

# SECTION 5 - ELECTRICAL SYSTEM

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## Electrical System

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This section has been organized into sub-sections which show procedures for the complete servicing of the KYMCO ATV electrical system.

■ **NOTE:** Some photographs and illustrations used in this section are used for clarity purposes only and are not designed to depict actual conditions.

### General Instructions

The ignition control module or ECU maybe damaged if dropped or the connector is disconnected when the key is ON, the excessive voltage may damage the ignition control module or ECU. Always turn off the ignition switch before servicing.

A faulty ignition system is often related to poor connections. Check those connections before proceeding.

Some electrical components may be damaged if terminals or connectors are connected or disconnected while the ignition switch is ON and current is present.

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## Specifications

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Spark Plug Type	NGK CR7E
Spark Plug Gap	0.7-0.8 mm (0.028-0.032 in.)
Spark Plug Cap	4000-6000 ohms
Ignition Coil Resistance (primary)	Less than 1 ohm (terminal to terminal)
(secondary)	2900-3400 ohms (high tension - plug cap removed - to ground)
Ignition Coil Peak Voltage (primary/CDI)	250-375 DC volts (black/yellow to black)
Stator Coil Resistance (trigger charging)	90-110 ohms (green/white to blue/yellow) Less than 1 ohm (yellow to yellow)
Peak Voltage (trigger)	7.8-9.3 volts (green to blue)
AC Generator Output (no load)	60 AC volts @ 3000 RPM (black to black)
Generator Output (approx)	220W @ 5000 RPM

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## Battery

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For battery related information, see Section 2.

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## Testing Electrical Components

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All of the electrical tests should be made using the Fluke Model 73 Multimeter and when testing peak voltage, the Peak Voltage Reading Adapter must be used. If any other type of meter is used, readings may vary due to internal circuitry. When troubleshooting a specific component, always verify first that the fuse(s) are good, that the bulb(s) are good, that the connections are clean and tight, that the battery is fully charged, and that all appropriate switches are activated.

■ **NOTE:** For absolute accuracy, all tests should be made at room temperature of 68° F.

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## Accessory Receptacle/Connector

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■ **NOTE:** This test procedure is for either the receptacle or the connector.

### VOLTAGE

1. Turn the ignition switch to the ON position; then set the meter selector to the DC Voltage position.
2. Connect the red tester lead to the red wire; then connect the black tester lead to ground.
3. The meter must show battery voltage.

■ **NOTE:** If the meter shows no battery voltage, troubleshoot the battery, fuse, receptacle, connector, or the main wiring harness.

## Brakelight Switch (Pressure)

The brakelight switch is located on the top of the auxiliary brake master cylinder and is pressure activated by the hand brake or the auxiliary brake pedal. This switch also activates the start-in-gear (SIG) relay in the power distribution module (PDM).

■NOTE: The ignition switch must be in the ON position.

### VOLTAGE (Wiring Harness Side)

1. Set the meter selector to the DC Voltage position.
2. Connect the red tester to the brown/black wire; then connect the black tester lead to ground.
3. The meter must show battery voltage.

■NOTE: If the meter shows no battery voltage, troubleshoot the battery, fuse, switch, or the main wiring harness.

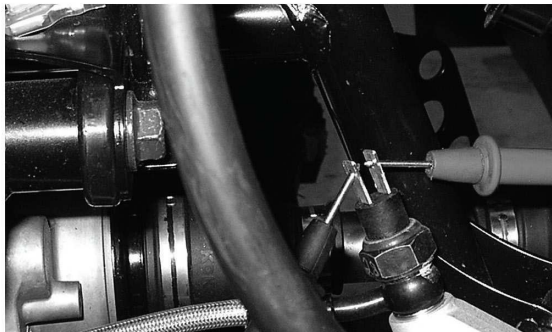
■NOTE: If the meter shows battery voltage, the main wiring harness is good; proceed to test the switch/component or connector.

### RESISTANCE (Switch)

#### ⚠ CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

1. Remove the spade connectors from the brake switch.
2. Set the meter selector to the OHMS position.
3. Connect the red tester lead to one switch terminal; then connect the black tester lead to the other switch terminal.



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4. When the brake pedal is depressed, the meter must show less than 1 ohm.

■NOTE: If the meter shows more than 1 ohm of resistance, replace the switch.

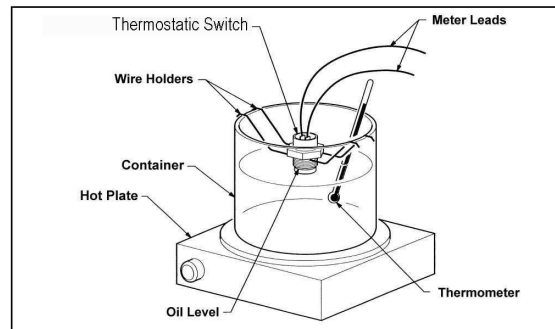
## THERMOSTATIC SWITCH

1. Connect the meter leads (selector in the OHMS position) to the switch contacts.
2. Suspend the switch and a thermometer in a container of cooking oil; then heat the oil.

■NOTE: Neither the switch nor the thermometer should be allowed to touch the bottom of the container or inaccurate readings will occur. Use wire holders to suspend switch and thermometer.

#### ⚠ WARNING

Wear insulated gloves and safety glasses. Heated oil can cause severe burns.



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3. When the coolant temperature is lower than 85 °C , the thermostatic switch OFF.  
When coolant temperature is over 90 °C , the thermostatic switch ON.



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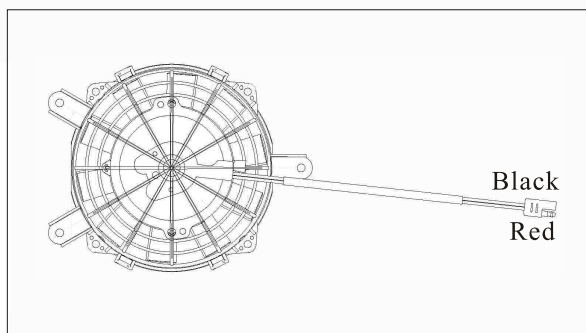
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## Fan Motor

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The connector is the black wire and the other is red, located behind the fan assembly.



■NOTE: The ignition switch must be in the ON position.

### VOLTAGE (Main Harness Connector to Fan Motor)

1. Set the meter selector to the DC Voltage position.
2. Connect the red tester lead to the orange wire; then connect the black tester lead to ground.
3. The meter must show battery voltage.

■NOTE: If the meter shows no battery voltage, troubleshoot the battery, fuse, motor, or the main wiring harness.

■NOTE: If the meter shows battery voltage, the main wiring harness is good. The connector should be checked for resistance.

### RESISTANCE (Fan Motor Connector)

**CAUTION**

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

1. Set the meter selector to the OHMS position.
2. Connect the red tester lead to the blue wire; then connect the black tester lead to the black wire.
3. The meter must show less than 1 ohm.

■NOTE: If the meter shows more than 1 ohm of resistance, troubleshoot or replace the switch/component, the connector, or the switch wiring harness.

■NOTE: To determine if the fan motor is good, connect the blue wire from the fan connector to the positive side of a 12 volt DC power supply; then connect the black wire from the fan connector to the negative side. The fan should operate.

**CAUTION**

Care should be taken to keep clear of the fan blades.

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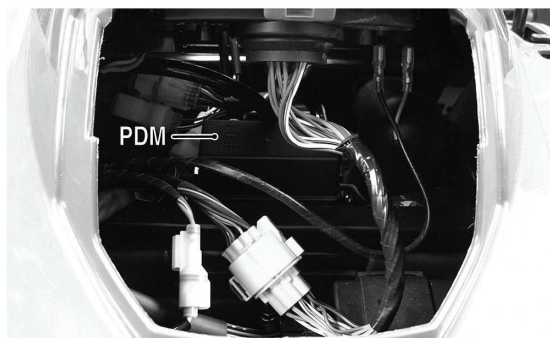
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## Fuse Block/Power Distribution Module

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The fuses are located in a power distribution module (PDM) in front of the steering tube.

If there is any type of electrical system failure, always check the fuses first.



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■NOTE: The ignition switch must be in the LIGHTS position.

1. Remove all fuses from the distribution module.
2. Set the meter selector to the DC Voltage position.
3. Connect the black tester lead to ground.
4. Using the red tester lead, contact each end of the fuse holder connector terminals individually.
5. The meter must show battery voltage from one side of the connector terminal ends.

■NOTE: Battery voltage will be indicated from only one side of the fuse holder connector terminal; the other side will show no voltage.

■NOTE: When testing the HI fuse holder, the headlight dimmer switch must be in the HI position; when testing the LIGHTS fuse holder, the headlight dimmer switch can be in either position.

■NOTE: If the meter shows no battery voltage, troubleshoot the battery, switches, distribution module, or the main wiring harness.

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## Fuses

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### ⚠ CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

1. Set the meter selector to the OHMS position.
2. Connect the red tester lead to one spade end of the fuse; then connect the black tester lead to the other spade end.
3. The meter must show less than 1 ohm resistance. If the meter reads open, replace the fuse.

■NOTE: Make sure the fuses are returned to their proper position according to amperage. Refer to the fuse block cover for fuse placement.

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## Ignition Coil

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The ignition coil is on the frame above the engine. To access the coil, the left side panel must be removed.

### RESISTANCE

### ⚠ CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

■NOTE: For these tests, the meter selector should be set to the OHMS position and the primary wire(s) should be disconnected.

#### Primary Winding

1. Connect the red tester lead to either terminal; then connect the black tester lead to the other terminal.
2. The meter reading must be within specification.

#### Secondary Winding

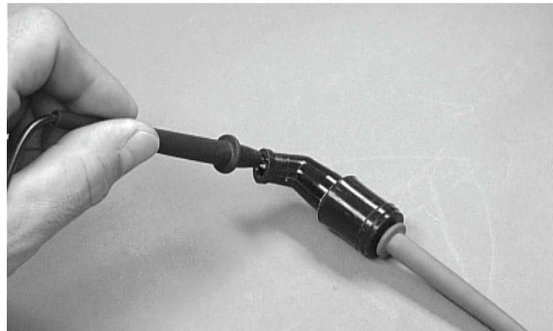
1. Remove the plug cap from the high tension lead; then connect the red tester lead to the high tension lead.

2. Connect the black tester lead to ground.
3. The meter reading must be within specification.

■NOTE: If the meter does not show as specified, replace ignition coil.

### Spark Plug Cap

1. Connect the red tester lead to one end of the cap; then connect the black tester lead to the other end of the cap.



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2. The meter reading must be within specification.

■NOTE: If the meter does not read as specified, replace the spark plug cap.

### PEAK VOLTAGE

■NOTE: All of the peak voltage tests should be made using the Fluke Model 73 Multimeter with Peak Voltage Reading Adapter. If any other type of tester is used, readings may vary due to internal circuitry.

■NOTE: The battery must be at full charge for these tests.



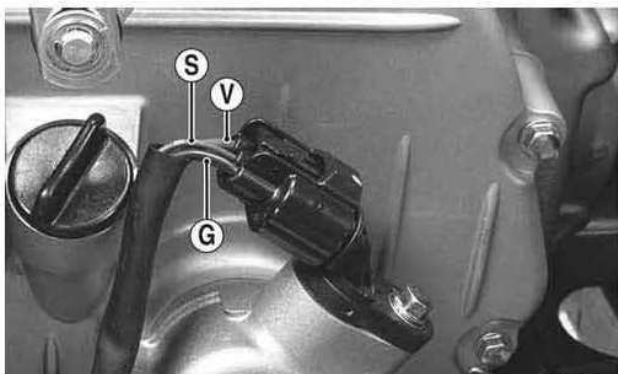
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## Speed Sensor

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1. Set the meter selector to the DC Voltage position.
2. With appropriate needle adapters on the meter leads, connect the red tester lead to the voltage lead (V); then connect the black tester lead to the ground lead (G).



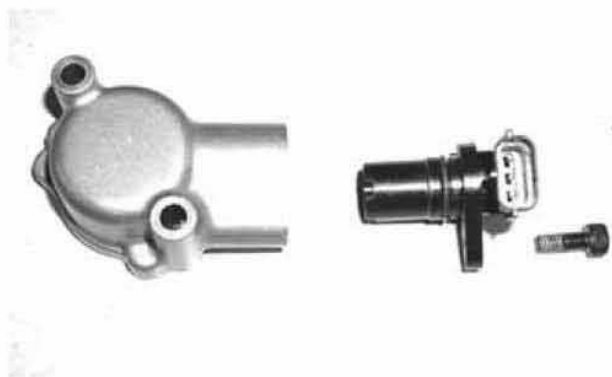
3. Turn the ignition switch to the ON position.
4. The meter must show 12.0 volts.
5. Leave the black tester lead connected; then connect the red tester lead to the signal lead pin (S).
6. Slowly move the ATV forward or backward; the meter must show 0 and 6 volts alternately.

■ **NOTE:** If the sensor tests are within specifications, the speedometer must be replaced (see Section 9).

To replace a speed sensor, use the following procedure.

1. Disconnect the three-wire connector from the speed sensor; then remove the cap screw securing the sensor to the sensor housing.
2. Remove the sensor from the sensor housing accounting for an O-ring.

3. Install the new speed sensor into the housing with new O-ring lightly coated with multi-purpose grease; then secure the sensor with the cap screw (threads coated with blue Loctite #242). Tighten securely.



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## Ignition Switch

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The ignition switch harness connects to the switch with a three-pin connector. To access the connector, remove the access panel in front of the handlebar.



### VOLTAGE

■ **NOTE:** Perform this test on the main harness connector.

1. Set the meter selector to the DC Voltage position.
2. Connect the red meter lead to the red/white wire; then connect the black meter lead to ground.
3. Meter must show battery voltage.

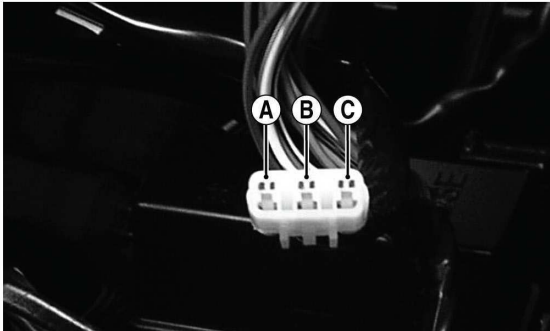
■ **NOTE:** If the meter shows no battery voltage, troubleshoot the battery or the main wiring harness.

## RESISTANCE

### CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

■NOTE: Perform this test on the switch harness using the following procedure.



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1. Turn the ignition switch to the ON position.
2. Set the meter selector to the OHMS position.
3. Connect either tester lead to pin B; then connect the other tester lead to pin A.
4. The meter must show less than 1 ohm.
5. Turn the ignition switch to the LIGHTS position. The meter must show less than 1 ohm.
6. Leaving the tester lead on pin B, connect the other tester lead to pin C.
7. The meter must show less than 1 ohm.

■NOTE: If the meter shows more than 1 ohm of resistance, replace the switch.

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## Handlebar Control Switches

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The connectors are located on the right side of the ATV next to the PDM. To access the connector, the electrical cover must be removed.

■NOTE: These tests should be made on the switch side of the connector.

### CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

## RESISTANCE (HI Beam)

1. Set the meter selector to the OHMS position.
2. Connect one tester lead to the brown/black wire; then connect the other tester lead to the lavender wire.
3. With the dimmer switch in the HI position, the meter must show less than 1 ohm.

■NOTE: If the meter shows more than 1 ohm of resistance, replace the switch.

## RESISTANCE (LO Beam)

1. Connect one tester lead to the brown/black wire; then connect the other tester lead to the white wire.
2. With the dimmer switch in the LO position, the meter must show an open circuit.

■NOTE: If the meter reads resistance, replace the switch.

## RESISTANCE (Emergency Stop)

1. Set the meter selector to the OHMS position.
2. Connect the one lead to the red/white wire; then connect the other tester lead to the yellow/black wire.
3. With the switch in the OFF position, the meter must show an open circuit.
4. With the switch in the RUN position, the meter must show less than 1 ohm.

■NOTE: If the meter shows more than 1 ohm of resistance, replace the switch.

## RESISTANCE (Reverse Override)

1. Set the meter selector to the OHMS position.
2. Connect one tester lead to one lavender/red wire; then connect the other tester wire to the green/red wire. The meter must show less than 1 ohm.
3. Depress and hold the reverse override button. The meter must show an open circuit.

■NOTE: If the meter does not show as specified, replace the switch.

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## Front Drive Selector Switch

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The connector is the snap-lock one in front of the steering post. To access the connector, the electric cover must be removed.

■NOTE: Resistance tests should be made with the connector disconnected and on the selector-side of the connector.

## RESISTANCE

### ⚠ CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

1. Set the meter selector to the OHMS position.
2. Connect the one tester lead to the brown/lavender wire; then connect the other tester lead to the white/lavender wire.
3. With the selector switch in the 2WD position, the meter must show less than 1 ohm.
4. With the selector switch in the 4WD position, the meter must show an open circuit.

■NOTE: If the meter does not show as specified, replace the front drive selector switch.

## VOLTAGE

■NOTE: The battery must be connected when performing voltage tests.

1. Set the meter selector to the DC Voltage position.
2. Connect the black tester lead to the negative battery terminal.
3. Connect the red tester lead to the brown/lavender wire on the harness side of the connector.
4. Turn the ignition switch to the RUN position.
5. The meter must show battery voltage.

■NOTE: If the meter shows other than specified, check the harness, connector, 30 amp fuse, and battery connections.

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## Front Drive Selector Actuator

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■NOTE: With the engine stopped and the ignition switch in the ON position, a momentary “whirring” sound must be noticeable each time the selector switch is moved to 2WD and 4WD. Test the switch, 30 amp fuse, and wiring connections prior to testing the actuator.

■NOTE: The differential must be in the unlocked position for this procedure.

## VOLTAGE

1. Select the 2WD position on the front drive selector switch; then disconnect the connector on the actuator wiring harness.
2. With the ignition switch in the OFF position, connect the black tester lead to the black wire in the supply harness; then connect the red tester lead to the brown/lavender wire in the supply harness.
3. Turn the ignition switch to the ON position. The meter must show 12 DC volts.
4. Connect the red tester lead to the white/blue wire in the supply harness. The meter must show 12 DC volts.
5. Select the 4WD position on the front drive selector switch; then connect the red tester lead to the white/blue wire in the supply harness. The meter must show 0 DC volts.

■NOTE: The 4WD icon on the LCD should illuminate.

6. Connect the red tester lead to the brown/lavender wire in the supply harness. The meter must show 12 DC volts.

■NOTE: If the voltage readings are as specified and the actuator does not function correctly, replace the actuator (see Section 6).

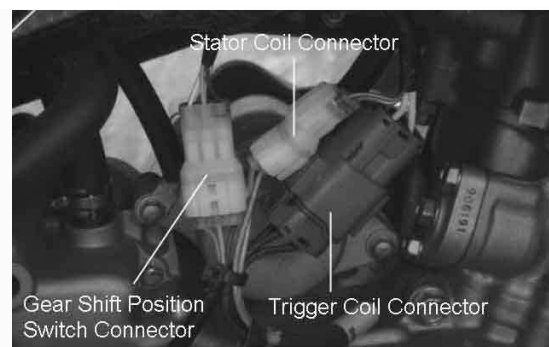
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## Gear Shift Position Switch

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The gear shift position switch connector is located on the right side of the engine over the V-belt housing.



To troubleshoot the switch, use the following procedure.

1. Disconnect the gear shift position switch from the main harness at the connector; then connect the black tester lead to a suitable ground.



2. Select the OHMS position on the tester and connect the red tester lead to the lavender/red wire; then move the gear shift lever to the R (reverse) position. The meter must read less than 1 ohm.
3. Move the red tester lead and shift lever in turn to the light green/red wire and N (neutral) position, white/black wire and H (high) position, and white/red wire and L (low) position. The meter must read less than 1 ohm in all positions. If not, the gear shift linkage must be adjusted (see Section 2) or the switch must be replaced.

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## Stator Coil

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### VOLTAGE (AC Generator - Regulated Output)

1. Set the meter selector to the DC Voltage position.
2. Connect the red tester lead to the positive battery post; then connect the black tester lead to the negative battery post.
3. With the engine running at a constant 3000 RPM (with the headlights on), the meter must show 14-15.5 DC volts.

#### CAUTION

Do not run the engine at high RPM for more than 10 seconds.

■ **NOTE:** If voltage is lower than specified, test charging coil - no load.

### VOLTAGE (Charging Coil - No Load)

The connector is the yellow three-pin one on the right side of the engine just above the starter motor.

■ **NOTE:** Test the engine-side of the connector.

1. Set the meter selector to the AC Voltage position.
2. Test between the three yellow wires for a total of three tests.
3. With the engine running at the specified RPM, all wire tests must show 60 AC volts.

#### CAUTION

Do not run the engine at high RPM for more than 10 seconds.

■ **NOTE:** If both charging coil tests failed, check all connections, etc., and test again. If no voltage is present, replace the stator assembly.

### RESISTANCE (Charging Coil)

#### CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

1. Set the meter selector to OHMS position.
2. Test between the three yellow wires for a total of three tests.
3. The meter reading must be within specification.

### RESISTANCE (Trigger Coil)

#### CAUTION

Always disconnect the battery when performing resistance tests to avoid damaging the multimeter.

1. Disconnect the gray four-pin connector on the right side of the engine just above the starter motor.
2. Set the meter selector to the OHMS position.
3. Connect the red tester lead to the green/white wire; then connect the black tester lead to the blue/yellow wire. The meter reading must be within specification.

### PEAK VOLTAGE

■ **NOTE:** All of the peak voltage tests should be made using the Fluke Model 73 Multimeter with Peak Voltage Reading Adapter. If any other type of tester is used, readings may vary due to internal circuitry.

■ **NOTE:** The battery must be at full charge for these tests.

### Trigger Coil

1. Set the meter selector to the DC Voltage position.
2. Connect the red tester lead to the green/white wire; then connect the black tester lead to the blue/yellow wire.
3. Crank the engine over using the electric starter.
4. The meter reading must be within specification.

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## Starter Relay

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1. Remove the seat; then using the multimeter set to the DC Voltage position, check the relay as follows.
2. Connect the red tester lead to the positive battery terminal; then connect the black tester lead to the starter cable connection on the starter relay. The meter must show battery voltage.

■NOTE: Make sure that the ignition switch is in the ON position, transmission in neutral, brake lock released, and the emergency stop switch in the RUN position.

3. Depress the starter button while observing the multimeter. The multimeter should drop to 0 volts, a “click” should be heard from the relay, and the starter motor should run.

■NOTE: If a “click” is heard and any voltage is indicated by the multimeter, replace the starter relay. If no “click” is heard and the multimeter continues to indicate battery voltage, test the neutral start relay.

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## Starter Motor

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■NOTE: The starter is a non-serviceable component. If the following test does not result as specified, the starter must be replaced.

### TESTING VOLTAGE

Perform this test on the starter motor positive terminal. To access the terminal, slide the boot away.

■NOTE: The ignition switch must be in the ON position, the emergency stop switch in the RUN position, and the shift lever in the NEUTRAL position.

1. Set the meter selector to the DC Voltage position.
2. Connect the red tester lead to the starter terminal; then connect the black tester lead to ground.
3. With the starter button depressed, the meter must show approximately 12.0 DC volts and the starter motor should operate.



■NOTE: If the meter showed correct voltage but the starter did not operate or operated slowly, the starter motor is defective.

■NOTE: If the meter showed no voltage, inspect ground connections, starter motor lead, battery voltage (at the battery), starter relay, or the neutral start relay.

### REMOVING

1. Disconnect the battery.

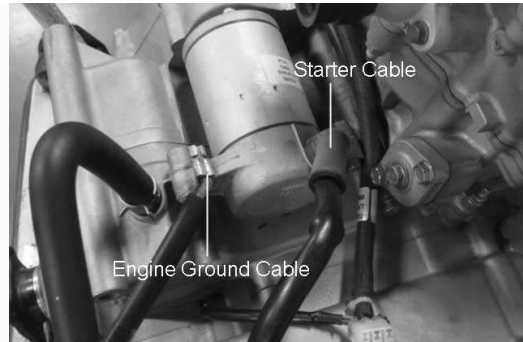
#### ⚠ CAUTION

Always disconnect the negative battery cable from the battery first; then disconnect the positive cable.

2. Remove the nut securing the positive cable to the starter; then remove the cable from the starter.
3. Remove the two cap screws securing the starter to the crankcase; then remove the starter. Account for an O-ring.

### INSTALLING

1. Apply a small amount of grease to the O-ring seal on the starter; then install the starter into the crankcase. Secure with two cap screws making sure the engine ground is secured by the rear cap screws. Tighten to 8 ft-lb.



2. Secure the positive cable to the starter with the nut. Tighten to 8 ft-lb.
3. Connect the battery.

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## Regulator/Rectifier

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The regulator/rectifier is located under the front rack and front fenders above the oil cooler.

### TESTING

1. Start engine and warm up to normal operating temperatures; then connect a multimeter to the battery as follows.
2. Select the DC Voltage position; then connect the red tester lead to the positive battery post and the black tester lead to the negative battery post.
3. Start the engine and slowly increase RPM. The voltage should increase with the engine RPM to a maximum of 15.5 DC volts.

■NOTE: If voltage rises above 15.5 DC volts, the regulator is faulty or a battery connection is loose or corroded. Clean and tighten battery connections or replace the regulator/rectifier. If voltage does not rise, check Voltage (Charging Coil - No Load) in this section. If charging coil voltage is normal, replace the regulator/rectifier.

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## Neutral Start/ Front Drive Actuator/ Start-in-Gear/ 2WD Relays

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The relays are identical plug-in type located on the power distribution module. Relay function can be checked by switching relay positions. The relays are interchangeable.

■NOTE: The module and wiring harness are not a serviceable component and must be replaced as an assembly.

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## Headlights

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### VOLTAGE

■NOTE: Perform this test on the main harness side of the connectors. Also, the ignition switch must be in the LIGHTS position.

1. Set the meter selector to the DC Voltage position.
2. Connect the black tester lead to the black wire; then connect the red tester lead to the white wire.
3. With the dimmer switch in the LO position, the meter must show battery voltage.
4. Remove the red tester lead from the white wire and connect to the lavender wire.
5. With the dimmer switch in the HI position, the meter must show battery voltage.

■NOTE: If battery voltage is not shown in any test, inspect the fuses, battery, main wiring harness, connectors, or the left handlebar switch.

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## Taillights - Brakelights

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### VOLTAGE (Taillights)

■NOTE: Perform this test on the main harness side of the connector. Also, the ignition switch should be in the LIGHTS position.

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1. Set the meter selector to the DC Voltage position.
2. Connect the black tester lead to the black wire; then connect the red tester lead to the brown/blue wire.
3. The meter must show battery voltage.

■NOTE: If the meter does not show voltage, inspect fuses, wiring harness, connectors, and switches.

### VOLTAGE (Brakelights)

■NOTE: Perform this test on the main harness side of the connector. Also, the ignition switch should be in the ON position and the brake (either foot pedal or hand lever) must be applied.

1. Set the meter selector to the DC Voltage position.
2. Connect the black tester lead to the black wire; then connect the red tester lead to the green/yellow wire.
3. The meter must show battery voltage.

■NOTE: If the meter does not show voltage, inspect bulb, fuses, wiring harness, connectors, and switches.

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## Running Lights

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The two running lights use the same connectors as the headlights (see Headlights in this section).

### VOLTAGE

1. Release the wire connector from the frame; then release and separate the connectors.

■NOTE: Perform this test on the wiring harness side of the connectors.

2. Connect the black tester lead of the meter to the black wire; then with the tester in the DC Volts position, connect the red tester lead to the brown/black wire.
3. Turn the ignition switch to the LIGHTS position. The meter must show battery voltage.

■NOTE: If the meter does not show voltage, inspect the LIGHTS fuse, battery connections, or troubleshoot the main wiring harness.

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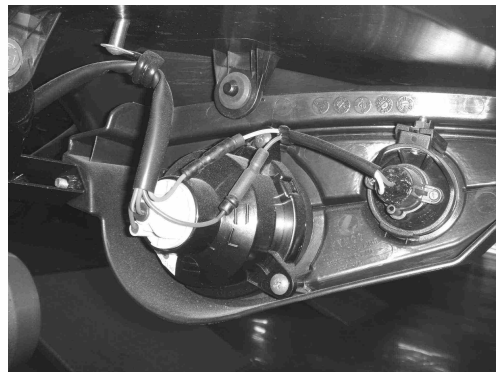
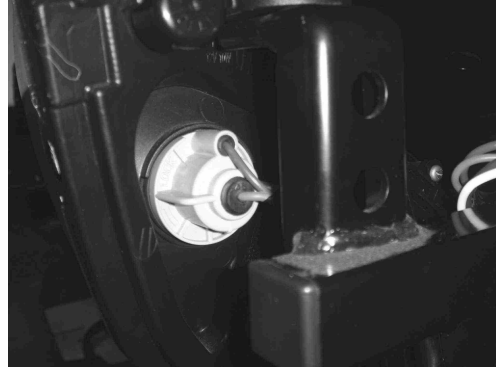


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## Back-Up Lights

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The back-up lights connectors are located on the rear frame supports attached by a metal tab. They may be released from the frame by depressing the release with a small screwdriver.



### VOLTAGE

1. Release the wire connectors from the frame; then disconnect the connectors.

■NOTE: Perform this test on the main harness side of the connectors.

2. Connect the black tester lead to the brown/lavender wire; then connect the red tester lead to the lavender/red wire.
3. Set the tester to DC VOLTS; then turn the ignition switch to the ON position and move the shift lever to the R (reverse) position. The meter must show battery voltage.

■NOTE: If the meter does not show battery voltage, use the following procedure to troubleshoot.

4. Remove the black tester lead from the brown/lavender wire and connect to a suitable ground.



- A. If the meter shows battery voltage, troubleshoot the gear shift position switch connector or the gear shift position switch.
- B. If the meter does not show battery voltage, inspect the LIGHTS fuse, ignition switch, or the main wiring harness.

## Troubleshooting

<b>Problem: Spark absent or weak</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Ignition coil</b> defective</li> <li>2. <b>Spark plug</b> defective</li> <li>3. <b>Magneto</b> defective</li> <li>4. <b>ECU unit</b> defective</li> <li>5. <b>Pick-up coil</b> defective</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace ignition coil</li> <li>2. Replace plug</li> <li>3. Replace magneto</li> <li>4. Replace ECU unit</li> <li>5. Replace pick-up coil</li> </ol>
<b>Problem: Spark plug fouled with carbon</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Gasoline</b> incorrect</li> <li>2. <b>Air cleaner element</b> dirty</li> <li>3. <b>Spark plug</b> incorrect (too cold)</li> <li>4. <b>Valve seals</b> cracked - missing</li> <li>5. <b>Oil rings</b> worn - broken</li> </ol>	<ol style="list-style-type: none"> <li>1. Change to correct gasoline</li> <li>2. Clean element</li> <li>3. Replace plug</li> <li>4. Replace seals</li> <li>5. Replace rings</li> </ol>
<b>Problem: Spark plug electrodes overheat or burn</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Spark plug</b> incorrect (too hot)</li> <li>2. <b>Engine</b> overheats</li> <li>3. <b>Spark plug</b> loose</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace plug</li> <li>2. Service cooling system</li> <li>3. Tighten plug</li> </ol>
<b>Problem: Magneto does not charge</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Lead wires/connections</b> shorted - loose - open</li> <li>2. <b>Magneto coils</b> shorted - grounded - open</li> <li>3. <b>Regulator/rectifier</b> defective</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair - replace - tighten lead wires</li> <li>2. Replace magneto coils</li> <li>3. Replace regulator/rectifier</li> </ol>
<b>Problem: Magneto charges, but charging rate is below the specification</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Lead wires</b> shorted - open - loose (at terminals)</li> <li>2. <b>Stator coils (magneto)</b> grounded - open</li> <li>3. <b>Regulator/rectifier</b> defective</li> <li>4. <b>Battery voltage</b> low</li> <li>5. <b>Cell plates (battery)</b> defective</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair - tighten lead wires</li> <li>2. Replace stator coils</li> <li>3. Replace regulator/rectifier</li> <li>4. Recharging battery</li> <li>5. Replace battery</li> </ol>

<b>Problem: Magneto overcharges</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Internal battery</b> short circuited</li> <li>2. <b>Regulator/rectifier</b> damaged - defective</li> <li>3. <b>Regulator/rectifier</b> poorly grounded</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace battery</li> <li>2. Replace regulator/rectifier</li> <li>3. Clean - tighten ground connection</li> </ol>
<b>Problem: Charging unstable</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Lead wire</b> intermittently shorting</li> <li>2. <b>Magneto</b> internally shorted</li> <li>3. <b>Regulator/rectifier</b> defective</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace lead wire</li> <li>2. Replace magneto</li> <li>3. Replace regulator/rectifier</li> </ol>
<b>Problem: Starter button not effective</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Battery charge</b> low</li> <li>2. <b>Switch contacts</b> defective</li> <li>3. <b>Starter motor brushes</b> not seating</li> <li>4. <b>Starter relay</b> defective</li> <li>5. <b>Emergency stop - ignition switch</b> off</li> <li>6. <b>Wiring connections</b> loose - disconnected</li> </ol>	<ol style="list-style-type: none"> <li>1. Charge - replace battery</li> <li>2. Replace switch</li> <li>3. Replace starter motor</li> <li>4. Replace relay</li> <li>5. Turn on switches</li> <li>6. Connect - tighten - repair connections</li> </ol>
<b>Problem: Battery "sulfation" (Acidic white powdery substance or spots on surfaces of cell plates)</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Charging rate</b> too low - too high</li> <li>2. <b>Battery</b> run-down - damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace battery</li> <li>2. Replace battery</li> </ol>
<b>Problem: Battery discharges too rapidly</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Charging system</b> not charging</li> <li>2. <b>Cell plates</b> overcharged - damaged</li> <li>3. <b>Battery</b> short-circuited</li> </ol>	<ol style="list-style-type: none"> <li>1. Check magneto - regulator/rectifier - circuit connections</li> <li>2. Replace battery - correct charging system</li> <li>3. Replace battery</li> </ol>
<b>Problem: Battery polarity reversed</b>	
<b>Condition</b>	<b>Remedy</b>
<ol style="list-style-type: none"> <li>1. <b>Battery</b> incorrectly connected</li> </ol>	<ol style="list-style-type: none"> <li>1. Reverse connections - replace battery - repair damage</li> </ol>