPECIFIED CURRENT LEAKAGE: 2.0 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.

CHARGING VOLTAGE INSPECTION



Be sure 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.

Warm up the engine to normal operating temperature. Stop the engine, and connect the multimeter as shown.

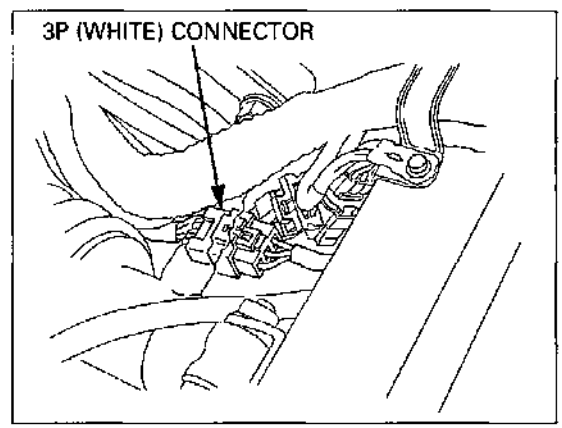
- To prevent a short, make absolutely certain which are the positive and negative terminals or cable.

Restart the engine.
With the headlight turned to the high beam position, measure the voltage on the multimeter when the engine runs at 5,000 rpm.

Standard: Measured battery voltage (page 16-5) < Measured charging voltage (see above) < 15.5 V at 5,000 rpm

ALTERNATOR CHARGING COIL

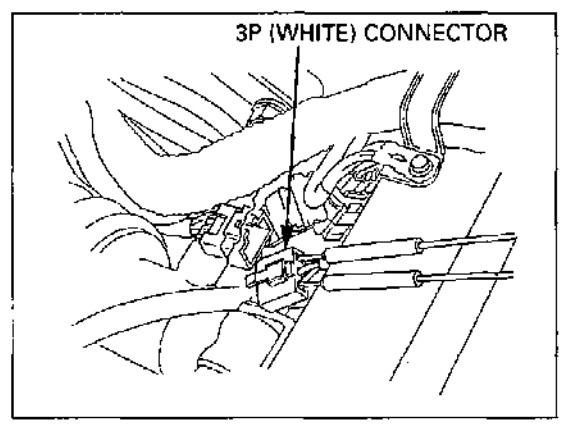
INSPECTION



It is not necessary to remove the stator coil to make this test.

Remove the left lower cowl (page 2-4).

Disconnect the alternator 3P (White) connector.



Check the resistance between **all** three Yellow terminals.

STANDARD: 0.1 – 1.0 Ω (at 20°C/68°F)

Check for continuity between all three Yellow terminals and Ground.
There should be no continuity.

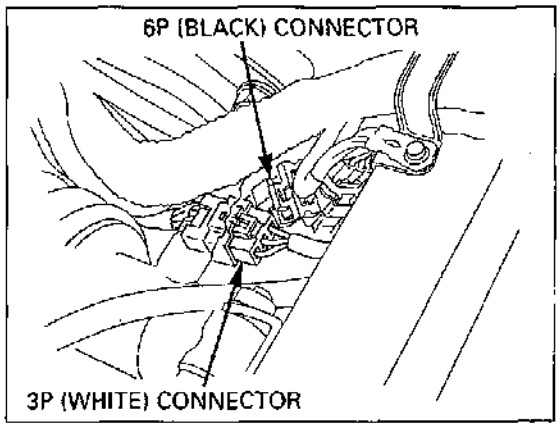
If readings are far beyond the standard, or if any wire has continuity to ground, replace the alternator stator. Refer to section 10 for stator removal.

REGULATOR/RECTIFIER

SYSTEM INSPECTION

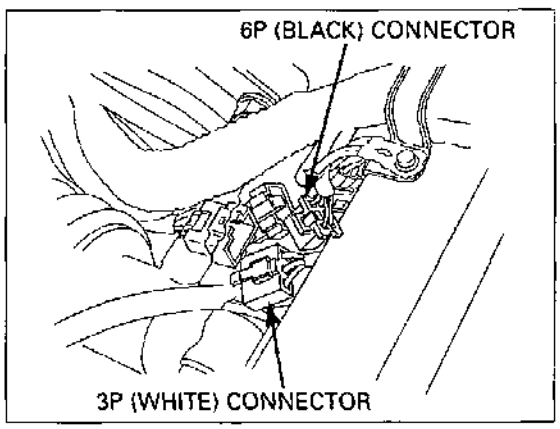
Remove the rear cowl (page 2-4).

Disconnect the regulator/rectifier connectors, and check it for loose contact or corroded terminals.



If the regulated voltage reading (see page 16-6) is out of the specification, measure the voltage between connector terminals (wire harness side) as follows:

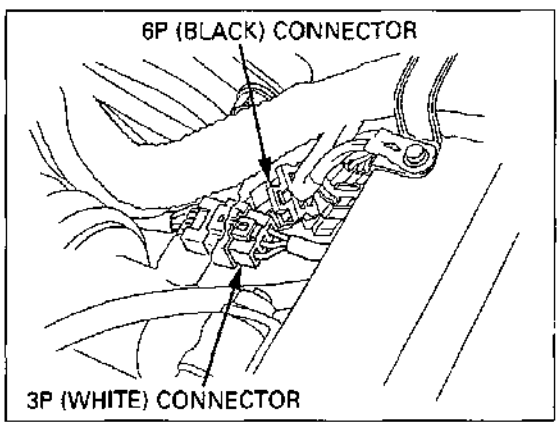
Item	Terminal	Specification
Battery charging line	Red/White (+) and ground (–)	Battery voltage should register
Charging coil line	Yellow and Yellow	0.1 – 1.0 Ω (at 20°C/68°F)
Ground line	Green and ground	Continuity should exist



If all components of the charging system are normal and there are no loose connections at the regulator/rectifier connectors, replace the regulator/rectifier unit.

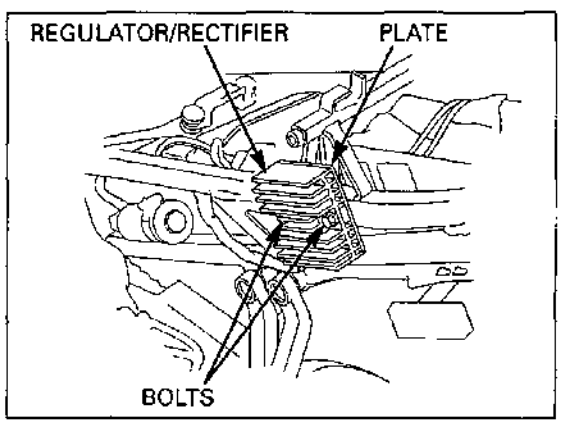
REMOVAL/INSTALLATION

Disconnect the alternator 3P (White) connector.
Disconnect the alternator 6P (Black) connector.



'01 – '03: Remove the regulator/rectifier unit mounting bolts, regulator/rectifier and plate.

Install the regulator/rectifier unit in the reverse order of removal.



After '03: Remove the regulator/rectifier unit mounting bolts, regulator/rectifier and plate.

Install the regulator/rectifier unit in the reverse order of removal.