



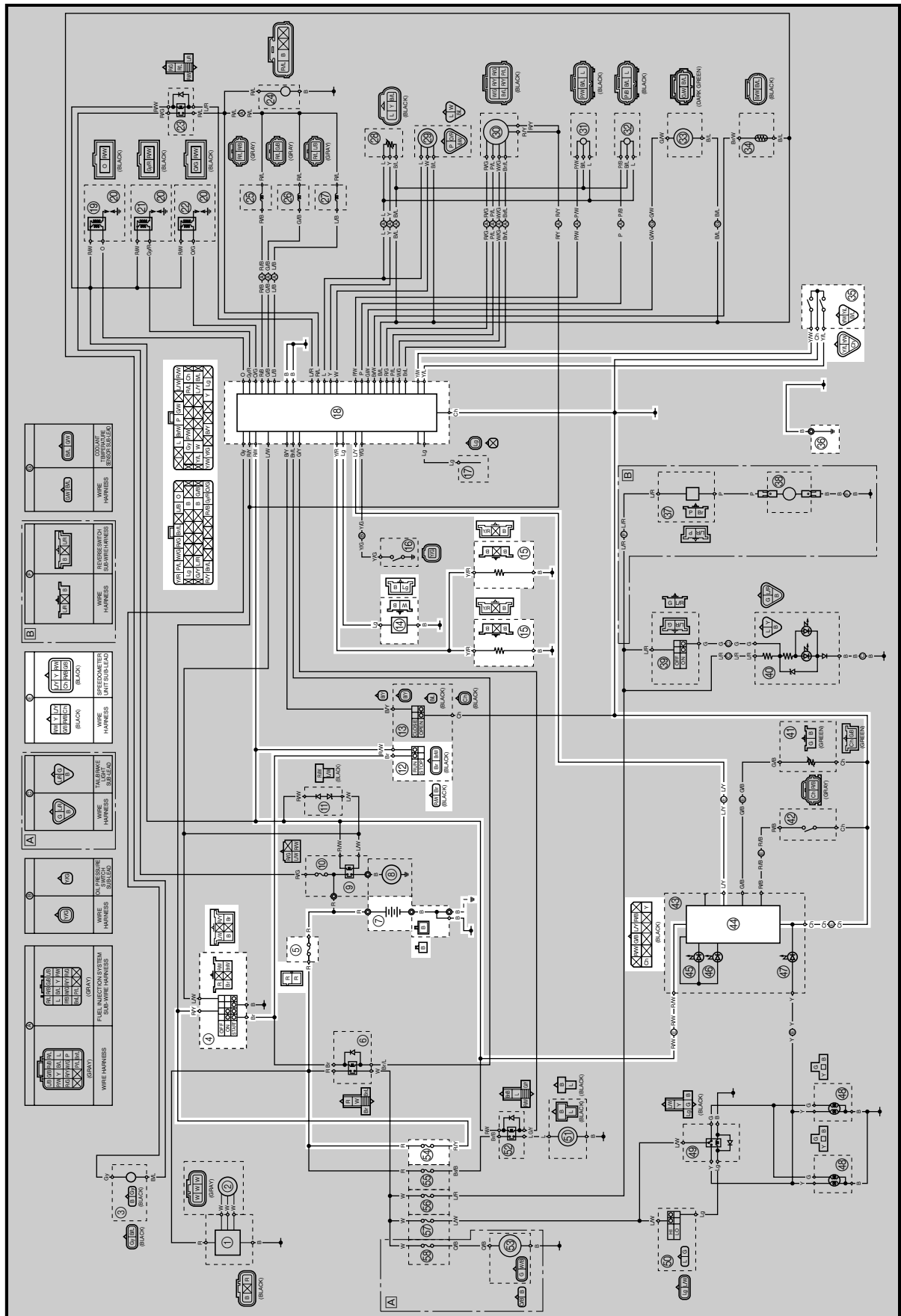
## ELECTRICAL

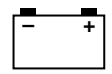
Model	FX10/FX10RT/FX10RTR/FX10RTRA/FX10MT/FX10MTR/ FX10MTRA
Voltage	12 V
Ignition system: Ignition timing (B.T.D.C.) Advanced type	5.0° at 1,500 r/min Digital type
Ignition coil: Model/Manufacturer Ignition spark gap Primary coil resistance Secondary coil resistance	F6T558/MITSUBISHI 6.0 mm (0.24 in) 1.19 ~ 1.61 $\Omega$ at 20 °C (68 °F) 8.5 ~ 11.5 k $\Omega$ at 20 °C (68 °F)
Charging system: Type Nominal output	AC magneto 14 V/less than 35 A at 5,000 r/min
DC-T.C.I.: Magneto model/Manufacturer Standard Stator coil resistance (color code) ECU model/Manufacturer	F074T39771/MITSUBISHI 14 V 32.8 A, 460 W at 5,000 r/min 0.22 ~ 0.26 $\Omega$ at 20 °C (68 °F) (White – White) F8T84071/MITSUBISHI (FX10/FX10RT/FX10RTR/ FX10RTRA) F8T84073/MITSUBISHI (FX10MT/FX10MTR/FX10MTRA)
Rectifier/regulator: Type Model/Manufacturer No load regulated voltage (DC) Capacity (DC) Withstand voltage	Short circuit type FH012AA/SHINDENGEN 14.2 ~ 14.8 V 50.0 A 40.0 V
Battery: Manufacturer Model Voltage, capacity Ten hour rate amperage	YUASA YTX20L-BS 12 V, 18.0 Ah 1.8 A
Electric starter system: Type	Constant mesh type
Starter motor: Model/Manufacturer Output Armature coil resistance Continuity check Insulation check Brush Overall length <Wear limit> Spring pressure Commutator diameter <Wear limit> Mica undercut	8GL/YAMAHA 0.95 kW  0.0081 ~ 0.0099 $\Omega$ at 20 °C (68 °F) Above 1 M $\Omega$ at 20 °C (68 °F)  9.8 mm (0.39 in) 4.4 mm (0.17 in) 7.36 ~ 11.04 N (750 ~ 1,126 g, 26.49 ~ 39.74 oz) 28.0 mm (1.10 in) 27.0 mm (1.06 in) 1.0 mm (0.04 in)
Starter relay: Model/Manufacturer Amperage rating Coil resistance	MS5F-571/JIDECO 180 A 4.18 ~ 4.62 $\Omega$ at 20 °C (68 °F)



Model	FX10/FX10RT/FX10RTR/FX10RTRA/FX10MT/FX10MTR/ FX10MTRA
T.P.S. (throttle position sensor): Model/Manufacturer Resistance	8GL/ALPS 2.64 ~ 6.16 kΩ at 20 °C (68 °F) (Blue – Black/Blue)
Oil level switch: Model/Manufacturer	8GL/ASTI
Fuel sender: Model/Manufacturer Sender resistance (full) (empty)	8GL/NIPPON SEIKI 10 ~ 12 Ω at 20 °C (68 °F) 179 ~ 185 Ω at 20 °C (68 °F)
Fuel injection system relay: Model/Manufacturer Coil resistance	ACM33211 M11/MATSUSHITA 86.4 ~ 105.6 Ω
Headlight relay: Model/Manufacturer Coil resistance	G8HN-1C4T-DJ/OMRON 94.5 ~ 115.5 Ω at 20 °C (68 °F)
Grip warmer: Heater resistance (left) (right)	6.12 ~ 7.48 Ω at 20 °C (68 °F) (Black – Black) 6.12 ~ 7.48 Ω at 20 °C (68 °F) (Black – Black)
Thumb warmer: Heater resistance	36.99 ~ 45.21 Ω at 20 °C (68 °F) (White – Black)
Fuse: Main fuse Fuel injection system fuse Headlight fuse Signal fuse Ignition fuse Auxiliary DC jack fuse Radiator fan motor fuse Reserve fuse Reserve fuse Reserve fuse	40 A × 1 10 A × 1 20 A × 1 3 A × 1 20 A × 1 3 A × 1 (FX10MT/FX10MTR/FX10MTRA) 10 A × 1 20 A × 1 10 A × 2 3 A × 1
Coolant temperature sensor: Model/Manufacturer Resistance	8CC/MITSUBISHI 5.21 ~ 6.37 kΩ at 0 °C (32 °F) 0.290 ~ 0.354 kΩ at 80 °C (176 °F)
Speed sensor: Model/Manufacture	8FP/NIPPON SEIKI
Crankshaft position sensor: Model/Manufacture Resistance	8GL/YAMAHA 336 ~ 504 Ω at 20 °C (68 °F) (Gray – Black)
Intake air pressure sensor: Model/Manufacture	2CO/DENSO
Intake air temperature sensor: Model/Manufacture Resistance	8FP/MITSUBISHI 290 ~ 390 Ω at 80 °C (176 °F)

## GRIP WARMER SYSTEM CIRCUIT DIAGRAM

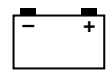




## GRIP WARMER SYSTEM

### CIRCUIT DIAGRAM

- ④ Main switch
- ⑤ Main fuse
- ⑦ Battery
- ⑫ Engine stop switch
- ⑭ Thumb warmer
- ⑮ Grip warmer
- ⑱ ECU (engine control unit)
- ⑳ Grip/thumb warmer adjustment switch
- ㉔ Frame ground
- ㉔ Multi-function meter
- ㉔ Ignition fuse

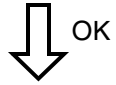


## TROUBLESHOOTING

## GRIP WARMER AND THUMB WARMER DO NOT OPERATE.

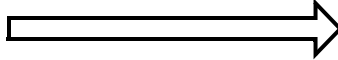
Check the main fuse and ignition fuse.

Refer to "FUSE INSPECTION" in CHAPTER 2.



OK

FAULTY



Replace the main fuse and/or ignition fuse.

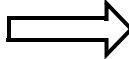
Check the battery.

Refer to "BATTERY INSPECTION" in CHAPTER 2.



OK

OUT OF SPECIFICATION



Replace or charge the battery.

Refer to "BATTERY INSPECTION" in CHAPTER 2.

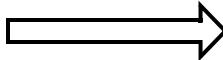
Check the engine stop switch and main switch.

Refer to "IGNITION SYSTEM".



OK

NO CONTINUITY



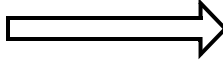
Replace the right handlebar switch and/or main switch.

Check the grip warmer and thumb warmer.



OK

NO CONTINUITY



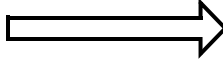
Replace the grip warmer and/or thumb warmer.

Check the grip/thumb warmer adjustment switch.



CORRECT

NO CONTINUITY



Replace the left handlebar switch.

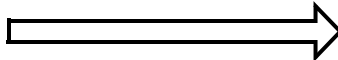
Check the grip warmer system wiring.

Refer to "CIRCUIT DIAGRAM".



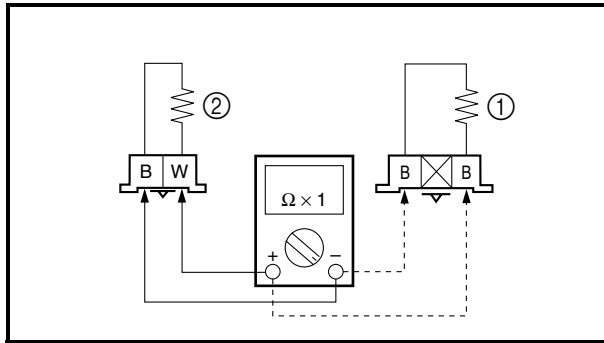
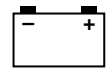
OK

FAULTY



Properly connect or repair the grip warmer system wiring.

Correct the connection and/or replace the speedometer unit and/or ECU.



### GRIP WARMER AND THUMB WARMER

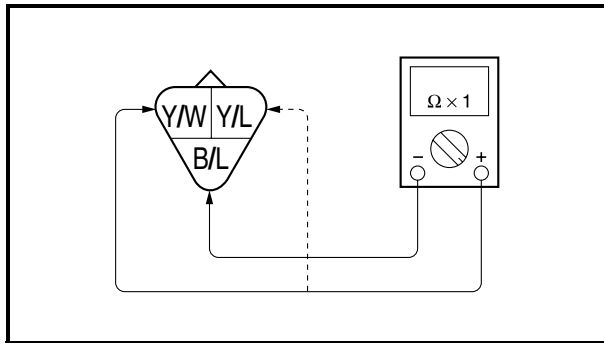
1. Disconnect:
  - Grip warmer couplers
  - Thumb warmer coupler
2. Connect:
  - Pocket tester  
(to the grip warmer couplers and/or thumb warmer coupler)
3. Measure:
  - Grip warmer resistance ①
  - Thumb warmer resistance ②

Out of specification → Replace the defective part(s).



**Grip warmer resistance:**  
6.12 ~ 7.48  $\Omega$  at 20 °C (68 °F)  
(Black – Black)

**Thumb warmer resistance:**  
36.99 ~ 45.21  $\Omega$  at 20 °C (68 °F)  
(White – Black)



### GRIP/THUMB WARMER ADJUSTMENT SWITCH

1. Disconnect:
  - Grip/thumb warmer adjustment switch coupler
2. Connect:
  - Pocket tester  
(to the grip/thumb warmer adjustment switch coupler)
3. Check:
  - Grip/thumb warmer adjustment switch continuity

Faulty → Replace the left handlebar switch.

Switch position	Color code		
	Y/W	B/L	Y/L
THUMB	○ — ○	○ — ○	
OFF			
GRIP		○ — ○	○ — ○

○ — ○ Continuity