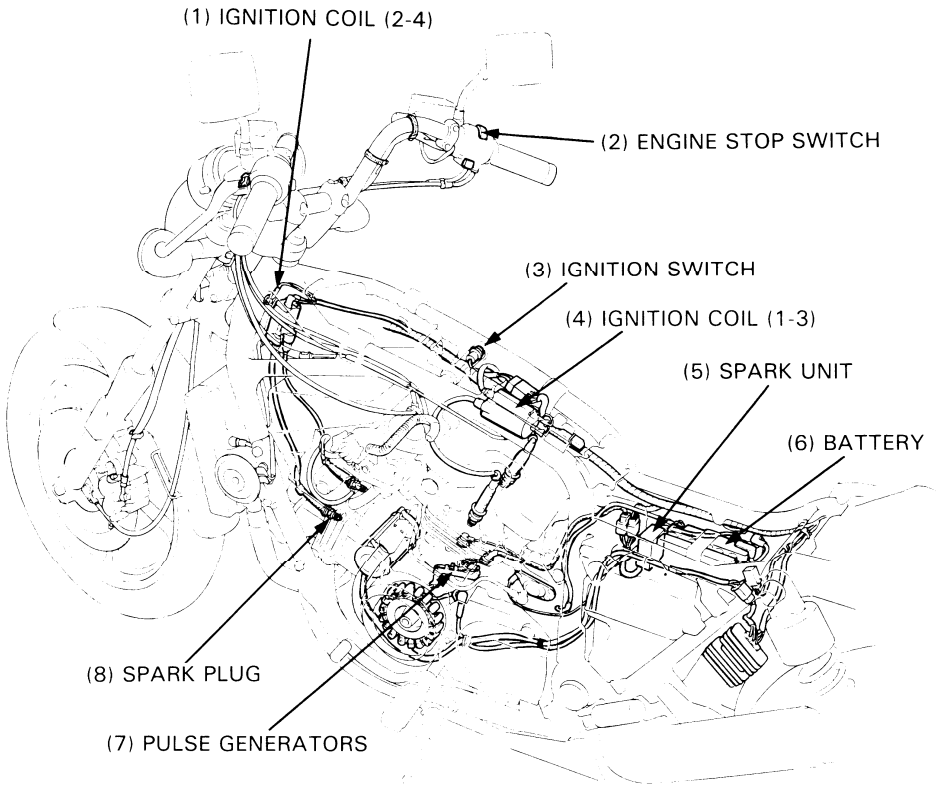
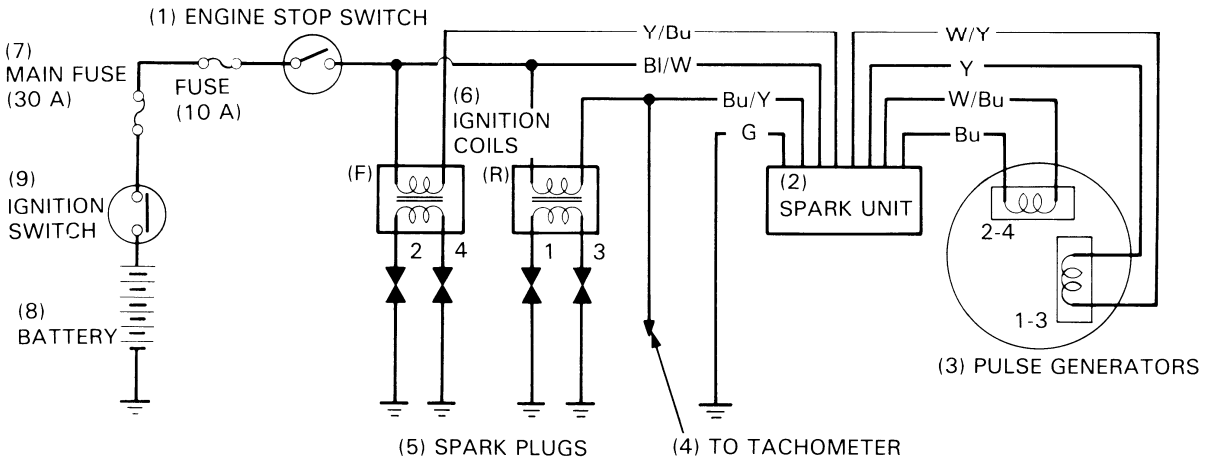


SYSTEM DIAGRAM



17. IGNITION SYSTEM

SERVICE INFORMATION

GENERAL

- A factory-set spark unit is used and it cannot be adjusted. If the ignition timing is incorrect, inspect the spark unit and pulse generators and replace any faulty parts.
- For spark plug inspection, refer to page 3-6.
- For alternator removal, refer to section 8.
- For pulse generator removal, refer to section 7.
- A continuity check can usually be made without removing the parts from the motorcycle by simply disconnecting the wires and using a continuity tester or ohmmeter at the terminals.

SPECIFICATIONS

ITEM			STANDARD	
			ND	NGK
Spark plug	Standard		X24EPR–U9	DPR8EA–9
	For cold climate below 5°C (41°F)		X22EPR–U9	DPR7EA–9
	For extended high speed driving		X27EPR–U9	DPR9EA–9
Spark plug gap			0.8–0.9 mm (0.031–0.035 in)	
Ignition coil resistance	Primary coil		2.6–3.2 Ω	
	Secondary coil	with plug cap	21–29 kΩ	
		without plug cap	13–17 kΩ	
Pulse generator resistance			450–550 Ω	
Ignition timing		"F" mark	15° BTDC at 1,200 rpm	
		Full advance	40° BTDC at 3,500 ± 100 rpm	

TOOL

Circuit tester (SANWA)	07308–0020000
or	
Circuit tester (KOWA)	TH–5H–1 or TH–5H–2
or	
Digital multimeter	KS–AHM–32–003 (U.S.A. only)

17

TROUBLESHOOTING

The ignition system has two sub-systems: one for the No. 1 cylinder and one for the No. 2 cylinder.
Determine which sub-system is faulty, then proceed to the detailed tests below.

No spark at all plugs
- Engine stop switch OFF
- Faulty engine stop switch
- Failed the ignition fuse (10 A)
- Faulty spark unit
- Faulty ignition switch
- Faulty pulse generator
- Poorly connected, broken or shorted wires
  - Between sub-fuse and engine stop switch or ignition switch
  - Between engine stop switch and spark unit or ignition coils (B/W wire)
  - Between spark unit and body ground wire (G wire)

No spark at either spark group (No. 1-3 or 2-4)
- Faulty pulse generator
- Faulty ignition coil
- Faulty spark unit
- Poorly connected, broken or shorted wire
  - Between pulse generator and spark unit
  - Between spark unit and ignition coil

No spark at one spark plug
- Faulty spark plug
- Faulty spark plug wire
- Faulty spark plug cap
- Loose or poorly connected spark plug wire
  - Between spark plug wire and ignition coil
  - Between spark plug wire and plug cap

Timing advance incorrect
- Faulty spark unit
- Faulty pulse generator
- Incorrect starter clutch installation

SPARK UNIT INSPECTION

NOTE

- By inspecting the wires, spark unit condition can be determined.

Remove the seats and fuel tank (page 4-17), then remove the right side cover and the frame covers.

Remove the spark unit wire connectors from the connector holder plate at the battery side, and disconnect the spark unit wire connectors.

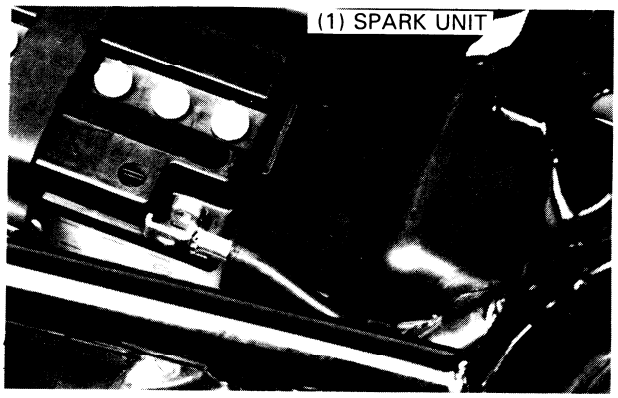
Inspect the items listed in the chart below by measuring resistance or voltage at each of the wire harness terminals specified.

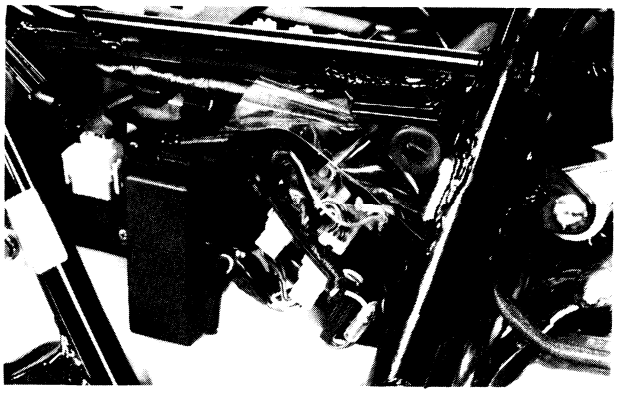
(at 20°C/68°F)

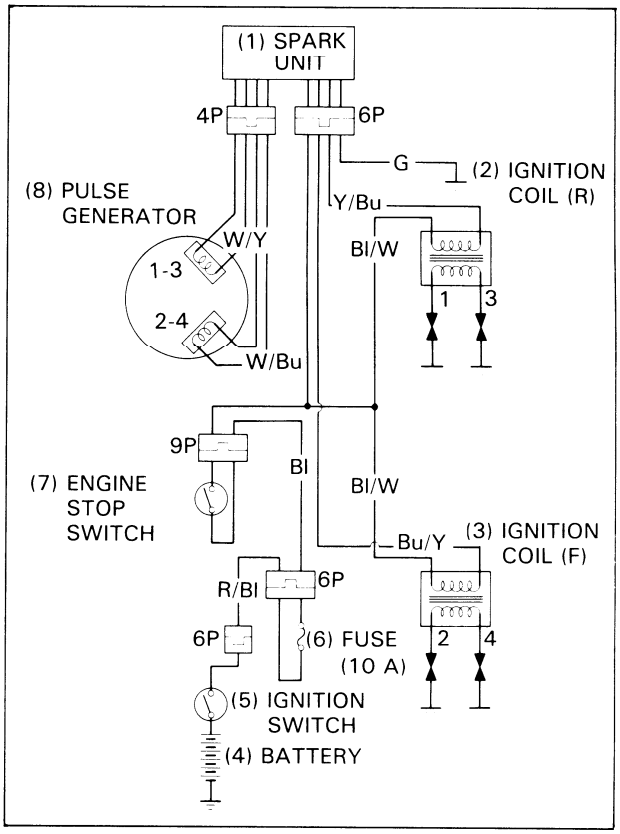
Item		Measure at:	Standard
Ignition switch and engine stop switch		Black/White—Green	There should be no continuity with the ignition switch ON and engine stop switch at RUN
Pulse generator		Blue—Yellow/Blue Yellow—White/Yellow	450—550 Ω
Ignition coil (primary)	Front	Black/White—Blue/Yellow	2.6—3.2 Ω
	Rear	Black/White—Yellow/Blue	
Secondary ignition coil (with cap)	Front	No. 2 Spark plug cap—No.4 spark plug cap	21—29 kΩ
	Rear	No. 1 spark plug cap—No. 3 spark plug cap	
Secondary ignition coil (without spark plug wire)	Front	No. 2 terminal—No. 4 terminal	13—17 kΩ
	Rear	No. 1 terminal—No. 3 terminal	

Not as specified, first check the related wiring for an open circuit and the connector for loose or poor contact.
If the wire harness is normal, check the circuit component itself (see page 17-4 to 17-5).

Replace the spark unit if the above items check out alright.



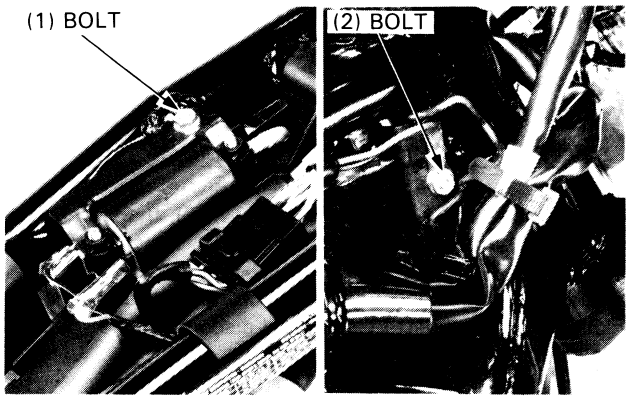




IGNITION COIL

REMOVAL

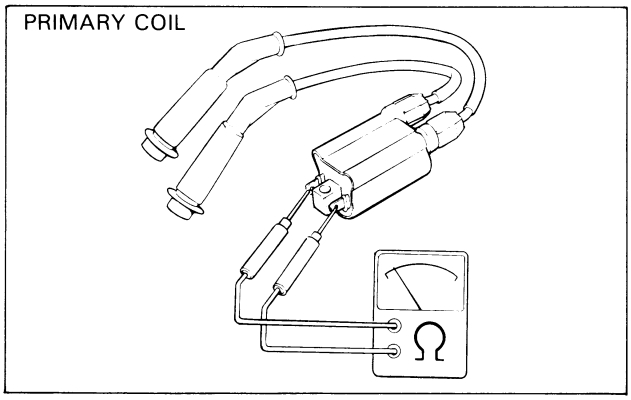
Remove the seats and fuel tank, then remove the frame covers.
Disconnect the ignition coil wire leads.
Remove the coils by removing the attaching bolts.



INSPECTION

Primary circuit
Measure the primary coil resistance between the Black/White and Yellow/Blue for the No. 1—3 coil or Black/White and Blue/Yellow for the 2—4 coil.

STANDARD: 2.6—3.2 Ω (20°C/68°F)

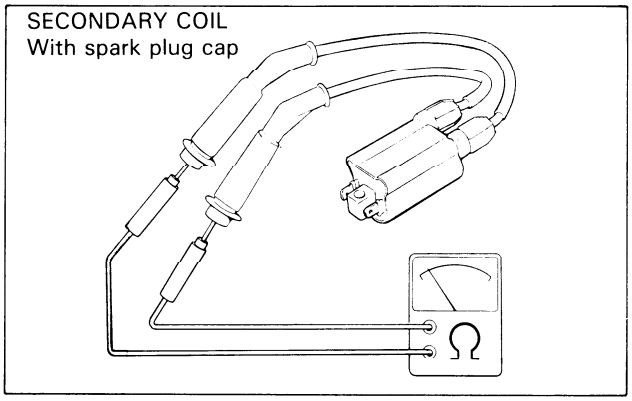


Secondary circuit
Measure the secondary coil resistance with with the spark plug caps place.

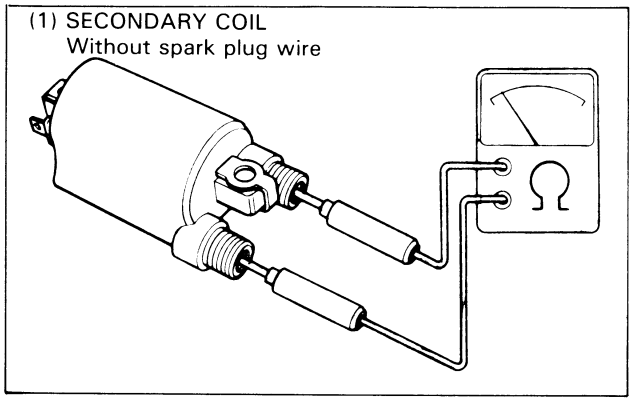
With spark plug cap:
STANDARD: 21—29 kΩ (20°C/68°F)

If the resistance is not as specified, inspect the secondary coil with the spark plug wire removed, to confirm whether the coil or plug cap is faulty.

Without spark plug wire:
STANDARD: 13—17 kΩ (20°C/68°F)



— If the measurement does not fall within the standard resistance, replace the ignition coil and re-test.
— If the measurement is within the standard resistance, check the spark plug wires for open circuit, and repair or replace faulty parts.



PULSE GENERATORS

CIRCUIT INSPECTION

NOTE

- This test can be performed with the pulse generator(s) installed in the engine.

Remove the right side cover.
Disconnect the pulse generator connector and measure the coil resistance.

Between white/yellow and yellow leads (1.3 cylinder).
Between white/blue and blue leads (2.4 cylinder).

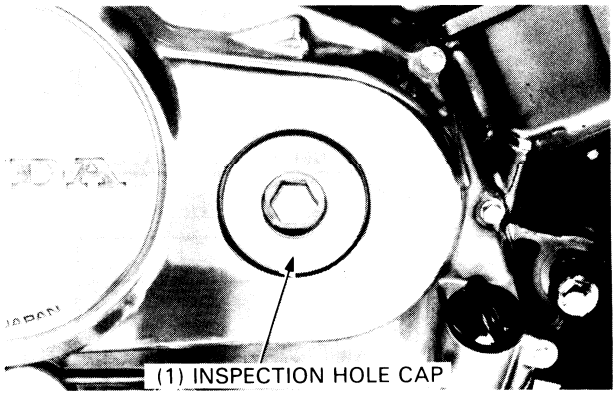
STANDARD: 450—550 Ω (20°C/68°F)

If resistance is not correct, for pulse generator coil replacement, refer to section 7.
Recheck the ignition timing.

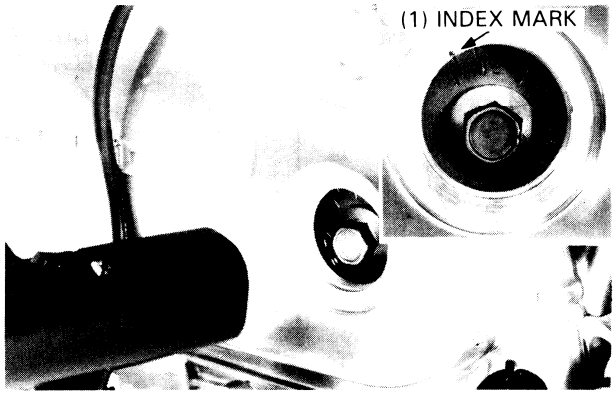
IGNITION TIMING

NOTE

- The ignition system is transistorized and cannot be adjusted. If the ignition timing is incorrect, check the ignition coils, pulse generators and wiring. Replace parts that are required.
- If the pulse generators, ignition coils and wiring are good and the ignition timing is not within specification, replace the spark units with new ones and recheck the ignition timing.



Warm up the engine.
Connect the timing light to the high tension wire of the No. 2 or 4 cylinder.
Remove the inspection hole cap from the right crankcase cover.
Start the engine and check that the "F" mark (adjacent "2—4F" mark) aligns with the index mark on the right crankcase cover at 1,200 rpm.



Connect the timing light to the high tension wire of the No.1 or 3 cylinder.
Start the engine and check that the "F" mark (adjacent to "1—3F" mark) aligns with the index mark on the right crankcase cover at 1,200 rpm.

The index mark is between the advance marks at 3,500 rpm.