



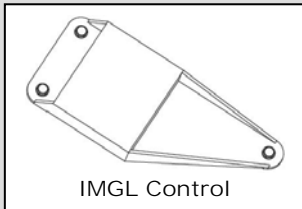
# KWIKEE STEP TESTING PROCEDURES

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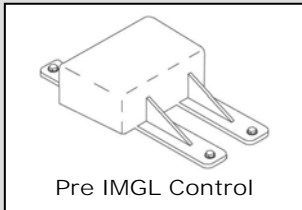
## NOTE

These general service notes and the Step Test Procedures address the most common questions about KwikEE electric steps. Due to the number of variable conditions, you may experience symptoms other than those covered.

\*IMGL controls are on 2006 or newer model year steps. The service procedures outlined in this document are for IMGL controls only.



IMGL Control



Pre IMGL Control

## WARNING

12 volt automotive batteries contain sulfuric acid which can cause severe burns. Avoid contact with the skin, eyes, and clothing. 12 volt automotive batteries produce hydrogen gas which is explosive; keep cigarettes, open flames, and sparks away from the battery at all times.

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## KWIKEE STEP TESTING PROCEDURES for CONTROL # 909510000, 1510000140, 1510000158 or any IMGL (Integrated Motor/Gearbox/Linkage)\* STEP CONTROL

### General Service Notes

If the power wire to the step is disconnected from its source and reconnected, a spark is common. This is caused by the momentary charging of the control unit and does not necessarily indicate the system is staying on, which would cause a drain on the battery.

To determine if a control unit is not shutting off, remove the four-way connector to the chassis and the two-way connector between the step motor and the control unit. Place a voltmeter between the red and yellow motor wires at the two-way connector from the control unit. Reconnect the four-way Connector. Refer to OEM Owner's Manual (or OEM Requirements) and place the step switch in the appropriate position for the step to remain in the extended position. If any voltage registers on the meter for more than 5 seconds, the control unit is not shutting off and may be defective. When doing this test, switch the voltmeter leads back and forth between the red and yellow motor wires to be sure no voltage registers.

If any voltage registers for more than 5 seconds, disconnect the four-way connector to keep the step motor from overheating. If zero voltage is present, the control unit has shut off and is normal.

If the step does not work or operates erratically (for example, extends part way and shuts off) the first item to check is the vehicle battery. Low supply voltage may cause erratic operation of the step. Poor ground connections may also cause erratic operation of the step. Check battery voltage and condition. A battery in good condition and properly charged will have a no load voltage of approximately 12.6 volts. Check the voltage at the battery and at the four-way connector at the control unit. Insure that all battery and step control unit connections are clean and secure. Recharge or replace the battery as necessary and retest the step for proper operation.

The step may also operate erratically if it is operating directly from a converter and the converter output is not adequate or properly filtered for clean DC voltage. The converter must be capable of producing a minimum of 30 amps for proper step operation.

The step will not function if the ground to the control unit lost between the step control unit and the vehicle chassis (the long green ground wire) or between the vehicle battery and the ground (negative battery cable). Make sure the battery terminals and all wire connections are clean and tight. Verify that all wires meet the minimum requirements specified in **FIGURE 1** on **PAGE 2**.

### Troubleshooting and Test Procedures

The step test procedures outlined in this tip sheet are provided to troubleshoot and test all KwikEE IMGL automatic electric step functions. The procedures are designed to initially check the basic functions of the step separately from the RV wiring to determine whether or not the step is malfunctioning. The procedures test various components of the step until the source of the malfunction is located. Using the procedures will shorten and reduce the time spent troubleshooting.

Some portions of the test procedures require additional equipment. This equipment includes:

- A voltmeter
- A well charged 12V DC automotive battery
- 4-way connector/pigtail (Part #909306000, available from KwikEE)
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**\*\* Read the entire procedure prior to testing \*\***

#### TESTING THE STEP:

1. Inspect the step for visible damage that might restrict step operation.
2. Obtain a 4-way pigtail connector (part #909306000) from KwikEE.
3. Disconnect 4-way connector on underside of step and connect the step-half of the connector to the four-way connector pigtail. See **FIGURE 1** on **PAGE 2**.
4. Set a fully charged 12V DC automotive battery beside the step.

**NOTE: Do not allow the battery terminals to come in contact with the step.**

Complete a ground for the step tests by connecting a 10 gauge wire from the negative (-) battery post to the green ground wire of the control unit.

*Troubleshooting and Test Procedures, Continued*

**CAUTION**

Do not allow the battery terminals to come in contact with the step.

**WARNING**

Keep fingers, arms, and legs clear of step mechanism while performing these tests. Failure to do so may result in person injury.

**WARNING**

Step control wiring is only to be used for step and step light (provided with the step) functions. Do not splice or tap into any of the step wiring. Failure to heed this warning may result in failure of step control, which may result in loss of step function or fire in the step control. Refer any questions to the step manufacturer

5. To supply power, attach the red wire from the pigtail to the battery's positive (+) post. The step will extend.
6. With the power and ground connections complete, all functions of the control unit can be checked at the four wires of the pigtail. The brown wire is the door switch, the white wire is the step lockout switch, and the yellow wire is the ignition override.
7. To retract the step, touch the brown wire to the negative (-) terminal.
8. To extend the step, remove the brown wire from the negative (-) terminal.
9. To test the ignition override feature, extend the step as in Step 8. With the step extended, connect the white wire to the positive (+) terminal and attach the brown wire to the negative (-) terminal. Next, touch the yellow wire to the battery's positive (+) terminal. The step should retract. Remove the brown wire and the step should extend.
10. If any of the step functions do not work, the source of the malfunction is either in the control unit and/or the motor. Proceed to the "Testing the Motor" section on **PAGE 3**.

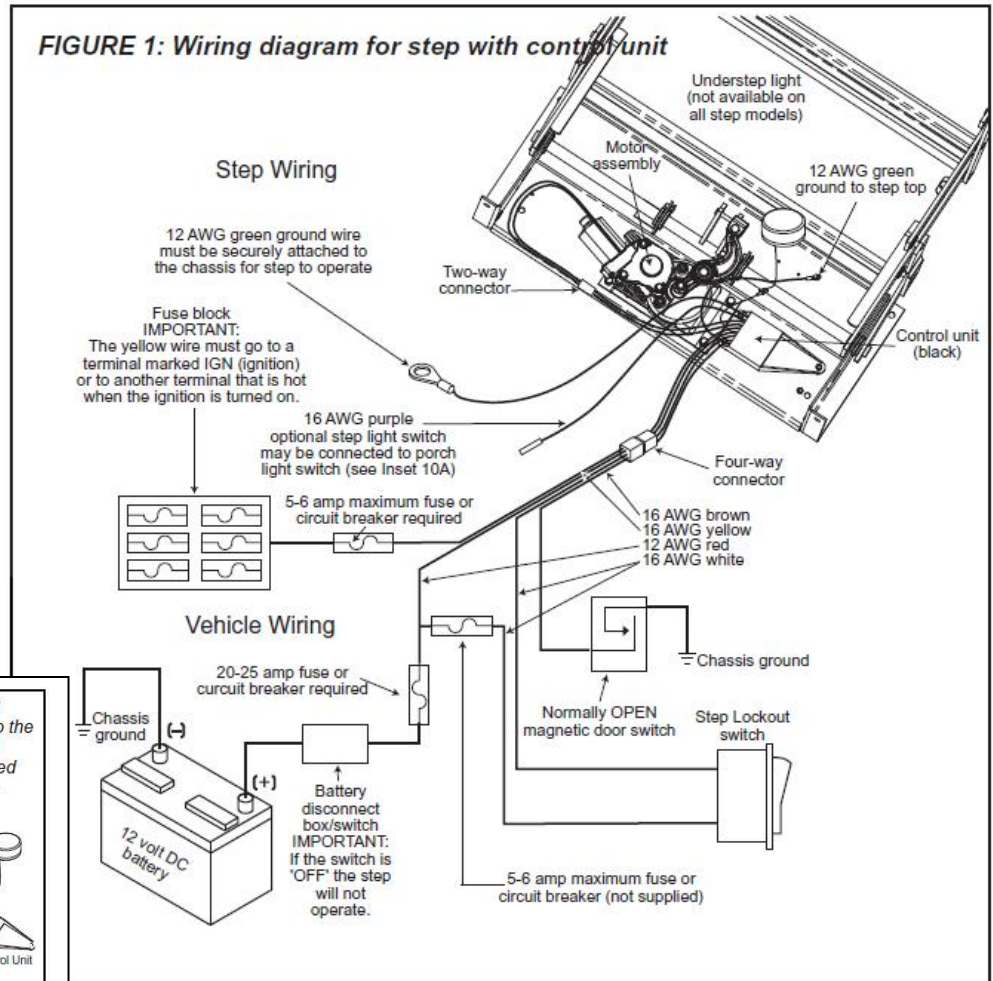
If all of the step functions do work, the malfunction is either in the door switch, step lockout switch, or the vehicle wiring. Proceed to "Testing the 4-way Connector" section on **PAGE 3**.

To test the "Auto Extend" feature, touch the brown wire to the negative (-) terminal to retract the step. While holding the brown wire to the negative (-) terminal, remove the yellow from the positive (+) terminal. Touch the white wire to the positive (+) terminal. The step will stay retracted.

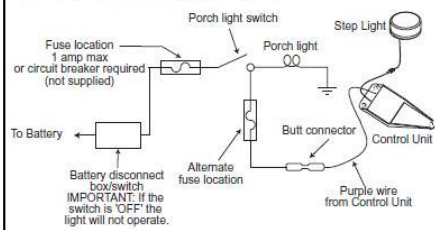
Now, remove the brown wire and the step should extend.

Next touch the brown wire to the negative (-) terminal. The step should stay extended.

**FIGURE 1: Wiring diagram for step with control unit**



**INSET 1A: Wiring step light to porch light switch:** Understep light can be wired directly to the RV porch light switch. If you choose to do this, a 5 amp maximum fuse or circuit breaker is required and can be installed in either of two locations as shown in the wiring diagram below.



# CAUTION

## TESTING THE MOTOR:

Do not leave the wires connected during this test once the step has cycled either in or out. Failure to remove the wires from the battery will burn out the motor voiding any warranty

## Troubleshooting and Test Procedures, Continued

### TESTING THE MOTOR

11. Disconnect the two-way connector between the step motor and the control unit. Connect the motor's red wire to the positive (+) terminal of the battery and touch the motor's yellow wire to the negative (-) terminal of the battery to extend the step. To retract the step, reverse the connections. If the step extends and retracts during this test, the condition of the step motor is good.

**NOTE: On steps with reverse polarity plug (Part #1800711) reverse the red and yellow wire connections to perform the previous test.**

### TESTING THE 4-WAY CONNECTOR

12. To check the main power source, connect a voltmeter between the red wire from the 4-way connector (vehicle half) and the ground terminal at the end of the control unit's green ground wire (see **FIGURE 2**). The reading should be a minimum of 12 volts DC.

If the voltage reading is low, there may be a loose or corroded connection at the battery, a low charge level on the battery itself, or a poor ground. If the voltage reading is zero (0) volts, check the step fuse/circuit breaker, all connections, and the condition of the wiring between the battery and the plug, including the ground connection at the chassis.

13. To check the step lockout switch, connect a voltmeter between the white wire from the 4-way connector (vehicle half) and the terminal at the end of the control unit's green ground wire (see **FIGURE 3**). The reading should be a minimum of 12 volts DC (the same as in **STEP 12**) with the switch in one position, and zero (0) volts DC with the switch in the opposite position.

**NOTE: Refer to vehicle OEM owner's manual (or OEM requirements) which will provide the Switch position of "on" or "off" for the step lock position.**

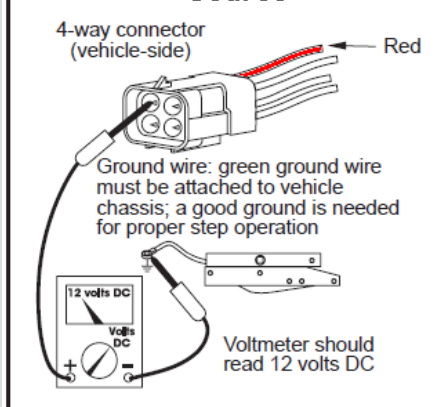
If the voltmeter reads zero (0) volts when the step switch is the Automatic Mode position, there is a problem in the step lockout switch circuit.

Check the 6 amp in-line fuse, the step lockout switch, and the condition of the circuit's wiring and terminal connections.

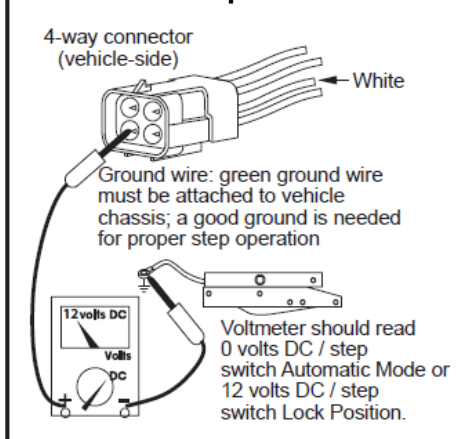
14. To check the door switch, connect a voltmeter between the red wire from the 4-way connector (vehicle half) and the brown in the same connector (see **FIGURE 4**). The voltage should be a minimum of 12 volts DC (the same as in **STEP 12**) when the door is closed and zero (0) volts when the door is open

If the readings are incorrect, there is a problem with the switch. Check the door switch and the condition of the circuit's wiring and terminal connections.

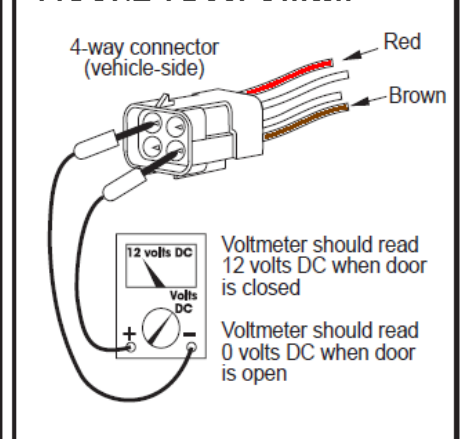
**FIGURE 2: Main Power Source**



**FIGURE 3: Step Switch**



**FIGURE 4 Door Switch**



15. To check the ignition override system, connect a voltmeter between the yellow wire from the 4-way connector (vehicle half) and the ground terminal on the end of the control unit's green ground wire (see **FIGURE 5**). The voltage reading should be approximately 12 volts DC when ignition is on and zero (0) volts when ignition is off.

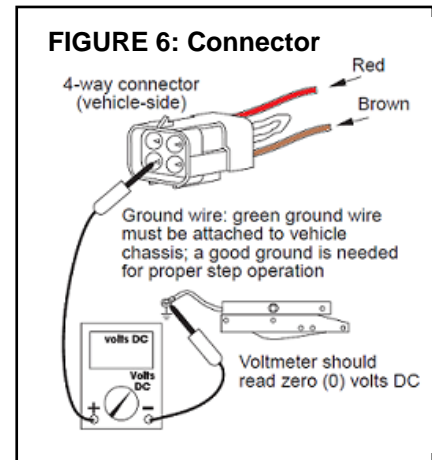
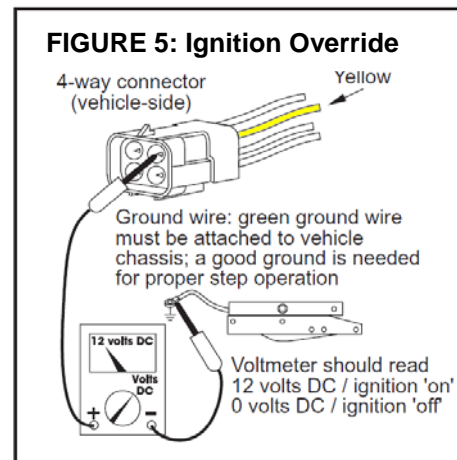
If the reading is zero when the ignition is on, check all terminal connections, wiring, and the vehicle's ignition fuse.

**NOTE: The step wiring circuit must be independent. No other device (i.e. alarm systems, step well lights, etc) can be connected to the step wiring circuit. Any device connected to the steps wiring can cause the step to malfunction and will void the warranty.**

16. For steps equipped with door switch only operation: Connect the white jumper wire from the vehicle half of the four-way connector and the ground terminal at the end of the control unit's green ground wire (See **Figure 6**)

**NOTE: Be sure to use the terminal with only the white wire.**

The reading should be zero (0) volts DC. If the voltage reading is more, the white wire is connected to 12 volts DC and should be cut.



**Additional Reference Publications Located At**  
[WWW.POWERGEARUS.COM](http://WWW.POWERGEARUS.COM)

Document #	Manual #	Title
1422279	888	Electric Step Owners Manual #888
82-ST0501	N/A	Step Identification Guide Tip Sheet