

Curtis 1206MX

This sheet is provided to aid in the installation of your remanufactured CURTIS 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 $.3\Omega$ 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 $5M\Omega$.

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 the main battery positive and negative to the coil (small terminals).
- ☐ Meter must jump from infinity to LESS THAN $.3\Omega$.
- ☐ Remove jumpers and reconnect solenoid wiring from the harness. (If suppression diode is present, The non-banded side must go the blue wire – pin J1-6 from the controller.)

CHECK COTHERM:

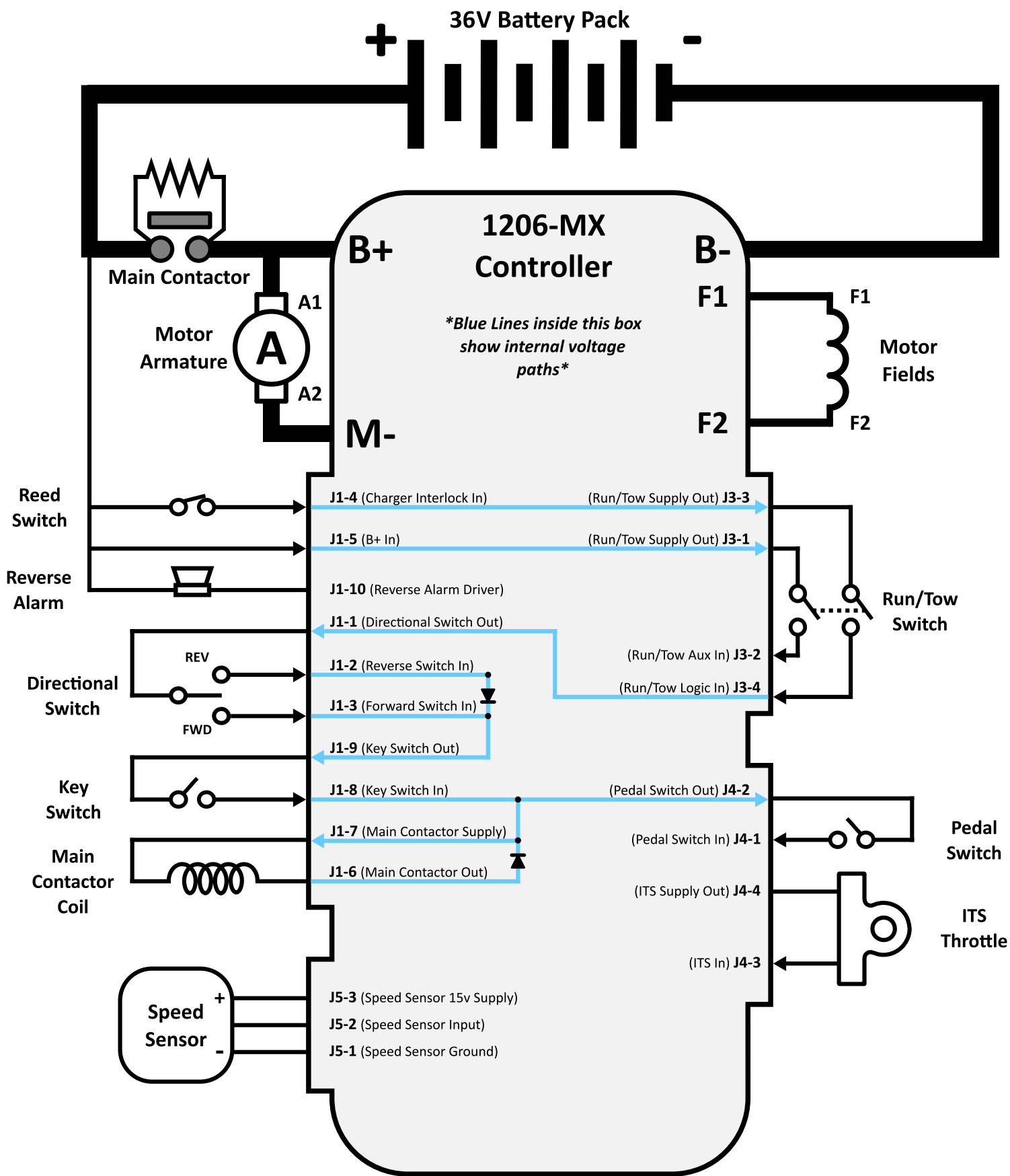
- ☐ Inspect the cotherm (insulating material) mounted to the heat sink for holes, debris, and tears.
- ☐ Repair or replace, if necessary.

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 SPECIFIED 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 CONNECTOR DIAGRAM SHOWN ON SHEET 6

E-Z-GO PDS 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 POSITION AND WITH A GOOD BATTERY PACK VOLTAGE MEASUREMENT. 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. Measure the voltage at the main battery positive post (let's call it Pack Voltage)

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:**

- ☐ **J1 Pin 5** Must be within 4 volts of Pack Voltage
 - *If not, verify the Precharge Resistor is present and has good resistance.*
- ☐ **J3 Pin 2** Must be same voltage as J1 Pin 5
 - *If not, Run-Tow/Maintenance Switch or wiring is defective.*
- ☐ **J1 Pin 4** **With charger disconnected**, must be at Pack Voltage
 - *If not, the Reed Switch in the charger receptacle may be damaged (common failure).*
- ☐ **J3 Pin 4** Must be equal to Pack Voltage
 - *If not, Run-Tow/Maintenance Switch or wiring is defective.*
- ☐ **J1 Pin 1** Must be equal to Pack Voltage
 - *If not, controller may be faulty.*
- ☐ **J1 Pin 2** **With F/R Switch to Neutral**, must be approximately 0 volts
 - *If not, check wiring, F/R switch for shorted condition.*
- ☐ **J1 Pin 2** **With F/R Switch to Reverse**, must be equal to Pack Voltage
 - *If not, check wiring, F/R switch for open condition.*
- ☐ **J1 Pin 3** **With F/R Switch to Neutral**, must be approximately 0 volts
 - *If not, check wiring, F/R switch for shorted condition.*
- ☐ **J1 Pin 3** **With F/R Switch to Forward**, must be equal to Pack Voltage
 - *If not, check wiring, F/R switch for open condition.*
- ☐ **J1 Pin 9** **With F/R Switch to Forward or Reverse**, must be equal to Pack Voltage
 - *If not, check wiring or connector for contamination.*
- ☐ **J1 Pin 8** **With Key Off**, must be equal to approximately 0 volts
 - *If not, check Key Switch for shorted condition.*
- ☐ **J1 Pin 8** **With Key On**, must be equal to approximately Pack Voltage
 - *If not, check Key Switch for open condition.*
- ☐ **J1 Pin 7** Must be equal to approximately Pack Voltage
 - *If not, check wiring or connector for contamination.*
- ☐ **J1 Pin 10** **With F/R Switch to Neutral**, must be Pack Voltage
 - *If not, check wiring or backup beeper for an open or missing condition.*
- ☐ **J1 Pin 10** **With F/R Switch to Reverse**, must pulse to approximately 0 volts (should hear beeper)
 - *If not, check wiring or backup beeper for open condition.*

Continued on next page...

- ☐ **J4 Pin 2** Must be equal to Pack Voltage
 - *If not, check wiring or connector for contamination.*
- ☐ **J4 Pin 1** **With Pedal not depressed**, must be equal to approximately 0 volts
 - *If not, check wiring and Pedal Switch for shorted condition.*
- ☐ **J4 Pin 1** **With Pedal fully depressed**, must be equal to Pack Voltage
 - *If not, check wiring and Pedal Switch for open condition.*
- ☐ **J4 Pin 4** Must be between 13 and 16 volts
 - *If not, remove ITS Sensor and measure again. If voltage increases to 13 to 16 volts with sensor removed, replace ITS Sensor.*
- ☐ **J4 Pin 3** **With Pedal not depressed**, must be approximately .5 to .9 volts
 - *If not, check wiring. If wiring is good, issue may be with ITS Sensor.*
- ☐ **J4 Pin 3** **With Pedal fully depressed**, must be approximately 2.5 to 3.3 volts
 - *Voltages significantly outside of the .9 to 3.3 volt range may indicate an issue with the ITS Sensor. Replace as necessary.*
- ☐ **J1 Pin 6** Must be equal to Pack Voltage
 - *If not, check wiring, and solenoid for open condition*
- ☐ **J1 Pin 6** **With Pedal depressed**, must be 0v and Main Solenoid should engage
 - *If not, check for solenoid faults. Controller may be faulty.*
- ☐ **J5 Pin 3** Must be between 12 and 15 volts
 - *If not, remove Speed Sensor and measure again. If voltage increases to 12 to 15 volts with sensor removed, replace Speed Sensor.*
- ☐ **J5 Pin 2** **With drive wheels off the ground, s-l-o-w-l-y turn the drive wheel by hand.** Your meter should toggle between approximately 0 and 5 volts.
 - *If not toggling, check the motor magnet. If the magnet is cracked/damaged, replace magnet and recheck. If magnet is good, Speed Sensor or wiring is at fault.*

Controller Fault Code Information

This cart is capable of diagnostics! Placing the cart in the diagnostics mode will allow the controller to use the back-up alarm to beep out codes. **Do not underestimate the usefulness of this tool.**

Once the cart is set into diagnostics mode, it should sound using the Reverse Alarm to beep for the specific faults. **MUST HAVE REVERSE ALARM CONNECTED!**

The figure shown on Sheet 5 explains the faults in more detail. Please refer to this to determine the exact fault occurring.

⚠ WARNING ⚠



TOWING

Always select 'TOW/MAINTENANCE' position before towing

■ Tampering with or unauthorized modification of this unit by non E-Z-GO personnel could result in serious personal injury. Will void the warranty and result in permanent damage to the vehicle

■ Possibility of electrical arc or battery explosion. Before removing/connecting batteries or electrical components, turn the switch to 'TOW/MAINTENANCE' position

■ To disable electrical system, place switch in 'TOW/MAINTENANCE' position and remove battery wire

■ After reconnecting batteries, allow a minimum of 30 seconds before selecting 'RUN' position

THE FOLLOWING CODES REQUIRE THAT THE REAR WHEELS BE RAISED BEFORE PERFORMING TESTS

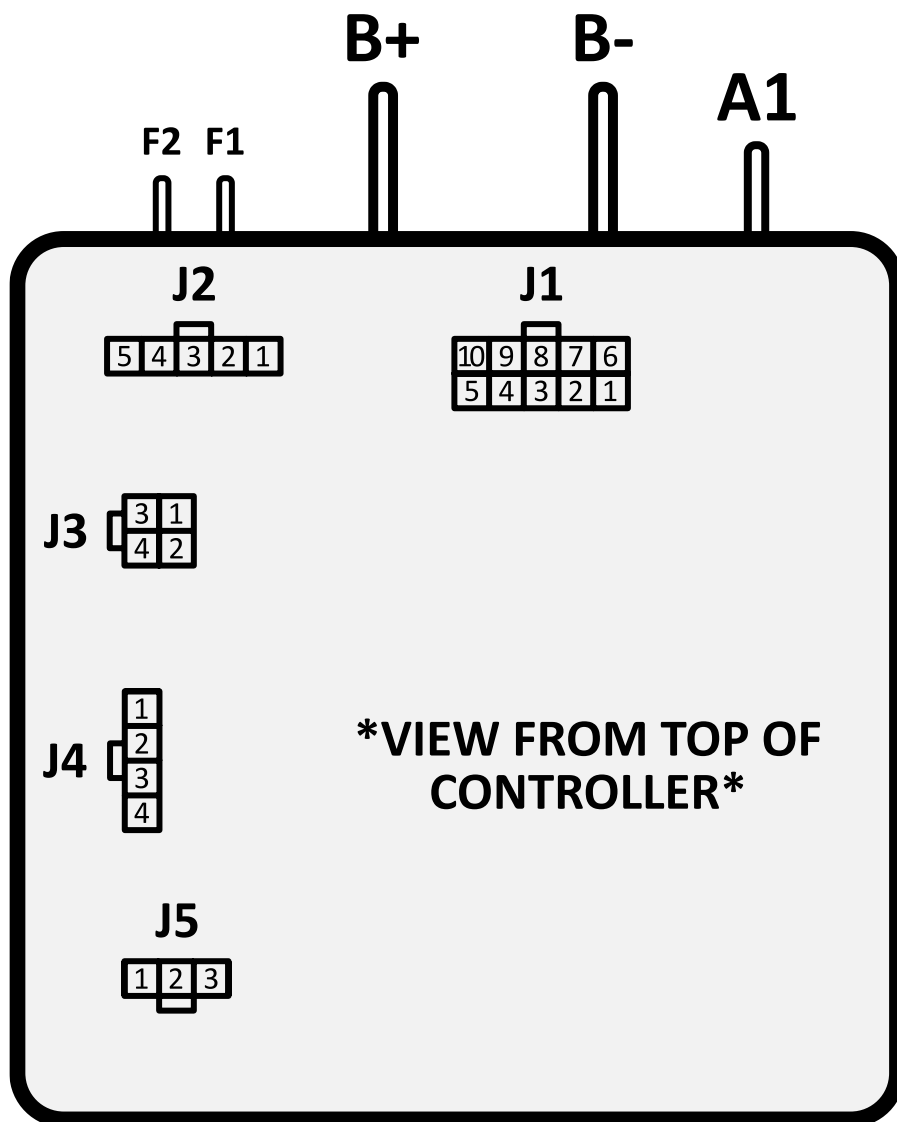
FAULT BEEP	FAULT	SYMPTOMS	CORRECTION REQUIRED
1-1	Controller Failure	Vehicle will not run	Check Motor wiring and Motor Ω . Replace Controller.
1-2	Throttle Fault	Solenoid Clicks, will not run	Replace/adjust pedal box, harness
1-4	High Pedal Disable	Vehicle will not run	Release pedal/check pedal box, linkage and switch
2-4	Solenoid Coil Failure or Coil Disconnected	Vehicle will not run	Check Solenoid Coil connections/wiring, replace solenoid if required
3-1	Solenoid Driver Failure	Vehicle will not run	Check Solenoid Coil wiring for shorts, replace controller
3-3	Solenoid Did Not Close	Vehicle will not run	Check all Solenoid wiring, replace Solenoid if required
3-4	Motor Field Winding Open	Solenoid Clicks, will not run	Check Motor and Controller Field connections, replace power harness or Motor if needed
4-1	Motor Armature Open	Solenoid Clicks, will not run	Check Motor and Controller Armature connections, replace power harness or Motor if required
4-3	Solenoid Dropout	Vehicle stops	Check Solenoid/wiring, replace if required

THE FOLLOWING CODES REQUIRE THAT THE VEHICLE BE OPERATED UNDER LOAD WHILE PERFORMING TESTS

FAULT BEEP	FAULT	SYMPTOMS	CORRECTION REQUIRED
1-3	Speed Sensor Fault	Vehicle runs slowly	Check Speed Sensor connections and magnet/torque, replace Speed Sensor if required
2-1	Low Battery Voltage	Vehicle performance reduction	Charge batteries/replace bad batteries
2-2	High Battery Voltage	Regen performance reduced	Check that battery voltage is less than 48 VDC
2-3	Thermal Cutback	Vehicle performance reduction	Allow Controller to cool, check heat sink bolt torque
3-2	Solenoid Welded	Vehicle runs slowly	Check auxiliary power. Replace Solenoid
4-2	Motor Stalled	Vehicle stopped	Remove mechanical blockage, Speed Sensor issue

STEPS TO ENTER DIAGNOSTIC MODE

1. Turn the Key Switch to 'OFF'. 2. Move 'RUN/TOW MAINTENANCE' switch to 'RUN'. 3. Move Direction Selector switch from Neutral position to 'REV' positions FIVE (5) times. 4. After a confirming beep(s) sounds, the Diagnostic Fault code will sound when a fault is detected. To exit Diagnostic Mode: select 'TOW MAINTENANCE' position.



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!
1206-MX
TROUBLESHOOTING INFORMATION
INCLUDED IN THIS PACKET