

15. ELECTRICAL EQUIPMENT

SERVICE INFORMATION

GENERAL INSTRUCTIONS

- It is not necessary to check the battery electrolyte or fill with distilled water.
- Remove the battery from the motorcycle for charging. Do not remove the electrolyte cap..
- Do not quick charge the battery. Quick charging should only be done in an emergency..
- Charge the battery according to the charging current and time specified on the battery.
- When charging, check the voltage (open voltage) with an electric tester.
- When replacing the battery, do not use a traditional battery.

SPECIFICATIONS

| | | SC10AS | |
|--------------------------------|-----------------------------------|----------------------|---------------|
| Battery | Capacity | | 12V3AH |
| | Voltage | | 13.0_ 13.2V |
| | Charging current | Standard | 0.4A/10H |
| | | Quick | 4A/0.5H |
| Spark plug | (NGK) | | BR8HSA |
| Spark plug gap | | 0.6_ 0.7mm | |
| Ignition coil resistance | Primary coil | | 0.153_ 0.187Ω |
| | Secondary coil (with plug cap) | | 6.99_ 10.21KΩ |
| | Secondary coil (without plug cap) | | 3.24_ 3.96KΩ |
| Pulser coil resistance (20°C) | | 80_ 160Ω | |
| Ignition timing | | 15.5°±2°BTDC/2000rpm | |

TROUBLESHOOTING

CHARGING SYSTEM

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 ignition system
- 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

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IGNITION SYSTEM

No spark at plug

- Faulty spark plug
- Poorly connected, broken or shorted wire
 - Between A.C. generator and CDI unit
 - Between CDI unit and ignition coil
 - Between CDI unit and ignition switch
 - Between ignition coil and spark plug
- Faulty ignition switch
- Faulty ignition coil
- Faulty CDI unit
- Faulty A.C. generator

Engine starts but turns poorly

- Ignition primary circuit
 - Faulty ignition coil
 - Poorly connected wire or connector
- Ignition secondary circuit
 - Faulty ignition coil
 - Faulty spark plug
 - Poorly insulated plug cap
- Improper ignition timing
 - Battery voltage too low (6V max.)
 - Faulty CDI unit

STARTING SYSTEM

Starter motor won't turn

- Fuse burned out
- Weak battery
- Faulty ignition switch
- Faulty starter switch
- Faulty front or rear stop switch
- Faulty starter relay
- Poorly connected, broken or shorted wire
- Faulty starter motor

Lack of power

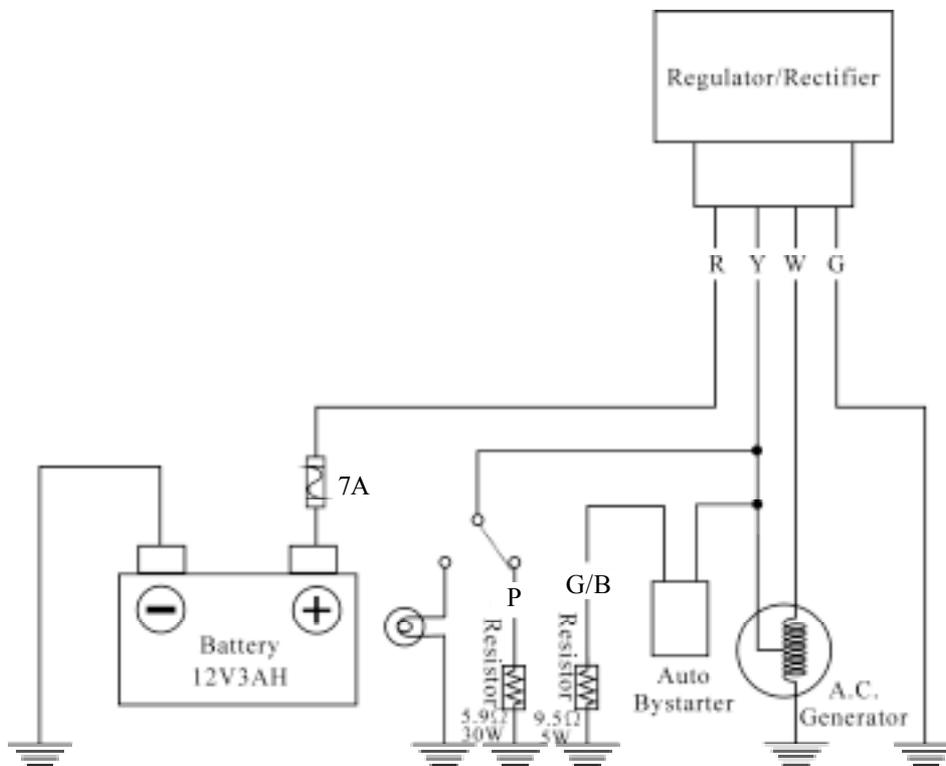
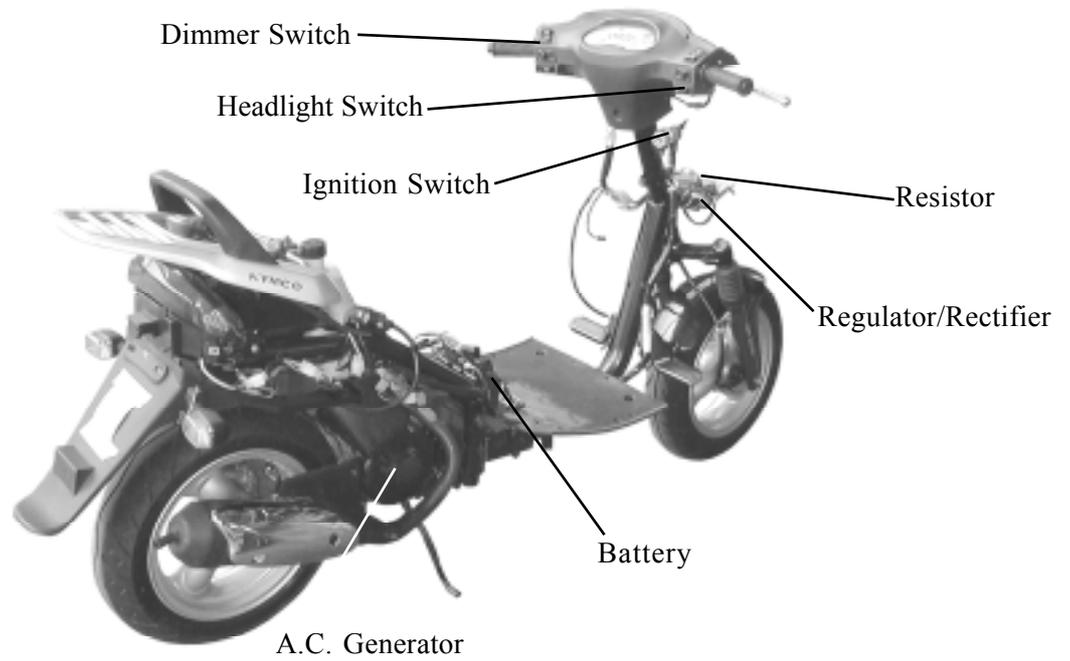
- Weak battery
- Loose wire or connection
- Foreign matter stuck in starter motor or pinion

Starter motor rotates but engine does not start

- Faulty starter pinion
- Starter motor rotates reversely
- Faulty starter clutch
- Weak battery

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CHARGING SYSTEM



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BATTERY

BATTERY REMOVAL

Remove the battery cover.
Disconnect the battery cables .

Remove the bolt and battery bracket.
Remove the battery.
The installation sequence is the reverse of removal.

BATTERY CHARGING (OPEN CIRCUIT VOLTAGE) INSPECTION

Remove the battery cover and disconnect the battery cables.

Measure the voltage between the battery terminals.

Fully charged : 13.0V_ 13.2V

Undercharged : 12.3V max.

CHARGING METHOD

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

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

Charging current : Standard : 0.4A

Quick : 4A

Charging time : Standard : 5 hours

Quick : 0.5 hour

After charging Open circuit voltage: 12.8V min.

Battery Cover



Battery



Power Lamp (Green)

Charging Lamp (Red)

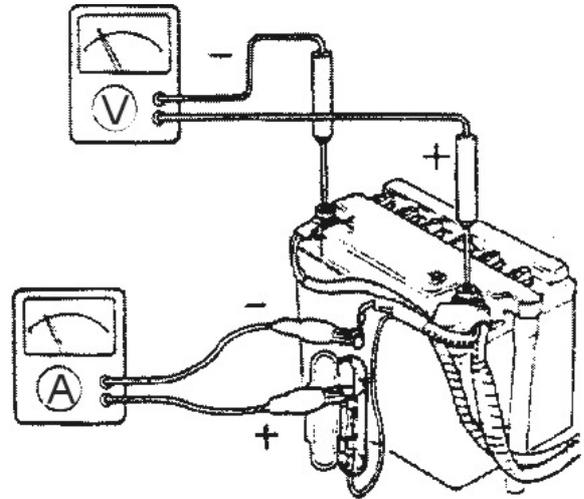


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PERFORMANCE TEST

Warm up the engine.
Remove the floor mat and battery cover.

Stop the engine and open the fuse box.
Disconnect the wire lead from the fuse terminal. Connect an ammeter between the wire lead and fuse terminal as shown. Connect the battery positive (+) terminal to the voltmeter positive (+) probe and battery negative (-) terminal to the voltmeter negative (-) probe.
Start the engine, gradually increase engine speed to test the output:



| Position \ RPM | Day | Night |
|----------------|-----------|-----------|
| 2500 | 1.3A min. | 1.0A min. |
| 6000 | 2.0A min. | 2.0A min. |

Charging Limit Voltage: $14.5 \pm 0.5V/8000rpm$
If the limit voltage is not within the specified range, check the regulator/rectifier.

A.C. GENERATOR (CHARGING COIL) INSPECTION

Remove the met-in box. (\Rightarrow 12-4)
Disconnect the A.C. generator connector.
Measure the resistances between the charging coil terminals (white-green) and lighting coil terminals (yellow-green).

Resistances:

| | | | |
|---------------|--------------|-----|--------------|
| Charging coil | white-green | 0.2 | 1.2 Ω |
| Lighting coil | yellow-green | 0.3 | 1.0 Ω |

Refer to 7-3 for A.C. generator removal.

A.C. Generator Connector



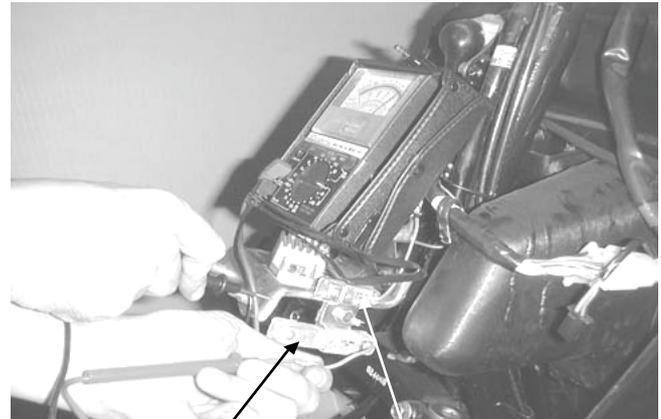
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RESISTOR INSPECTION

Remove the frame front cover. (⇒12-3)
 Measure the resistance between the resistor B pink wire and ground.
 Measure the resistance between the resistor A green/black wire and ground.

Resistances:

Resistor A: 9.9_ 10.5Ω
 Resistor B: 5.6_ 6.2Ω

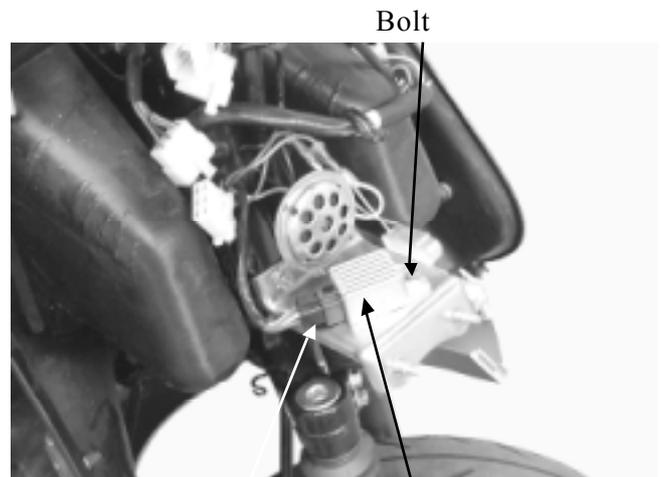


Resistor A Resistor B

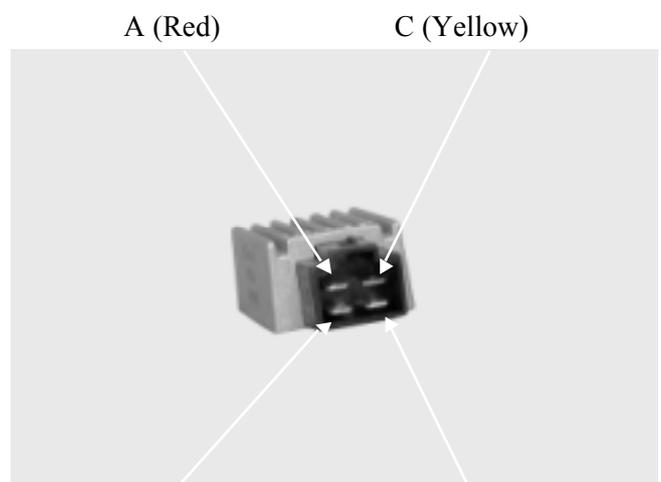
REGULATOR/RECTIFIER INSPECTION

Remove the front cover. (⇒12-3)
 Disconnect the regulator/rectifier wire coupler and remove the bolt to remove the regulator/rectifier.

Measure the resistances between the terminals.
 Replace the regulator/rectifier if the readings are not within the specifications in the table below.



Coupler Regulator/Rectifier

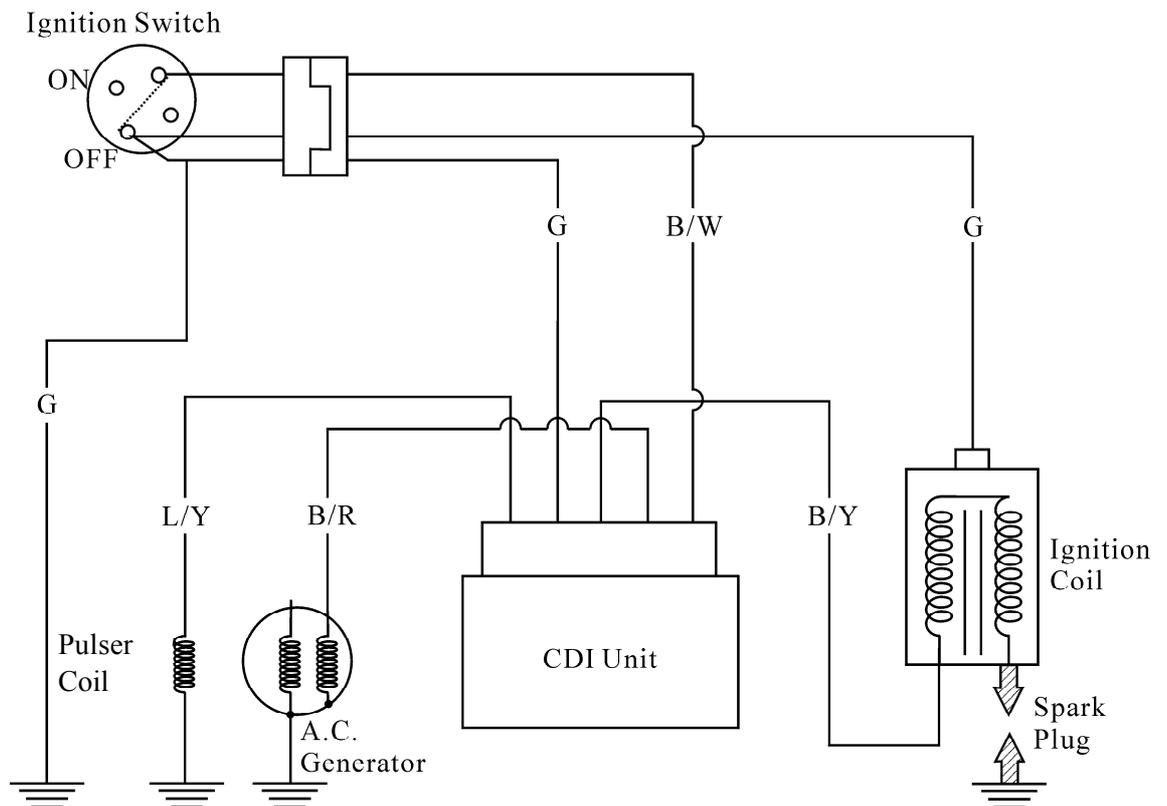
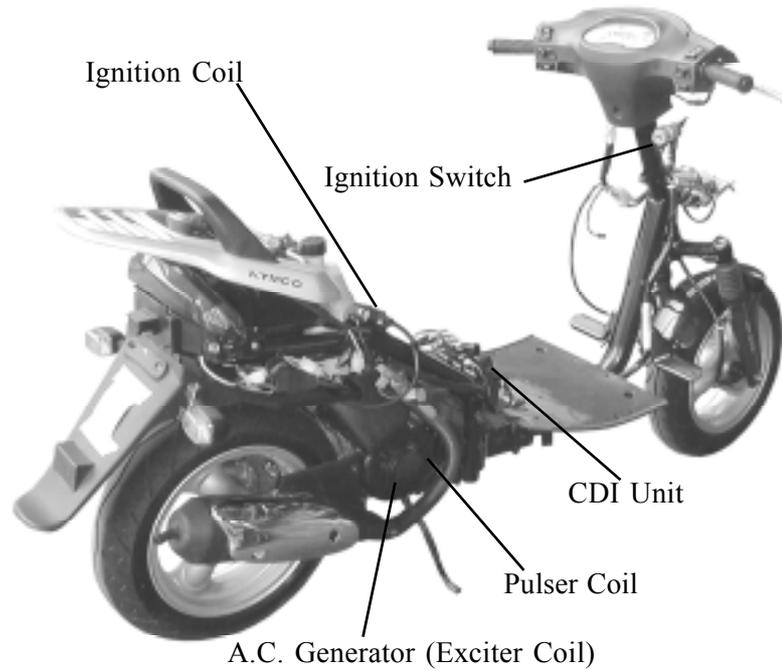


B (White) D (Green)

| Probe⊕ Probe(-) | A (R) | B (W) | C (Y) | D (G) |
|--------------------|--------|-------|---------|---------|
| A (R) | | ∞ | ∞ | ∞ |
| B (W) | 3-10KΩ | | ∞ | ∞ |
| C (Y) | ∞ | ∞ | | 33-35KΩ |
| D (G) | ∞ | ∞ | 33-35KΩ | |

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IGNITION SYSTEM



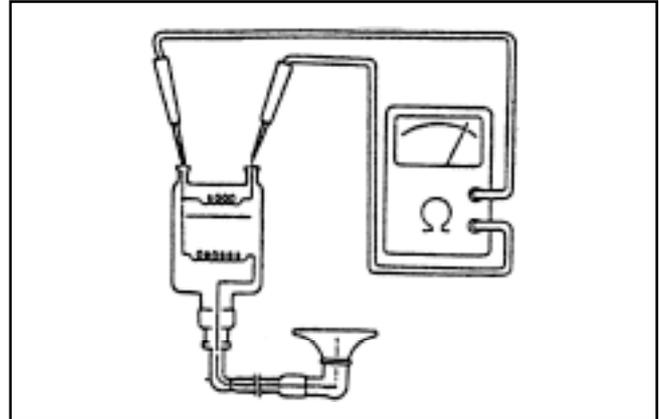
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IGNITION COIL INSPECTION

Continuity Test

Remove the met-in box. (⇒12-4)
 Measure the resistance between the ignition coil primary coil terminals.

Resistance (20°C): 0.153_ 0.187Ω



Measure the secondary coil resistance between the spark plug cap and the primary coil terminal as Figure A shown.

Resistance (20°C) (with plug cap):
 6.99_ 10.21KΩ

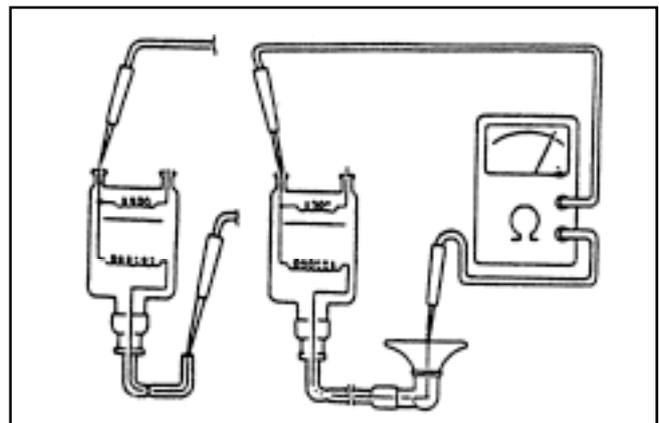
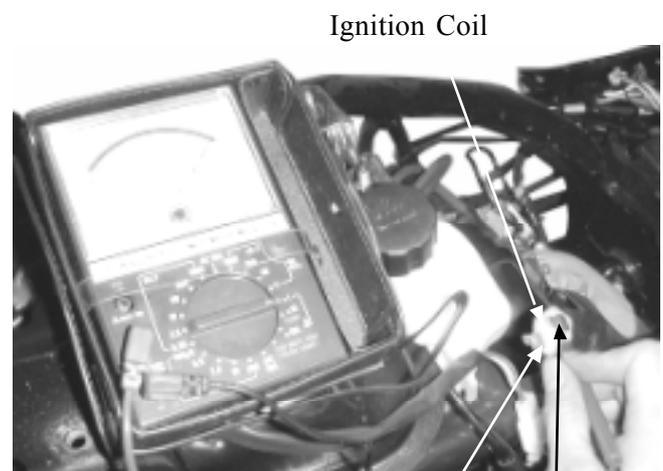


Figure B

Figure A

Measure the secondary coil resistance between the ignition coil terminal and the primary coil terminal as Figure B shown.

Resistance (20°C) (without plug cap):
 3.24_ 3.96KΩ



Ignition Coil

Green Black

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A.C. GENERATOR

Exciter Coil/Pulser Coil Inspection

Remove the met-in box. (⇒ 12-4)
Disconnect the A.C. generator wire
connector.
Measure the pulser coil resistance between
the blue/yellow wire and ground.

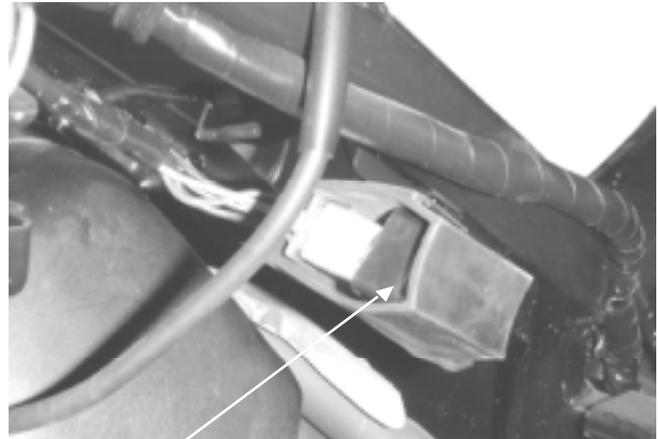
Resistance (20°C): 80_ 160Ω



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CDI UNIT INSPECTION

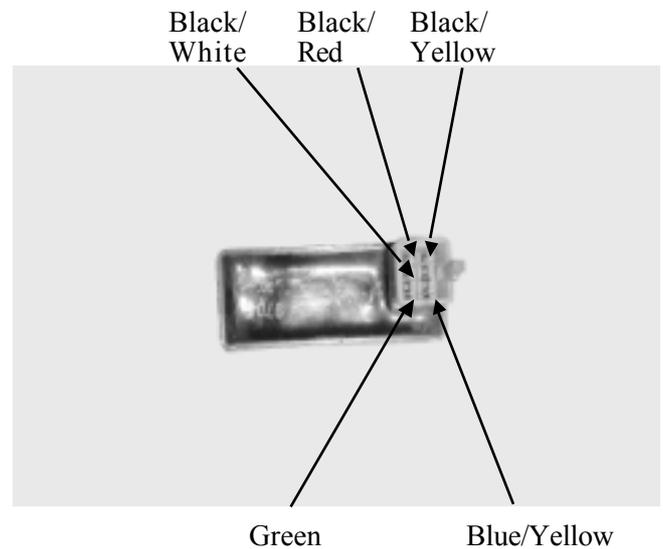
Remove the battery cover.
 Disconnect the CDI coupler and remove the CDI unit.



CDI Unit

CDI CIRCUIT INSPECTION

Measure the resistance between the terminals.
 Replace the CDI unit if the readings are not within the specifications in the table below.



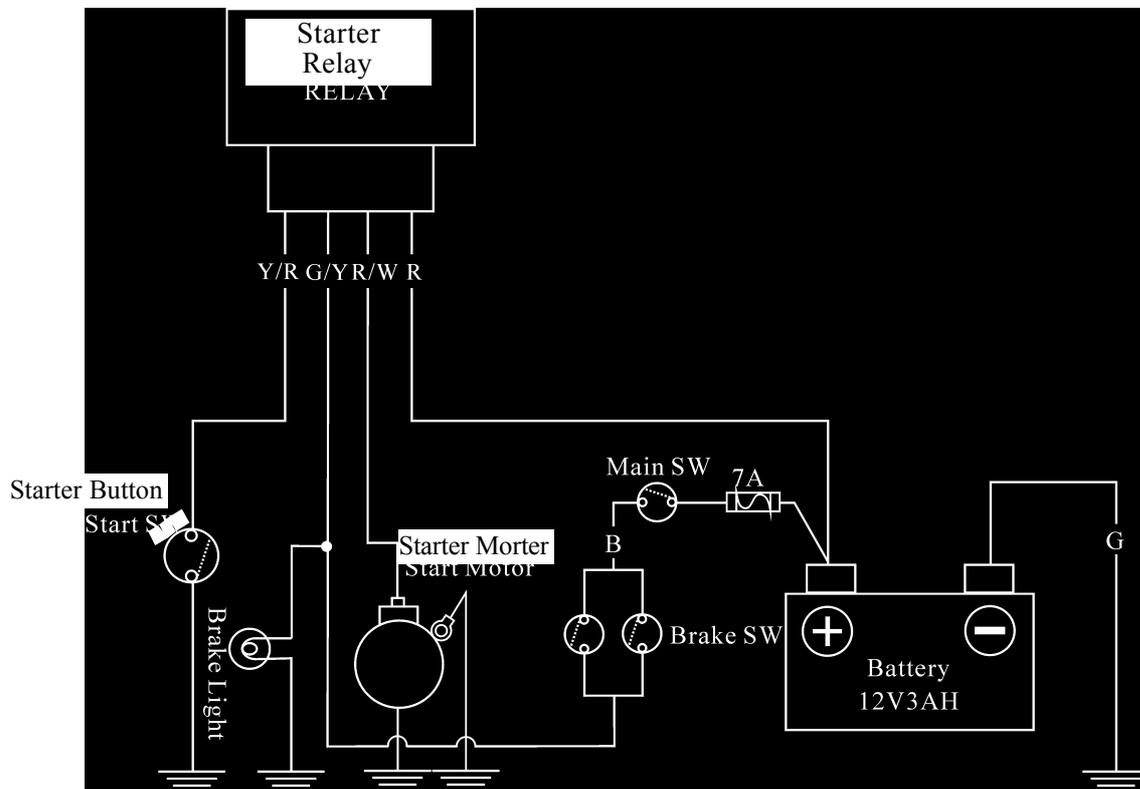
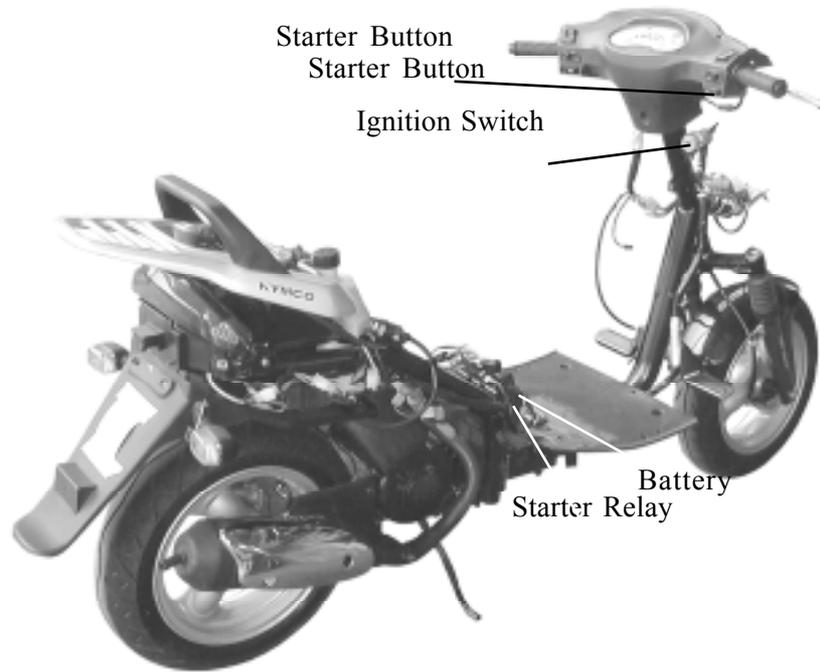
Use the x K Ω range for the Sanwa Tester.
 Use the x 100 Ω range for the Kowa Tester.

Unit: K Ω

| Probe [⊕] (-)Probe | Black/ Yellow | Black/ Red | Black/ White | Blue/ Yellow | Green |
|--------------------------------|------------------|---------------|-----------------|-----------------|----------|
| Black/ Yellow | | ∞ | ∞ | ∞ | ∞ |
| Black/ Red | ∞ | | 1~10 | ∞ | ∞ |
| Black/ White | ∞ | ∞ | | ∞ | ∞ |
| Blue/ Yellow | ∞ | 3~40 | 80~120 | | 10~30 |
| Green | ∞ | 2~10 | 10~30 | ∞ | |

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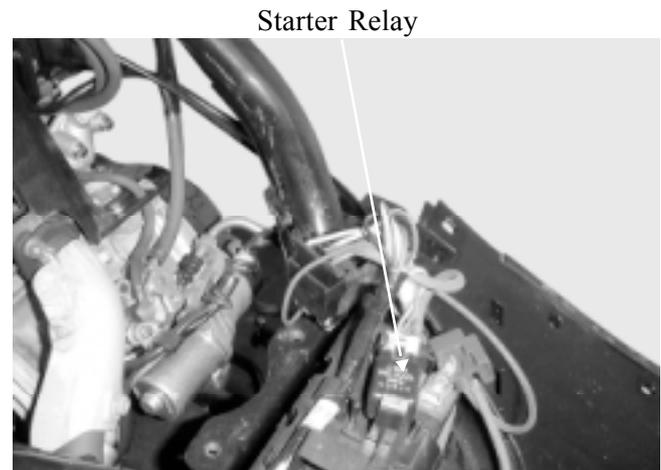
Starting System



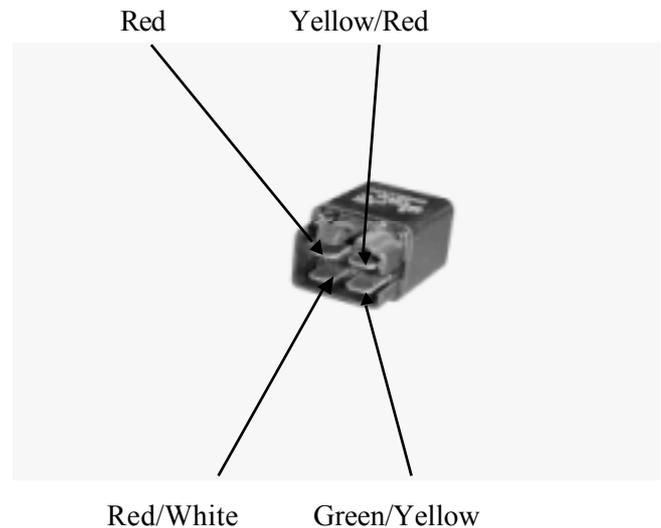
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STARTER RELAY INSPECTION

Remove the battery cover.
Disconnect the starter relay coupler and then remove the starter relay.



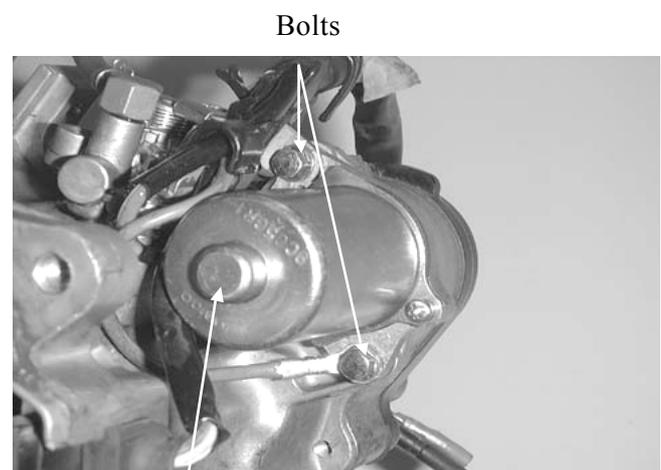
Connect the starter relay green/yellow terminal to the 12V battery positive (+) terminal and the relay yellow/red terminal to the battery negative (-) terminal. Check for continuity between the starter relay red and red/white terminals. The relay is normal if there is continuity.



STARTER MOTOR REMOVAL

Disconnect the starter motor cable.
Remove the two bolts attaching the starter motor and remove the starter motor.

The installation sequence is the reverse of removal.



Starter Motor

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STARTER MOTOR INSPECTION

Connect a battery across the starter motor and check for its operation.

