GE FX302 G19/22



This sheet is provided to aid in the installation of your GE FX302 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:

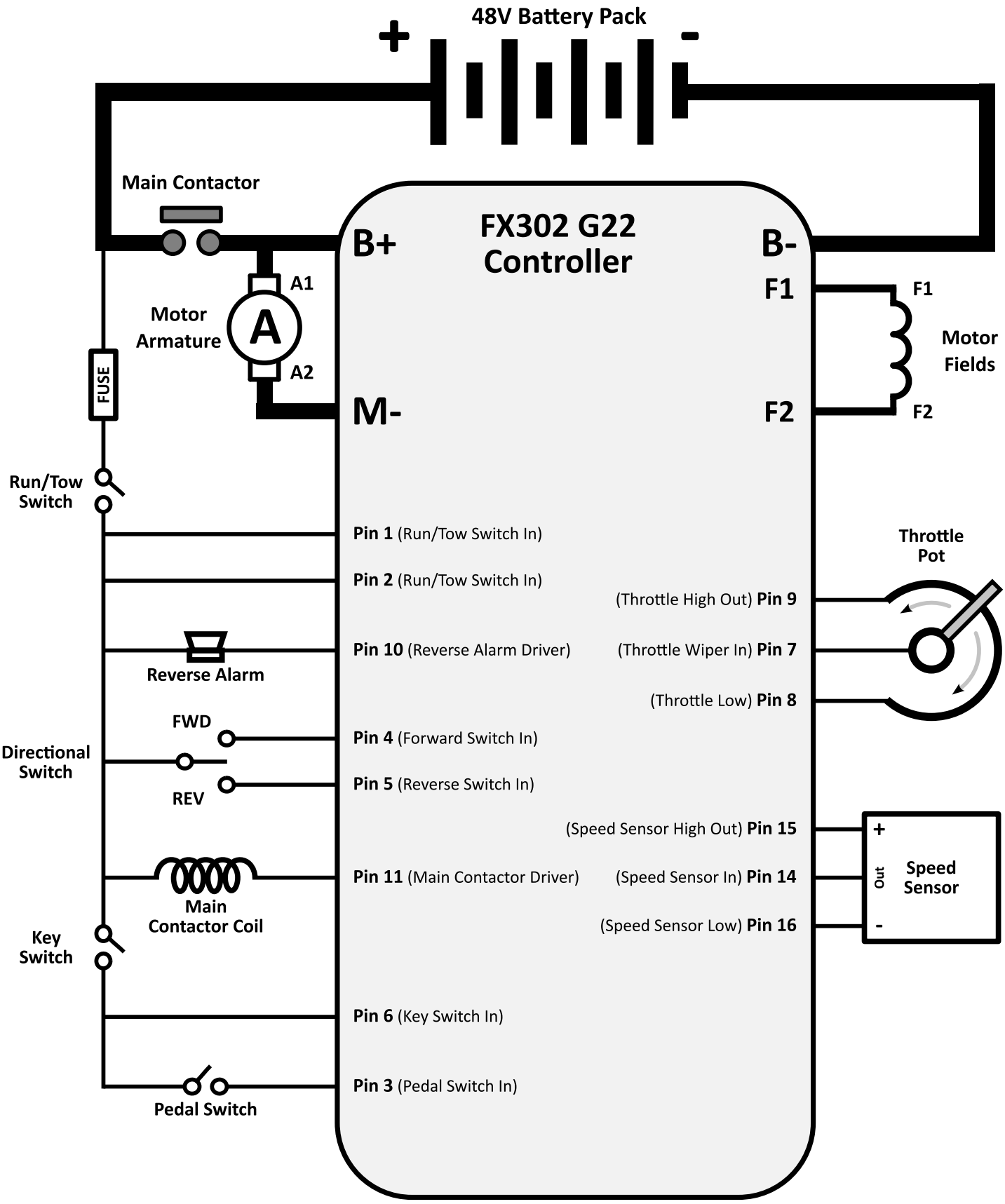
☐ Disconnect all wires from the main solenoid.
☐ Set your VOM to RESISTANCE (Ω).
☐ Measure the solenoid coil. This must measure NO LESS than 100Ω.
☐ Connect VOM leads to the main solenoid lugs.
☐ Attach jumpers from main battery positive and negative to the coil (small terminals).
☐ Meter must jump from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

CHECK THE CART WIRE HARNESS:

☐ Check the connectors on the wire harness for corrosion, loose, broken, burnt or missing pins.
☐ Repair or replace pins as necessary.

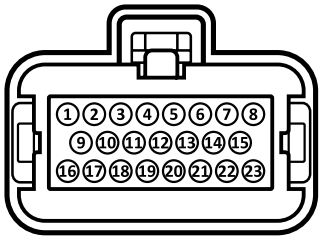
IF ANY OF THE ABOVE ITEMS ARE NOT WITHIN THE SPECIFICED RANGES THE CONTROLLER WILL FAIL. THESE ITEMS MUST BE CORRECTED BEFORE THE CONTROLLER IS INSTALLED OR WARRANTY WILL BE VOID.

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*



FX302 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 11** ***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.*

COMMON FAILURES

FAILURE	DESCRIPTION	POSSIBLE RESOLUTIONS
Pedal Switch Failed to Close	Throttle Pot Voltage @ Pin 7 > 1.4V with the Pedal Switch Open	• Defective Pedal Switch Circuit. • Defective Pedal Switch.
Accelerator Pedal Depressed with No Directional Switch Input	Throttle Pot Voltage @ Pin 7 > 1.4V with No Direction Set (Pins 4 and 5 < 50 % Pack Voltage)	• Accelerator Pedal Depressed before F/R input. • Defective Directional Switch. • Open circuit between Directional Switches.
Forward and Reverse Switches Closed at the Same Time	Pins 4 and 5 > 50 % Pack Voltage	• F/R Switch is Shorted. • Check F/R Switch wiring.
Pedal Switch Closed Prior to Key Switch	Pin 3 > 50 % Pack Voltage when Key Switch is Closed	• Defective Pedal Switch Circuit. • Defective Pedal Switch.
Battery Voltage is Too Low at Initial Key Switch Closure	Battery Voltage is < 34V when Key Switch is Closed	• Discharged or Faulty Battery. • Faulty Wiring to Pins 1 and 2. • Faulty Fuse.
Battery Voltage is Too High at Initial Key Switch Closure	Battery Voltage is > 60V when Key Switch is Closed	Overcharged, Faulty or Incorrect Battery Type. (Lithium is not compatible)
Throttle Pot Input is Too High	Throttle Pot Voltage @ Pin 7 > 4.5V	• Open Wire between Throttle Pot Negative and Pin 8. • Defective Throttle Pot.
12V Supply from Controller is Too Low	Internal 12V Supply < 9.35V	• Discharged Battery. • Loose Connection at Pin 1 or Faulty Fuse. • Pin 15 is shorted to B-.

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 FX302 G22
TROUBLESHOOTING INFORMATION
INCLUDED IN THIS PACKET

FSIP ELECTRONICS
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