GE FX503 G19/22



This sheet is provided to aid in the installation of your GE FX503 controller. Upon installation, you may encounter problems that may, or may not, be due to a faulty controller. The following steps must be taken to help diagnose a possible cart fault or faulty controller. An analog or digital volt ohm meter (VOM) will be needed to perform these checks.

WARRANTY WILL BE VOID

If These Steps are Not Performed Before Installing The Control

STEPS TO PERFORM ***BEFORE*** CONTROL INSTALLATION

CHECK MOTOR WINDINGS:

☐ Set your VOM to RESISTANCE (Ω).
☐ With your motor disconnected, measure A1 to A2. This must measure BETWEEN .3Ω and 1Ω.
☐ With your motor disconnected, measure F1 to F2. This must measure BETWEEN 1Ω and 2Ω.
☐ With your motor disconnected, measure A1 to F1. This must measure OPEN.
☐ With your motor disconnected, measure F1 to motor case. This must measure greater than 5MΩ.

CHECK MAIN SOLENOID:

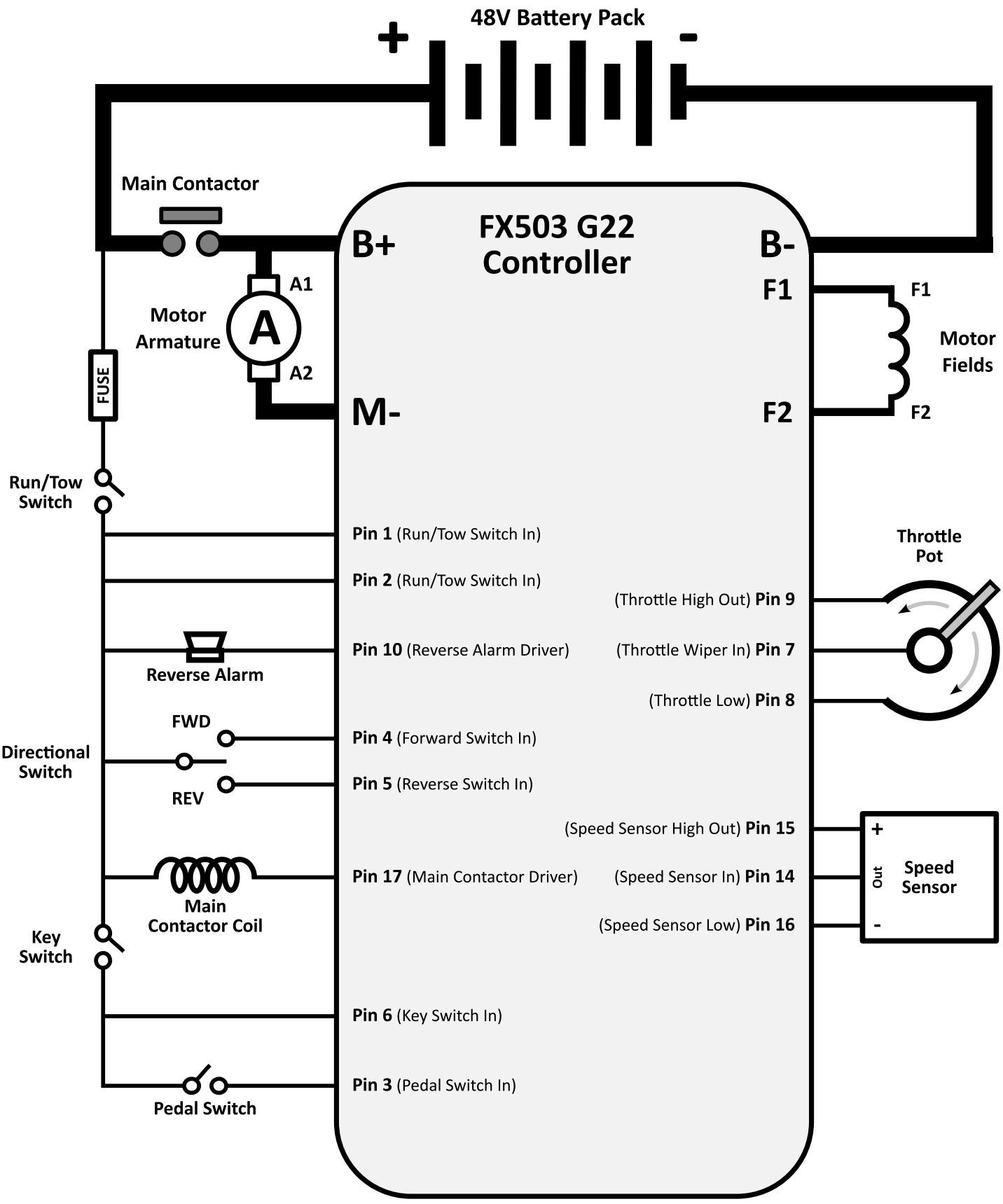
☐ Disconnect all wires from the main solenoid.
☐ Set your VOM to RESISTANCE (Ω).
☐ Measure the solenoid coil. This must measure NO LESS than 100Ω.
☐ Connect VOM leads to the main solenoid lugs.
☐ Attach jumpers from main battery positive and negative to the coil (small terminals).
☐ Meter must jump from infinity to LESS THAN .3Ω.

MOVING SOLENOID COIL PIN:

This FX503 controller uses a different pin for the solenoid coil connection to the controller than the original Yamaha controller. You will need to move the wire in position 11 of the 23-pin harness, to pin 17. For detailed steps, please see Sheet 4.

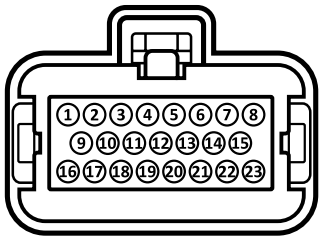
IF ANY OF THE ABOVE ITEMS ARE NOT WITHIN THE SPECIFICED RANGES THE CONTROLLER WILL FAIL. THESE ITEMS MUST BE CORRECTED BEFORE THE CONTROLLER IS INSTALLED OR WARRANTY WILL BE VOID.

It is recommended to replace your solenoid at the time of controller replacement. FSIP now stocks popular replacement White Rodgers solenoids for your convenience.



Controller Connectors

**viewed from wire side of connector*



FX503 G19/22 Troubleshooting Sequence

FOR SAFETY, ALWAYS LIFT THE DRIVE WHEELS OFF THE GROUND WHEN TROUBLESHOOTING!

ALL TESTS ARE CONDUCTED WITH RUN-TOW/MAINTENANCE SWITCH IN THE RUN. ALSO, THE CONNECTOR MUST BE ATTACHED TO THE CONTROLLER WHEN MAKING THESE CHECKS. YOU WILL NEED TO 'BACK PROBE' THE PINS FROM THE WIRE SIDE OF THE CONNECTOR. USE A PAPERCLIP IF NECESSARY.

Attach voltmeter negative (-) lead to main battery – for the following tests

Use the following sequence when checking individual pins (don't skip steps). **If you find a fault, do not move on to the next step until the fault is corrected:**

☐ Measure the voltage at the main battery positive post (let's call it Pack Voltage)

☐ **Pin 1 & 2** ***With Run/Tow Switch On***, must equal Pack Voltage
- *If not Pack Voltage, check wiring and Run/Tow Switch for an open condition.*

☐ **Pin 4** ***With F/R Switch in Forward,*** must equal Pack Voltage
- *If not Pack Voltage, check wiring and F/R Switch for an open condition.*

☐ **Pin 5** ***With F/R Switch in Reverse,*** must equal Pack Voltage
- *If not Pack Voltage, check wiring and F/R Switch for an open condition.*

☐ **Pin 10** ***With Direction Switch in Reverse***, must equal approximately 0V (and Reverse Alarm sounds)
- *If not approximately 0V, check wiring and Reverse Alarm for shorted/open condition. If Reverse Alarm tests good, controller may be defective.*

☐ **Pin 6** ***With Key Switch On,*** must equal Pack Voltage
- *If not Pack Voltage, check wiring and Key Switch for an open condition.*

☐ **Pin 3** ***With Pedal Down,*** must equal Pack Voltage
- *If not Pack Voltage, check wiring and Pedal Switch for an open condition.*

☐ **Pin 17** ***With Pedal Down (Contactor energized)***, must equal approximately 0V
- *If not approximately 0V and solenoid does not engage, check solenoid for open/short condition. If solenoid tests good, controller may be defective.*

☐ **Pin 9** ***Must equal approximately 4V***
- *If not approximately 4V, check wiring and Throttle Pot. If wiring and the Throttle Pot test good, controller may be defective.*

☐ **Pin 8** ***Must equal 0V***
- *If not 0V, check wiring and Throttle Pot. If wiring and the Throttle Pot test good, controller may be defective.*

☐ **Pin 7** ***With Pedal Up***, should read approximately 0.5V
- *If not approximately 0.5V, check wiring and Throttle Pot for shorted condition.*

☐ **Pin 7** ***With Pedal Fully Down***, must equal approximately 3.5V
- *If not approximately 3.5V, check wiring and Throttle Pot for open condition.*

☐ **Pin 15** ***Must equal approximately 12V***
- *If not approximately 12V, remove speed sensor to see if voltage recovers. If it does return replace speed sensor; if it does not return, check wiring.*

☐ **Pin 16** ***Must equal approximately 0V***
- *If not approximately 0V, check wiring and Speed Sensor. If wiring and the Speed sensor test good, controller may be defective.*

☐ **Pin 14** ***While slowly turning the drive wheel***, must toggle between 0V and approximately 4.5V
- *If not toggling, check wiring and if necessary, replace Speed Sensor and magnet.*

INSTRUCTIONS FOR MOVING PIN 11 TO PIN 17 ON THE 23 PIN CONNECTOR

Step 1:

Pry the Red Insert (from opposite sides of the connector) up and away from Black Housing of the connector (Figures 1 and 2).

Figure 1.

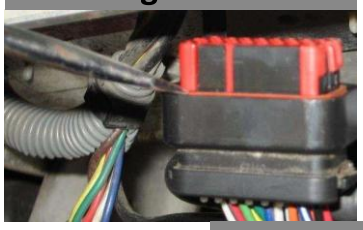


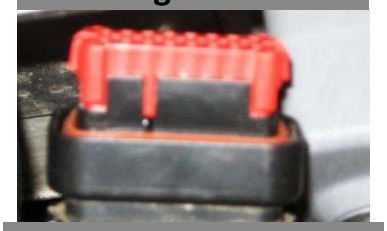
Figure 2.



Step 2:

The connector should then have the Red Tab Insert extended above the Black Housing of the connector, but not completely dislodged from the connector (Figure 3).

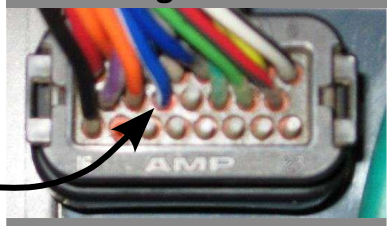
Figure 3.



Step 3:

With red tab insert extended from housing, pull the wire at Pin 11 from the backside of the connector. (Figure 4).

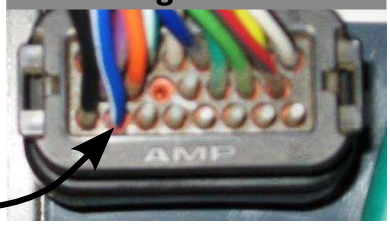
Figure 4.



Step 4:

After the Pin 11 wire is pulled from the harness, insert the wire into the open Pin 17 slot of the harness (Figure 5). Make sure the metallic part of the pin is level with the rest of the other pins looking at the front. You should then be able to push the front red part of the harness back into the correct position.

Figure 5.



FSIP Electronics also offers the following Technical Support options …

Troubleshooting Manuals / Codes
www.shop.fsip.biz/en/content/technical-documents

Live Tech Support Chat
www.shop.fsip.biz

Technical Support Forum
fsip.websitetoolbox.com

PRE-INSTALLATION INSTRUCTIONS MUST BE FOLLOWED OR WARRANTY WILL BE VOID

IMPORTANT!
GE FX503 G22
TROUBLESHOOTING INFORMATION
INCLUDED IN THIS PACKET

FSIP ELECTRONICS
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