

C.D.I. SYSTEM

FOR BOMBARDIER - ROTAX

EDITION: Dec.1986

NIPPONDENSO CO., LTD.

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EP/M6
Gk.86 12 06

2-5 PARTS INSPECTION PROCEDURE

Disconnect the connectors of each parts, and check the resistance or continuity between each terminals with a circuit tester.

[Note]

- Make sure that the circuit tester is accurate and the dry cells are good.
- Make sure that the circuit tester is adjusted in zero point after setting the selector switch.

Part name		Wire color	Resistance	Remarks			
Flywheel Generator	Low speed charging coil	B-BR	120-180 Ω	If tester pointer indicates: 0Ω --- Short $\infty\Omega$ --- Open			
	High speed charging coil	BR-BW	2.8-4.2 Ω				
	Lighting coil	Y-YB	0.21-0.31 Ω				
Ignition coil	Primary winding	B-WL	0.23-0.43 Ω				
	Secondary winding	H/T wire -H/T wire	2.45-4.55k Ω				
	Insulation	WL-Core WL-H/T wire	$\infty \Omega$				
Engine stop switch	Engine "Drive"	BY-BY	$\infty \Omega$				
	Engine "Stop"	BY-BY	0 Ω				
Control unit	Tester - wire (Black)				Use "x1k Ω " or "x10k Ω " range. o----Continuity (Tester pointer moves) x----Non continuity (Tester pointer does not move) Δ --Tester pointer may indicates low resistance		
	Tester - wire (Red)		BW	BR		B	WL
		BW	—	x		o	o
		BR	x	—		o	o
		B	Δ	x		—	o
WL	x	x	x	—			

CAPACITOR DISCHARGE IGNITION SYSTEM

1. INTRODUCTION

The NIPPONDENSO Capacitor Discharge Ignition (C.D.I.) System consists of a flywheel generator, a control unit and an ignition coil. The flywheel generator which is outer rotor type with 4-pole permanent magnets, supplies two ignition signals per revolution and electric energy into the control unit. The stator of flywheel generator embodies two capacitor-charging coils and a lighting coil.

The control unit incorporates a storage capacitor, a switching circuit, a S.C.R. (Silicon Controlled Rectifier) and rectifiers. The rectifier D_1 is connected in parallel with the primary winding of ignition coil to extend the spark arc duration time. Each element in the control unit is molded in the case with resin. Therefore the control unit is superior for vibration-resistance and water-proofness.

The molded ignition coil is a kind of transformer which boots the primary voltage and induces the higher voltage in the secondary winding to simultaneously make sparks at both spark plug gaps.

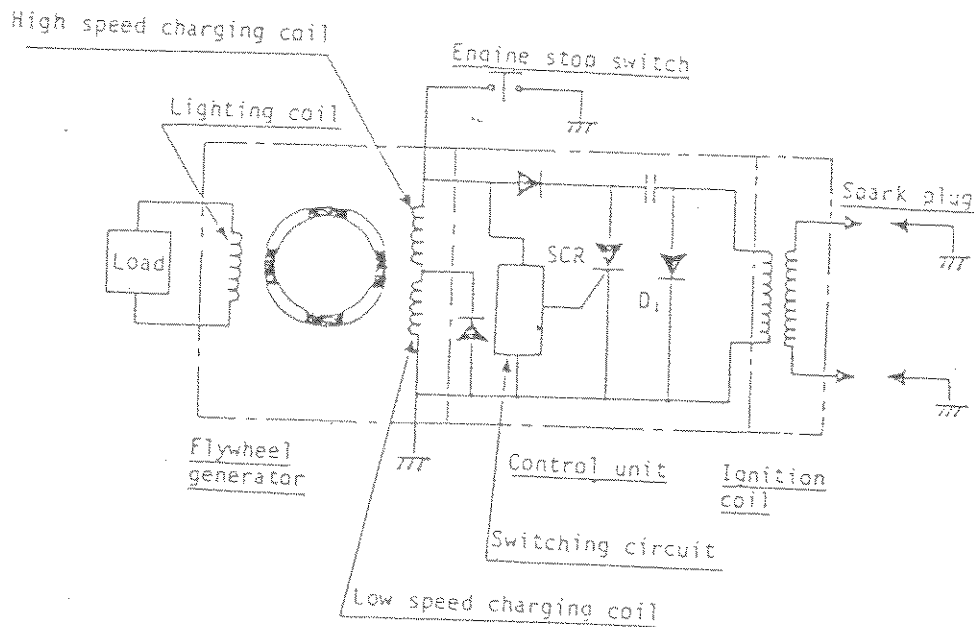


Fig-1 Circuit of C.D.I. system

2. TROUBLE SHOOTING

2-1 PRECAUTION

- a) Do not disconnect or short any wire during the system operation.
- b) Do not give a mechanical shock to the control unit.
- c) Do not ply the flywheel rotor when removing. Use the suitable puller to prevent the flywheel rotor from damaging.

2-2 Block diagram

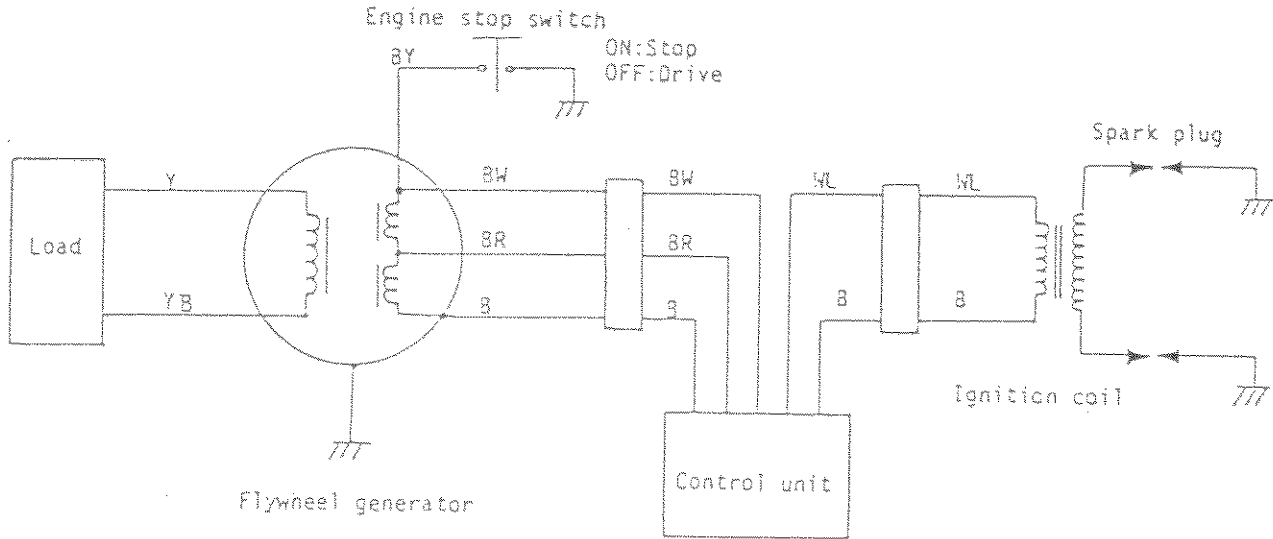


Fig.2 Block diagram

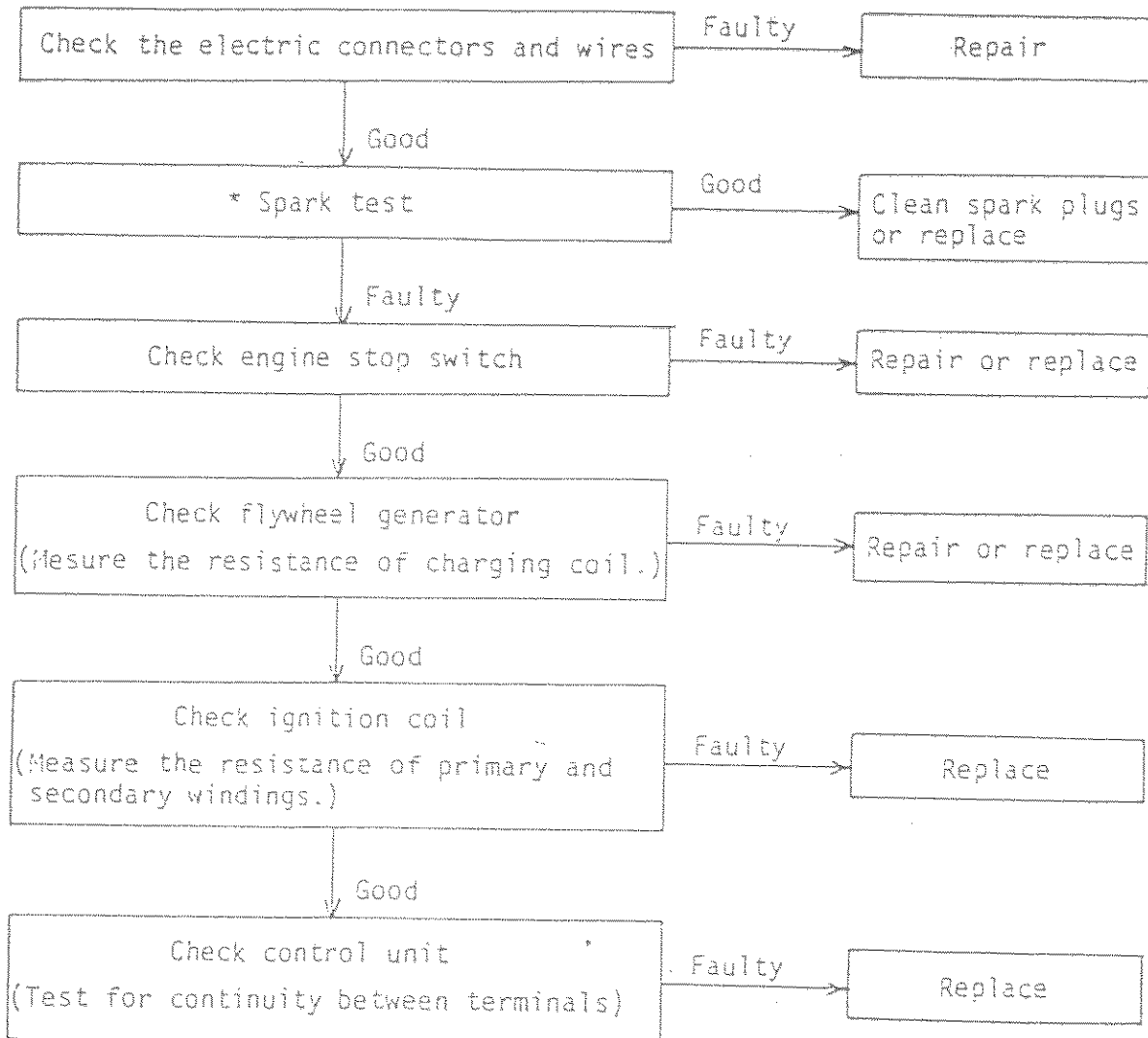
[Note]

Leadwire color is as follows:

Symbol	Color
BR	Black-Red striped
BW	Black-White striped
BY	Black-Yellow striped
WL	White-Blue striped
B	Black
Y	Yellow
YB	Yellow-Black striped

2-3 PROCEDURES FOR CHECKING SYSTEM

If engine trouble is considered to be caused by any defect in the CDI system, check the system with the following steps.



* SPARK TEST

- 1) Disconnect the high-tension wire from the spark plug and allow a gap of 5 or 6 mm between the wire end and the engine body.
- 2) Rotate the engine, and if sparks take place, the C.D.I system is considered to be in good condition.

2-4 CAUSES AND SIMPTOMS OF TROUBLE

Flywheel and Generator

Cause Simptom	Flywheel generator			Ignition coil	
	Low speed charging coil	High speed charging coil	Lighting coil	Primary winding	Secondary winding
Engine does not start	Winding open	Winding open		Winding open or layer short	Winding open or layer short
Engine stalls at low speed	Winding layer short				
Irregularity at low speed	Winding layer short			Winding layer short	Winding layer short
Irregularity at high speed		Winding layer short			Winding layer short
Load is not charged			Winding open		

[Note]

If engine does not start or stop, check the engine stop switch before these inspection.

If defective conditins are not find by these inspection, check the control unit internal circuit.

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Ignition coil	Primary winding	B-WL	0,23 - 0,43 Ω	part no. 866 605 part no. 866 607			
	Secondary winding	H/T wire -H/T wire	2,45 - 4,55kΩ				
	Secondary winding	H/T wire -H/T wire	3,85 - 7,15kΩ				
	Insulation	WL-Core WL-H/T wire	∞ Ω				
Engine stop switch	Engine "Drive"	BY-BY	∞ Ω				
	Engine "Stop"	BY-BY	0 Ω				
Control Unit	Tester - wire (red+)	Tester - wire (black)				Use "x1kΩ" or "x10kΩ" range. 0---Continuity (Tester pointer moves) X---Non continuity (Tester pointer does not move) Δ---Tester pointer may indicates low resistance	
			BW	BR	B		WL
		BW	--	X	0		0
		BR	X	--	0		0
		B	Δ	X	--		0
WL	X	X	X	—			