



**Owner's
Manual
#842A**

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42 Series Step

Equipped with a Permanent Magnet Motor

For steps with Control Unit 909510000 and steps without Control Units



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This document has been modified from the original Kwikkee 10/05 release. All former references to the Kwikkee warranty and contact information were removed.

**For all concerns or questions, please contact
Lippert Components, Inc.**

Ph: (574) 537-8900 | Web: lci1.com | Email: customerservice@lci1.com

FILL OUT AND SAVE WITH VEHICLE RECORDS

In the event that servicing the step becomes necessary, the information that you supply below will improve service response time. The Step Series number, Serial number, and Control Unit numbers are on the identification labels attached to the control unit and the underside of the step, near the motor. Please take a moment to record this information:

Step Serial #	Step Series #
Year / Make / Model of RV	
Date of Purchase	
CONTROL UNIT Complete the following only if your step is equipped with Control Unit.	
Control Unit Serial #	Control Unit #

STEP IDENTIFICATION AND REPLACEMENT PARTS INFORMATION

INTRODUCTION

This manual has been provided to assist you with the identification, operation, maintenance, and troubleshooting of any Kwikkee electric step that is equipped with a door switch, an override switch, control unit and a permanent magnet motor. It does not apply and should not be used as a reference to any other previous versions of a Kwikkee electric step.

The control unit is essentially a current sensor as well as a switching device. When the motor assembly moves the step tread to its extended position, or stops moving because of an obstruction such as a curb or the binding of a damaged or bent step frame, the motor draws a larger amount of current. The control unit "senses" the larger current draw and shuts off power to the motor.

All control units are equipped with an "ignition override system". This system is designed so that the vehicle will not be driven with the step in the extended position. When the step is overridden in the extended position, the door closed, and the ignition is turned on, the ignition override system will engage and the step will automatically retract.

The "AutoExtend" feature is another safety feature designed to extend the step when the door is opened for the first time after the vehicle ignition is turned off, even if the override switch is turned on. When the ignition is switched on, the function of the override switch is disabled and the step will always extend when the door is opened and retract when the door is closed.

NOTE: Follow the instructions in this manual carefully. Failure to do so may result in damage to the step control, the motor and/or the vehicle wiring. Such damage may also result in voiding the warranty.

OPERATION

1. After the installation is complete and with the entrance door open, turn the override switch 'off.'

NOTE: Some steps are not equipped with an override switch. They are activated only with a door switch.

2. Close the door. The step should retract and lock in the "in" position.
3. Open the door. The step should extend and lock in the "out" position.

WARNING: If the vehicle is driven with the step in the extended position, there is the possibility of causing major damage to both the step and the vehicle.



4. If your step is equipped with an override switch, turn it 'on.' The step should remain in the extended position when the door is closed.
5. With the override switch 'on,' the step extended, and the entrance door closed, turn 'on' the vehicle ignition. The ignition override system will go into effect and the step will automatically retract.

NOTE: If the yellow wire from the four-way connector is not connected to an ignition power source, the ignition safety system will be inoperative and the step will remain in the extended position. In this case, the override switch must be turned 'off' for the step to retract.

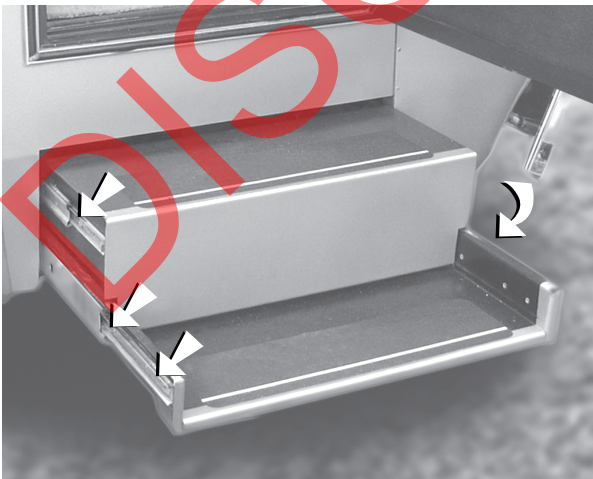
6. Turn the vehicle ignition 'off' and open the door. The step will extend and lock in the "out" position. This is the "AutoExtend" feature.

When the vehicle ignition is 'on,' the step will always activate with the door movement, regardless of the override switch position.

NOTE: If the yellow wire from the four-way connector is not connected to an ignition power source, the step will not retract with the step in the override 'on' position when the door is closed and the ignition is 'on.'

MAINTENANCE

FIGURE 1 Power wash and spray dry lubricant on bearings on both sides of step.



LUBRICATION

1. Clean all mud, salt, and road grime from the step before lubricating. Power wash and spray dry lubricant on the bearings (see **Figure 1**.)

NOTE: Silicone lubricants and WD-40 are not recommended as they have a tendency to evaporate and dry the mating surfaces which leave them vulnerable to the elements.

2. Maintain clean, dry electrical connections at the two-way and four-way connectors and any butt connections leading from the four-connector to the vehicle. A small dab of di-electric grease at the connections and replacing corroded butt connections with heat shrink type crimp style automotive connectors will help maintain a good electrical source for the step.

ADJUSTING THE OUT STOPS

Kwikkee steps are fitted with adjustable out stops on the step frame that help lock the step in the "out" position, creating a firm stepping platform. The out stop is adjusted at the factory but due to the rigors of shipping, installation, and normal use the stop may fall out of adjustment and need to be tightened.

1. Loosen the stops so they move freely and retract the step.
2. Extend the step fully to its locked extended position. Be sure that the motor assembly linkage rests against the steel plate as illustrated in **Figure 2**. Repeat if needed until the motor assembly locks in the extended position.
3. Push the stops against the lower tread and tighten securely. Be sure that both stops are tightened and that they rest securely against the lower tread.
4. Retract the step. Check to be sure that both stops are secure against the top tread (see **Figure 3**.) Repeat the above procedures if needed to properly adjust the stops.



WARNING: When the stops are out of adjustment, the step may feel loose when stepped on.

CAUTION: When working under the step, be sure that the step cannot be activated and that nothing can get caught in the step mechanism.

CAUTION: Be sure that nothing can get caught in the step mechanism.

FIGURE 2

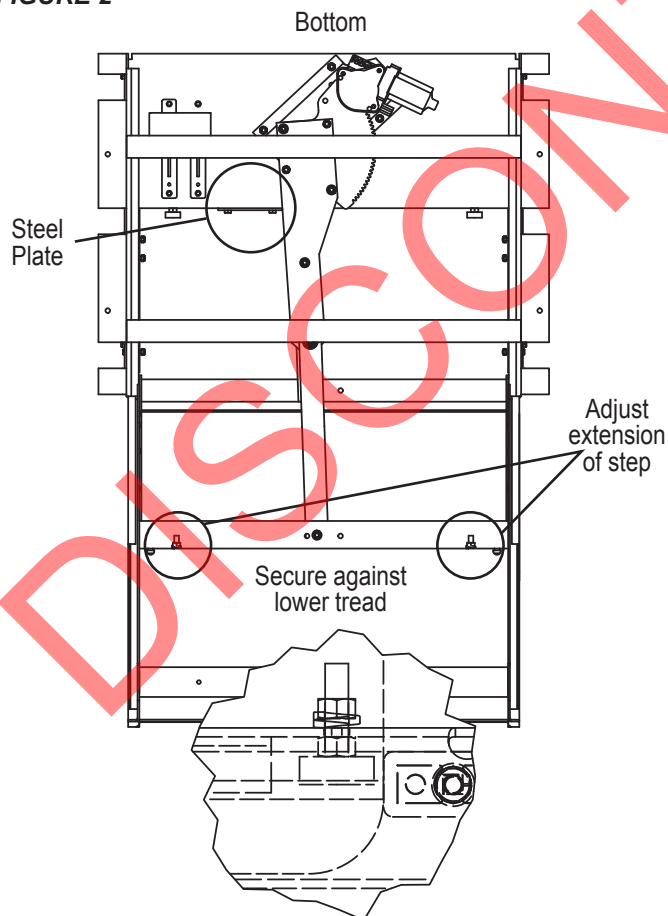
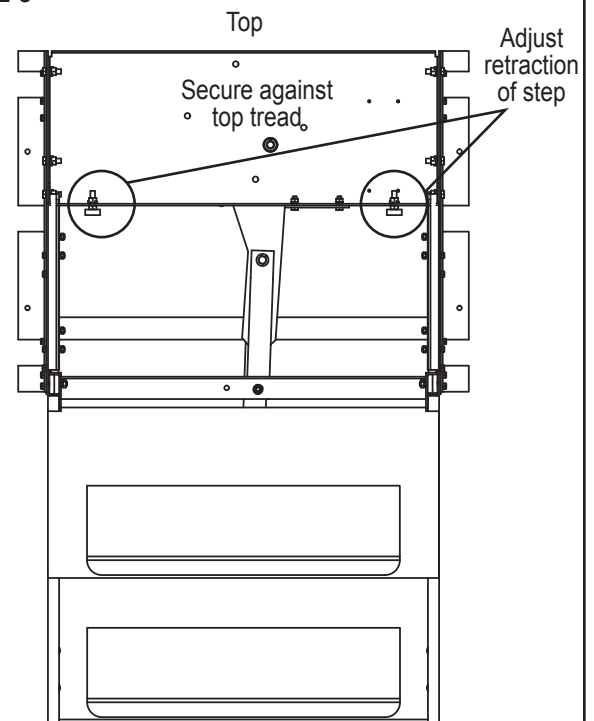


FIGURE 3



GENERAL SERVICE NOTES

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

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. If battery drain is suspected, observe the understep light (if so equipped) while the step is extending. The override switch must be 'off' for the understep light to operate.

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. Turn the override switch 'on.' 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 does register, 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, such as extending part way and shutting 'off,' the first item that should be checked is the vehicle's 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 approx. 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 the step is being operated directly from a converter, and the output from the converter 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.

If the ground to the control unit is lost, either 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) the step will not function. Make sure the battery terminals and all wire connections are clean and tight. Verify that all wires meet the minimum requirements specified in **Figures 4 and 5** on Page 8.

TROUBLE SHOOTING AND TESTING PROCEDURES

The following Step Test Procedures have been provided to troubleshoot and test all of the Kwikkee automatic electric step functions. They are designed to initially check the step's basic functions separately from the RV wiring to determine whether or not the step is malfunctioning. The following procedures test the various components of the step until the source of the malfunction is located. Using these 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 12 volt DC automotive battery, and a 4-way connector/pigtail (Part #909306000).

Read the entire procedure prior to testing.

TESTING THE STEP

1. Inspect the step for visible damage that might restrict the step's operation.
2. Obtain a 4-way pigtail connector (part #909306000) from Kwikkee.
3. Disconnect 4-way connector on underside of step and connect step-half of the connector to the four-way connector pigtail. **See Figures 4 and 5** on Pages 8 and 9.

4. Set a fully charged 12 volt DC automotive battery beside the step.

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

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

5. To supply power, attach the red wire from pigtail to 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 override 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 battery's negative (-) post.



WARNING: Keep fingers, arms, and legs clear of step mechanism while performing these tests.

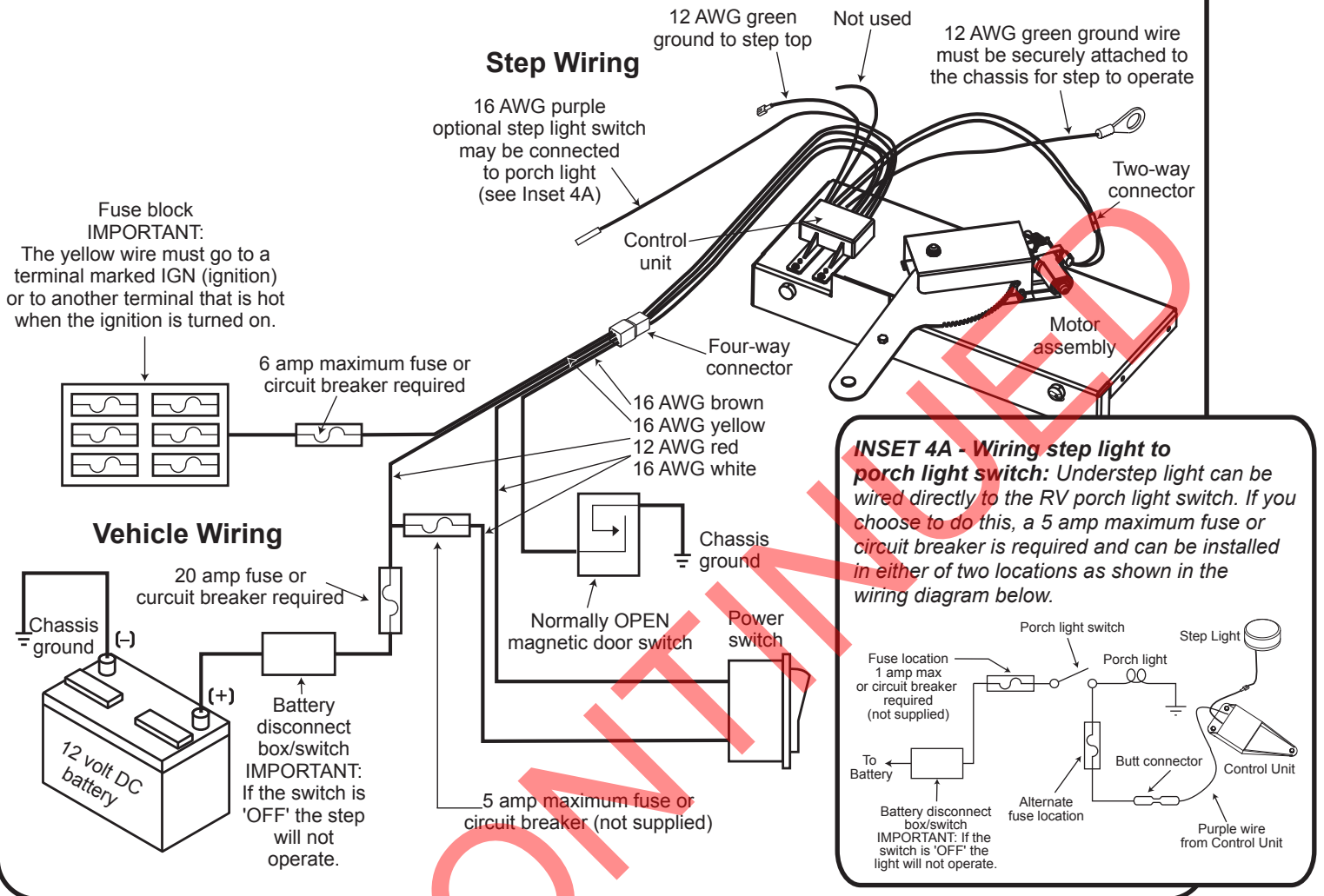


WARNING: 12 volt automotive batteries contain sulfuric acid which can cause severe burns. Avoid contact with the skin, eyes and clothing. 12 volt automotive batteries produce hydrogen gas which is explosive; keep cigarettes, open flames and sparks away from the battery at all times.

IMPORTANT INSTALLER NOTES:

Be sure that all ground connections are securely fastened with good metal-to-metal contact. A good ground is required for proper step operation.

FIGURE 4: Wiring diagram for step with control unit



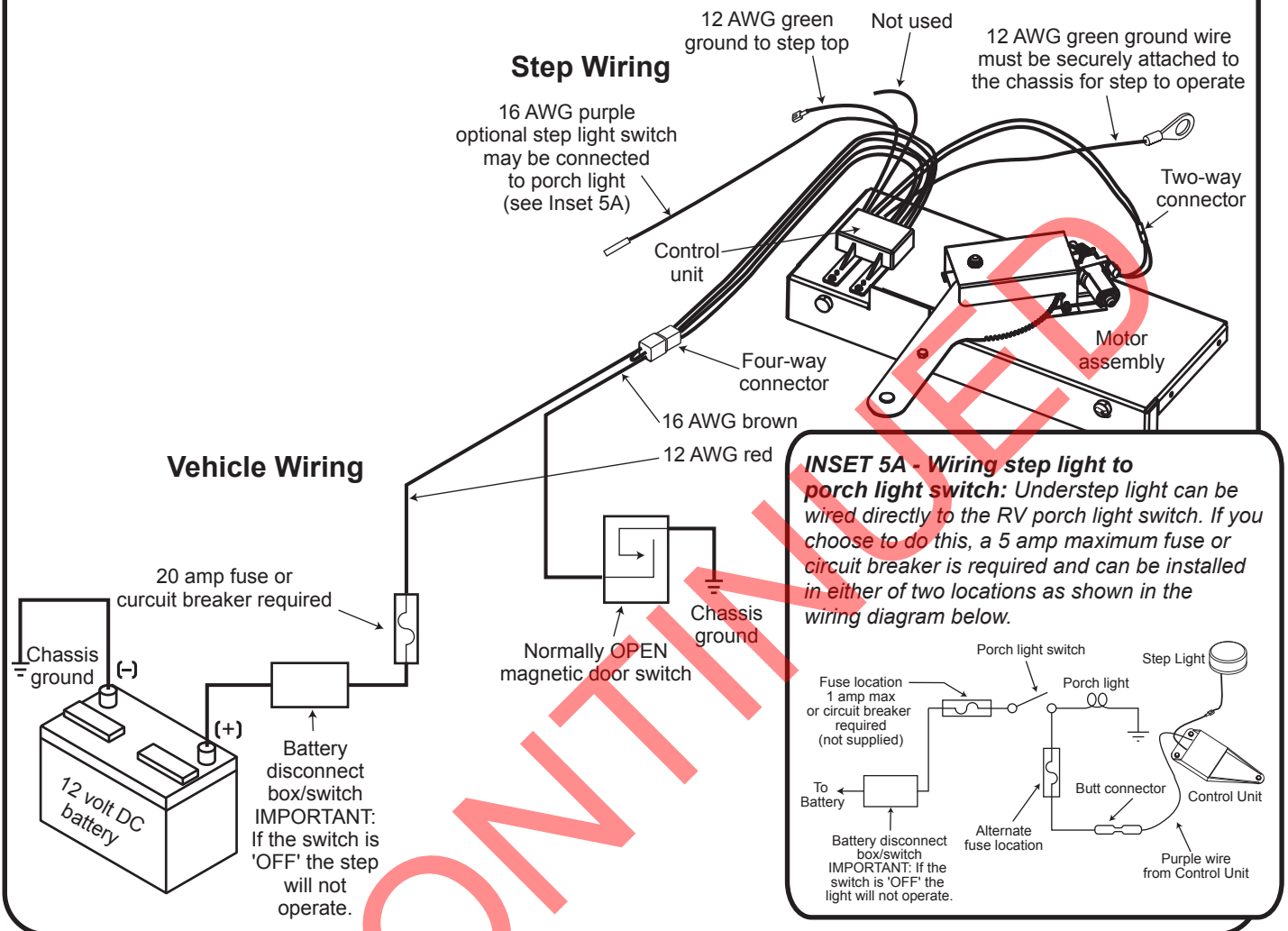
9. To test the Ignition Override feature, extend the step as in Step 8. With the step extended, connect the white wire to the battery's positive (+) terminal and attach the brown wire to the battery's negative (-) terminal. Next, touch the yellow wire to the battery's positive (+) terminal. The step should retract. Remove the brown wire and the step should extend.

10. To test the Override Switch, with the step retracted, touch the brown wire to the negative (-) terminal to retract the step. While holding the brown wire to the negative (-) terminal, touch the white wire to the battery's positive (+) terminal, and remove the yellow from the positive (+) terminal. The Step will stay retracted. Now, remove the brown wire. The step should extend. Now touch the brown wire to the battery's negative (-) terminal and the step should stay extended.

11. 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 9.

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

FIGURE 5: Wiring diagram for steps with door switch only operation



TESTING THE MOTOR

1. Disconnect the two-way connector between the step motor and the control unit.

Connect the motor's yellow wire to the positive (+) terminal of the battery and touch the motor's red 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.

TESTING THE 4-WAY CONNECTOR

1. 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 6** on Page 9). 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.

2. To check the override 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 7**). The reading should be a minimum of 12 volts DC (the same as in Step 1) when the switch is on, and zero (0) volts DC when the switch is off.

WARNING: 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.



If the voltmeter reads zero (0) volts when the override switch is on, there is a problem in the override switch circuit.

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

3. 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 8**) on Page 11). The voltage should be a minimum of 12 volts DC (the same as in Step 1) when the door is closed and zero (0) volts when the door is open.

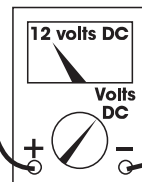
If the readings are incorrect, there is a problem with the switch. Check the door switch and the condition of the circuit's wiring and terminal connections.

FIGURE 6: Check power source

4-way connector
(vehicle-side)

Red

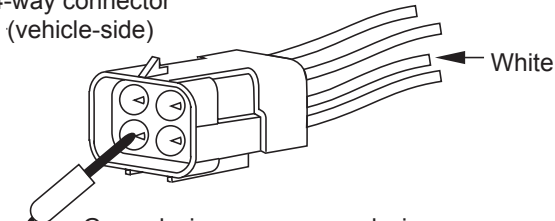
Ground wire: green ground wire must be attached to vehicle chassis; a good ground is needed for proper step operation



Voltmeter should read 12 volts DC

FIGURE 7: Check override switch

4-way connector
(vehicle-side)



Ground wire: green ground wire must be attached to vehicle chassis; a good ground is needed for proper step operation

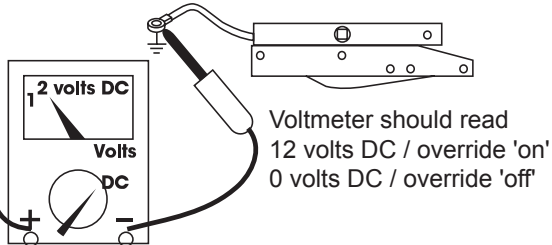
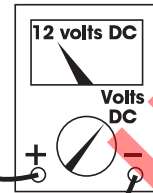
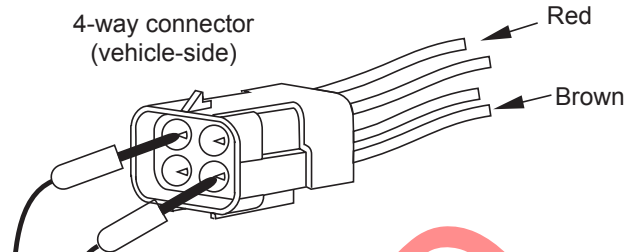


FIGURE 8: Check door switch

4-way connector
(vehicle-side)

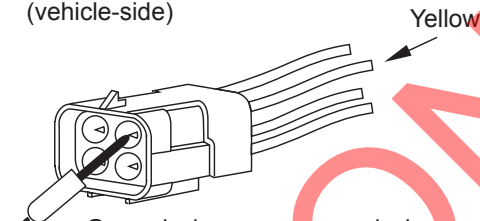


Voltmeter should read
12 volts DC when door
is closed

Voltmeter should read
0 volts DC when door
is open

FIGURE 9: Check ignition override

4-way connector
(vehicle-side)



Ground wire: green ground wire must be attached to vehicle chassis; a good ground is needed for proper step operation

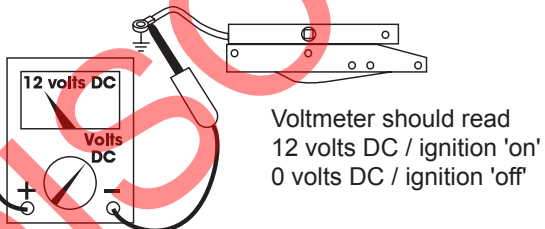
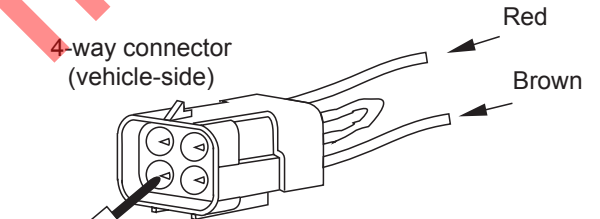
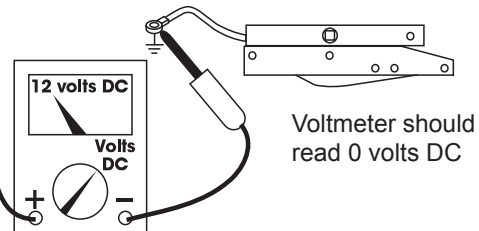


FIGURE 10: Check connector

4-way connector
(vehicle-side)



Ground wire: green ground wire must be attached to vehicle chassis; a good ground is needed for proper step operation



4. 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 9**.) 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.

5. 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 10**).

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

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

