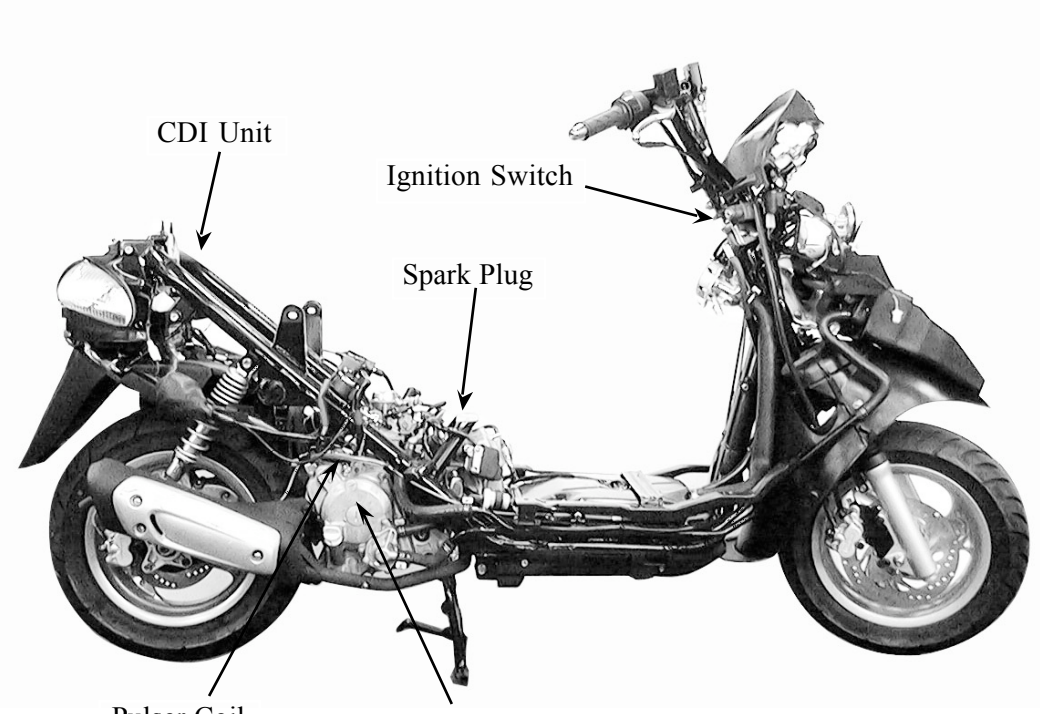
17

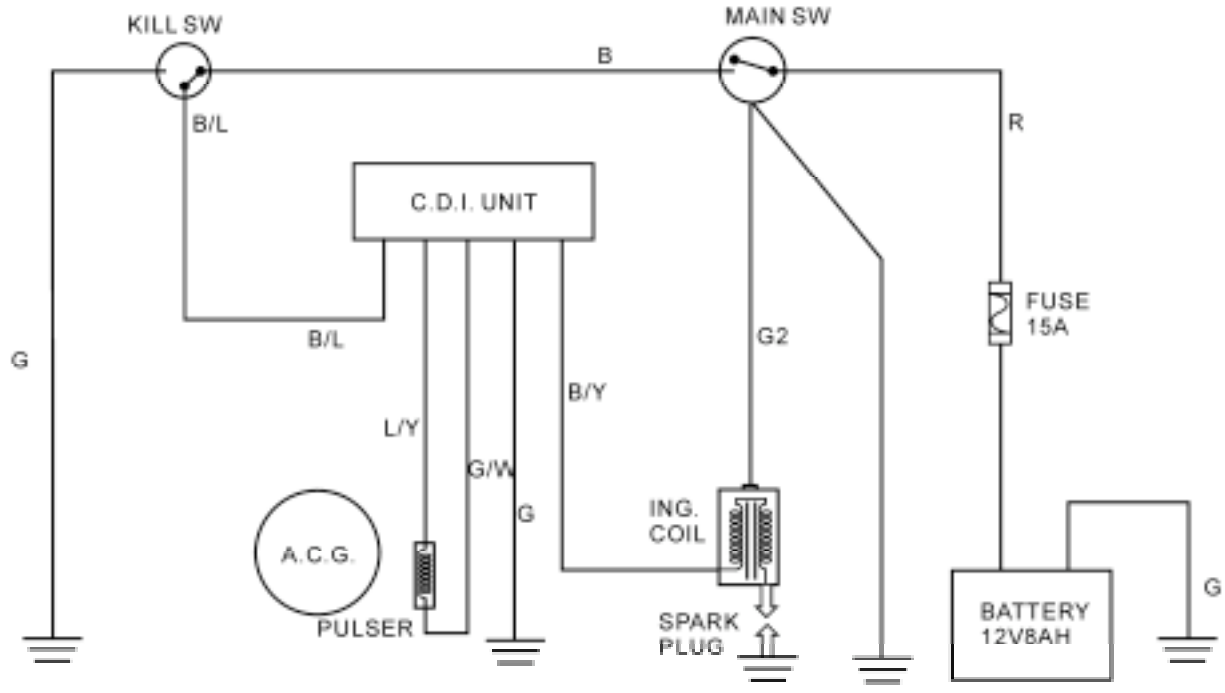
IGNITION SYSTEM

17. IGNITION SYSTEM

IGNITION SYSTEM LAYOUT



IGNITION CIRCUIT



SERVICE INFORMATION

GENERAL INSTRUCTIONS

- Check the ignition system according to the sequence specified in the Troubleshooting. (⇨1-28)
- The ignition system adopts CDI unit and the ignition timing cannot be adjusted.
- If the timing is incorrect, inspect the CDI unit and A.C. generator and replace any faulty parts. Inspect the CDI unit with a CDI tester
- Loose connector and poor wire connection are the main causes of faulty ignition system. Check each connector before operation.
- Use of spark plug with improper heat range is the main cause of poor engine performance.
- The inspections in this section are focused on maximum voltage. The inspection of ignition coil resistance is also described in this section.
- Inspect the ignition switch according to the continuity table specified in page 20-3.
- Inspect the spark plug referring to Section 3.
- Remove the A.C. generator and pulser coil referring to Section 10.

SPECIFICATIONS

Item			Standard
Spark plug	Standard type		NGK DP7EA9
	Hot type		NGK DP6EA9
	Cold type		NGK DP8EA9
Spark plug gap			0.8_ 1.0mm
Ignition timing	"F" mark Full advance		BTDC 10°±3° BTDC 27°
Ignition coil resistance (20℃)	Primary coil		0.16_ 0.20Ω
	Secondary coil	without plug cap	3.6_ 4.6KΩ
		with plug cap	7.6_ 8.6KΩ
Pulser coil resistance (20℃)			50_ 170Ω
Exciter coil resistance (20℃)			50_ 350Ω
Ignition coil primary side max. voltage			244V
Pulser coil max. voltage			10.5V
Exciter coil max. voltage			244V

TESTING INSTRUMENT

Electric tester

TROUBLESHOOTING

No spark at plug

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

Engine starts but turns poorly

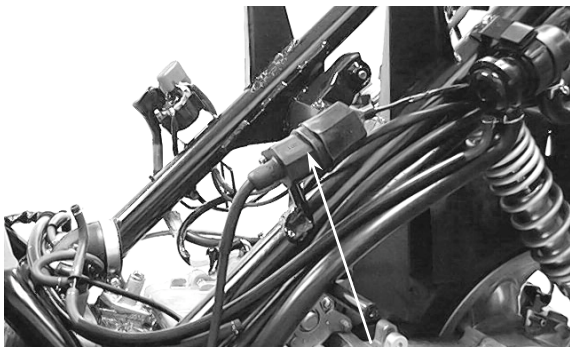
- Ignition primary circuit
  - –Faulty ignition coil
  - –Poorly connected wire or connector
  - –Poorly contacted ignition switch
- Ignition secondary circuit
  - –Faulty ignition coil
  - –Faulty spark plug
  - –Faulty high-tension wire
  - –Poorly insulated plug cap
- Improper ignition timing
  - –Faulty A.C. generator
  - –Stator not installed properly
  - –Faulty CDI unit

SPARK PLUG

For spark plug inspection and adjustment, refer to page 3-5.

IGNITION COIL INSPECTION

Remove the seat and met-in box. (⇨2-3)
Remove the ignition coil



Ignition Coil

IGNITION COIL PERFORMANCE TEST

Test the ignition coil using a CDI tester.

✱ Correctly operate the CDI tester following the manufacturer's instructions.

When there is no spark at the spark plug, replace the ignition coil with a new one.

Ignition Coil

IGNITION COIL CONTINUITY TEST

Inspect the continuity of the ignition coil, primary coil and secondary coil.

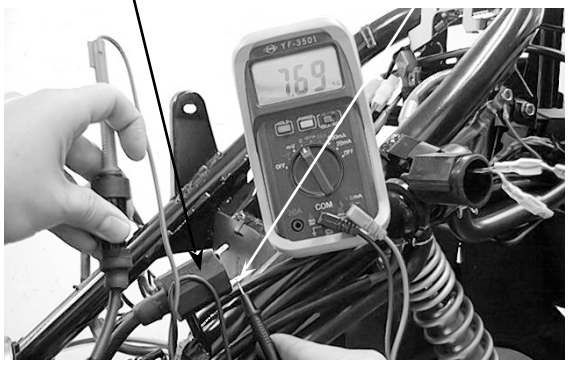
✱ This is a general test. Accurate ignition coil test must be performed with a CDI tester.

Measure the ignition coil resistances at 20℃ .

Primary coil	0.16_ 0.20Ω
Secondary coil without plug cap	3.4_ 4.6KΩ
Secondary coil with plug cap	7.6_ 8.6KΩ

Ignition Coil Primary Coil

Ignition Coil Secondary Coil



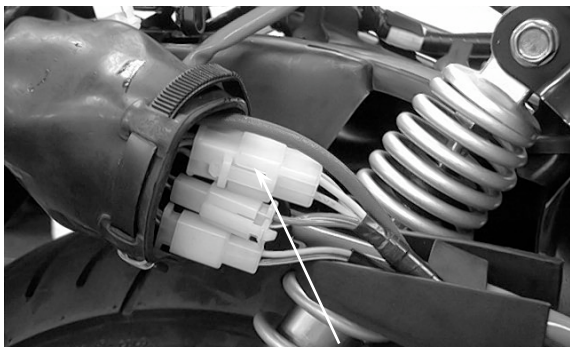
A.C. GENERATOR INSPECTION

EXCITER COIL/PULSER COIL INSPECTION

✱ This test is performed with the stator installed in the engine.

Remove the frame right cover. (⇨2-4)
Disconnect the A.C. generator connector.
Measure the exciter coil resistance between the black/red wire terminal and ground.

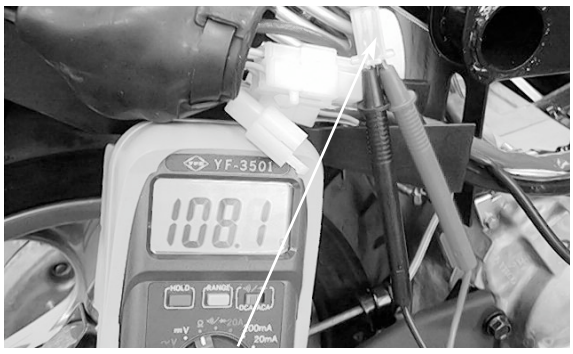
Black/red_	Ground	50_	350Ω


A.C. Generator Connector

✱ Measure the resistance in the XΩ range.

For A.C. generator removal/installation, refer to pages 10-3 and 10-6.
Disconnect the pulser coil wire coupler.
Measure the pulser coil resistance between the blue/white and green/white wire terminals.

Blue/white_	Green/white	50_	170Ω



Pulser Coil Wire Coupler

For pulser coil replacement, refer to pages 10-3 and 10-6.

CDI UNIT INSPECTION

Remove the met-in box. (⇨2-3)
Disconnect the CDI coupler and remove the CDI unit.
Inspect the CDI unit performance using the CDI tester.

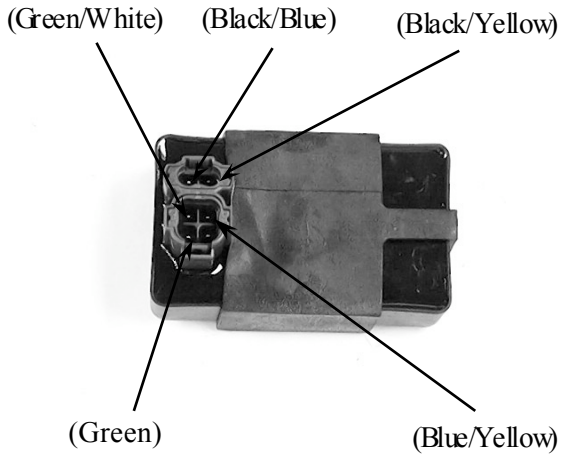
✱ Correctly operate the CDI tester following the manufacturer‘s instructions.

Connect the CDI unit to the CDI tester special coupler (KB7). Adjust the CDI tester switch range.

Switch	Good CDI	Faulty CDI
1. OFF	No spark	——
2. P	↑	——
3. EXT	↑	Good spark
4. ON1	Good spark	No spark
5. ON2	Good spark	No spark

RESISTANCE INSPECTION

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



✱
- Due to the semiconductor in circuit, it is necessary to use a specified tester for accurate testing. Use of an improper tester in an improper range may give false readings.
- Use a Sanwa Electric Tester (07308-0020000) or Kowa Electric Tester (TH-5H).
- In this table, "Needle swings then returns" indicates that there is a charging current applied to a condenser. The needle will then remain at "∞ " unless the condenser is discharged.

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

Unit: KΩ

(+)Probe / (-)Probe	(Black/Blue)	(Black/Yellow)	(Green/White)	(Blue/Yellow)	(Green)
(Black/Blue)		150~280	20~30	20~30	∞
(Black/Yellow)	75~100		50~70	50~70	∞
(Green/White)	7~10	50~70			∞
(Blue/Yellow)	7~10	50~70			∞
(Green)	∞	∞	∞	∞	

Different data from different supplier.