

Curtis 1206AC E-Z-GO RXV

This sheet is provided to aid in the installation of your remanufactured Curtis Electric 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 ➔

BEFORE INSTALLATION:

- Place rear on jack stands (wheels off the ground)
- Use proper eye protection and tools when working with electrical equipment
- Disconnect the batteries

CHECK MOTOR PHASES: Set your VOM to RESISTANCE (Ω). (NOTE: Motor Resistance between U, V, and W is 6.8 – 8.36 milliohms. Most DVM meters will not read this. Test below for open windings)

- With your motor disconnected, measure U to V. This should measure BETWEEN .5 Ω and 1 Ω .
- With your motor disconnected, measure V to W. This should measure BETWEEN .5 Ω and 1 Ω .
- With your motor disconnected, measure W to U. This should measure BETWEEN .5 Ω and 1 Ω .
- Motor disconnected, measure U, V, & W to Motor Frame. This must measure greater than 5M Ω

CHECK MAIN SOLENOID:

- Disconnect all wires from the main solenoid. Set your VOM to RESISTANCE (Ω).
- Measure the solenoid coil. This should measure between 95 and 115 ohms.
- 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 .3 Ω .
- Remove jumpers and reconnect solenoid wiring from the harness. (If suppression diode is present, The non-banded side must go to the Red/Black wire – from pin 6 of controller.)

CHECK BRAKE COIL

- Set your VOM to RESISTANCE (Ω). Measure the brake coil. Should measure approx. 25 Ω at room temp.

CHECK THE CART WIRE HARNESS:

- Check the connectors on the wire harness for corrosion, loose, broken, burnt or missing pins.

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 MAY BE VOID.

48V Battery Pack



Main Solenoid Contacts

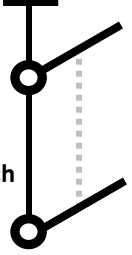
Charger Interlock Switch



FUSE



Key Switch



F

N

R

Pedal Switch

Brake Switch



Tow Switch

Reverse Buzzer

Main Solenoid Coil

EM Brake Coil

1206AC Controller

B+

B-

P11 (Charger Interlock Input)

P22 (Forward Input)

P33 (Reverse Input)

P1 (Key Switch Input)

P9 (Pedal Switch Input)

P12 (Brake Switch Input)

P30 (State of Charge Output)

P7 (Ground Output)

P10 (Tow Switch Output)

P2 (Rev Buzzer Output)

P6 (Main Coil Output)

P5 (EMB Coil Output)

U

V

W

(Encoder 5v Output) P26

(Encoder Signal A) P31

(Encoder Signal B) P32

(Ground Output) P7

(Temperature Sensor Input) P8

(Throttle 5v Output) P15

(Throttle Wiper Input) P16

(Throttle Ground) P18

(Brake 5v Output) P15

(Brake Wiper Input) P17

(Brake Ground) P18

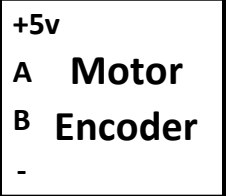
(Diagnostics Ground) P34

(Diagnostics TX) P28

(Diagnostics RX) P29

(Diagnostics +12v) P25

AC Motor



Temperature Sensor

Throttle Potentiometer

Brake Potentiometer

Diagnostics Connector

RXV POWER-UP SEQUENCE

During the first second after turning the key on, the vehicle performs several system checks:

- **Electric Brake Test:** The controller attempts to rotate the motor a quarter-turn in each direction.
- **Reverse Alarm Test:** The reverse alarm is activated briefly for 100 milliseconds.
- **Charger Connection Test:** The controller verifies whether the charging port is connected to a charger.
- **Throttle Switch Verification:** The throttle switch must be in the "open" position to pass the startup procedure.
- **Throttle Position Check:** The controller ensures the throttle position sensor (TPS) indicates 0% throttle.
- **Throttle Range Test:** The controller confirms the TPS operates within the expected open and closed range.

If any issues are detected in these systems, the vehicle will not operate.

The Curtis Hand Held Diagnostic unit is used for programming, testing, troubleshooting, tuning, diagnosing and parameter adjustments for speed controller and auxiliary devices.

Note: Many fault codes will disable the EM Brake and/or Main Solenoid until the fault condition is cleared.

Note: Do not use the CAN plug located under the 4 cup console.

WARNING

Plug the Curtis handheld programmer into Curtis programmer port only. If plugged into the wrong port, voltage from other interface cir-cuits may result in permanent damage to the programmer.



Curtis 1206AC RXV Troubleshooting Sequence

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

ALL TESTS ARE CONDUCTED 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

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 11 With Charger NOT plugged in**, must be > 16v
 - *If not >16v, check Charger Interlock input and wiring for an open/shorted condition*
- Pin 11 With Tow Switch NOT set in Tow**, must be approximately Pack Voltage
 - *If not Pack Voltage, check Tow Switch input and wiring for an open/shorted condition*
- Pin 1 With Key Switch set to Forward or Reverse**, must be approximately Pack Voltage
 - *If not approximately Pack Voltage, check Key Switch input, Main Input Fuse, and wiring for an open/shorted condition*
- Pin 22 With Key Switch set to Forward**, must be approximately Pack Voltage
 - *If not approximately Pack Voltage, check Key Switch input, Main Input Fuse, and wiring for an open/shorted condition*
- Pin 33 With Key Switch set to Reverse**, must be approximately Pack Voltage
 - *If not approximately Pack Voltage, check Key Switch input, Main Input Fuse, and wiring for an open/shorted condition*
- Pin 2 With Key Switch set to Reverse**, must be approximately 0v and reverse buzzer should sound
 - *If not approximately 0v, Reverse Buzzer and wiring for an open/shorted condition. If this tests good, controller may be faulty*
- Pin 9 With Pedal Switch engaged**, must be approximately Pack Voltage
 - *If not approx. Pack Voltage, check Pedal Switch input and wiring for an open/shorted condition*
- Pin 10 With Tow/Run in Run**, must be approximately 0 Volts (Pin 10 will read Pack voltage in TOW Position)
 - *If not approximately 0 Volts, check Tow/Run input and wiring for an open/shorted condition*
- Pin 12 With Brake Switch engaged**, must be approximately Pack Voltage
 - *If not approx. Pack Voltage, check Brake Switch input and wiring for an open/shorted condition*
- Pin 6 With Key Switch engaged**, must be approximately 0v, and solenoid should engage
 - *If not approximately 0v, check Solenoid Coil and wiring for an open/shorted condition. If this tests good, controller may be faulty*
- Pin 15** Must be approximately 5v
 - *If not approximately 5v, check wiring for an open/shorted condition. If this tests good, controller may be faulty. A faulty Throttle or Brake sensor could affect 5v output.*
- Pin 18** Must be approximately 0v
 - *If not approximately 0v, check wiring for an open/shorted condition. If this tests good, controller may be faulty*
- Pin 16 With Throttle Pedal Up**, must be approximately 0.5v, but no less than 0.35v
 - *If not approximately 0.5v, check Throttle assembly and wiring for an open/shorted condition.*

- Pin 16 With Throttle Pedal Fully Depressed**, must be < approximately 4.8v
 - *If not approximately 4.8v, check Throttle assembly and wiring for an open/shorted condition.*
- Pin 17 With Brake Pedal Up**, must be approximately 0.5v, but no less than 0.35v
 - *If not approximately 0.5v, check Brake assembly and wiring for an open/shorted condition.*
- Pin 17 With Brake Pedal Fully Depressed**, must be approximately 4.8v
 - *If not approximately 4.8v, check Brake assembly and wiring for an open/shorted condition.*
- Pin 26** Must be approximately 5v
 - *If not approximately 5v, check wiring for an open/shorted condition. If this tests good, controller may be faulty*
- Pin 7** Must be approximately 0v
 - *If not approximately 0v, check Motor Encoder, Temperature Sensor, and wiring for an open/shorted condition. If this tests good, controller may be faulty*
- Pin 31 & Pin 32** With the Tow Switch Engaged, and the Key Switch set to Neutral, measure across the two pins. Rotating the drive wheel should show 0-5v
 - *If not approximately 0-5v, check Encoder, Motor, and wiring for an open/shorted condition.*

Helpful Hints

- DO NOT UNDER ESTIMATE THE IMPORTANCE OF MOTOR RESISTANCE CHECKS AND MAIN SOLENOID CHECKS. MANY CART ISSUES ARE CAUSED BY MOTOR ISSUES THAT WILL BE FOUND AS PART OF THE SHORTED PHASE CHECKS. ALSO SHORTED PHASES WITHIN THE MOTOR WILL DAMAGE THIS CONTROLLER.**

Flight Systems Industrial Products also offers the following Technical Support options ...



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

Live Tech Support Chat
www.fsip.biz



Technical Support Forum
fsip.websitetoolbox.com

Phone Support
 1-800-333-1194 (Option 4)

**PRE-INSTALLATION
 INSTRUCTIONS MUST BE
 FOLLOWED OR WARRANTY
 WILL BE VOID
 IMPORTANT!
 Curtis 1206AC RXV
 TROUBLESHOOTING INFORMATION
 INCLUDED IN THIS PACKET**