Kwikee® PRODUCTS

by Lippert Components®

KWIKEE® 47 SERIES ELECTRIC STEP

OWNER'S MANUAL (3010001164)

TABLE OF CONTENTS

Safety Information

⚠WARNING

The "WARNING" symbol above is a sign that an installation procedure has a safety risk involved and may cause death or serious injury if not performed safely and within the parameters set forth in this manual. Always wear eye protection when performing this installation procedure. Other safety equipment to consider would be hearing protection, gloves, and possibly a full face shield, depending on the nature of the installation procedure.

⚠WARNING

The coach MUST be supported per manufacturer's recommendations before working underneath. Failure to do so may result in death or serious injury.

⚠WARNING

Failure to act in accordance with the following may result in death or serious personal injury. Read all operating instructions first before using your Kwikee® Electric Step.

⚠CAUTION

Moving parts can pinch, crush or cut. Keep clear and use caution.

Read all operating instructions first before using your Kwikee® Electric Step.

Product Information

NOTE: This information was obtained from Kwikee® manual 3010001164 Rev 0A dated May 2007. This manual does not apply and should not be used as a reference to previous versions of the Kwikee® electric step.

This manual has been provided to assist you with the identification, operation, maintenance, and troubleshooting of any Kwikee® Electric Step that is equipped with a door switch, an override switch, control unit and a permanent magnet motor.

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 “Auto Extend” 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.

⚠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 coach.

Operation

NOTE: If the yellow wire from the 4-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.

NOTE: If the yellow wire from the 4-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.

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

NOTE: Some steps are not equipped with a 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.
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.
6. Turn the vehicle ignition off and open the door. The step will extend and lock in the "out" position. This is the "Auto-Extend" feature.

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

General Service

⚠WARNING

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

⚠CAUTION

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

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 under step light (if so equipped) while the step is extending. The override switch must be off for the under step light to operate.

Prior To Troubleshooting

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

To determine if a control unit is not shutting off:

1. Remove the 4-way connector to the chassis and the 2-way connector between the step motor and the control unit.
2. Place a voltmeter between the red and yellow motor wires at the 2-way connector from the control unit. Reconnect the 4-way connector.
3. Turn the override switch on. If any voltage registers on the meter for more than five seconds, the control unit is not shutting off and may be defective.

NOTE: When doing this test, switch the voltmeter leads back and forth between the red and yellow motor wires to make sure no voltage registers.

4. If any voltage does register, disconnect the 4-way connector to keep the step motor from overheating.
5. If zero voltage is present, the control unit has shut off and is normal.

Troubleshooting

The following Step Test Procedures have been provided to troubleshoot and test all of the Kwikee® 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 reduce the time spent troubleshooting.

Some portions of the test procedures require additional equipment. This equipment includes: a voltmeter, a well charged 12 volts DC automotive battery, and a 4-way connector/pigtail Part Number 909306000 (Kwikee®) or Part Number 369243 (LCI®).

Step Test Procedure

1. Inspect the step for visible damage that might restrict the step's operation.
2. Obtain a 4-way pigtail connector, Part Number 909306000 (Kwikee®) or Part Number 369243 (LCI®).
3. Disconnect the 4-way connector on underside of the step and connect step-half of the connector to the 4-way connector pigtail (Fig. 1 and Fig. 2).
4. Set a fully charged 12 volts DC automotive battery beside the step.

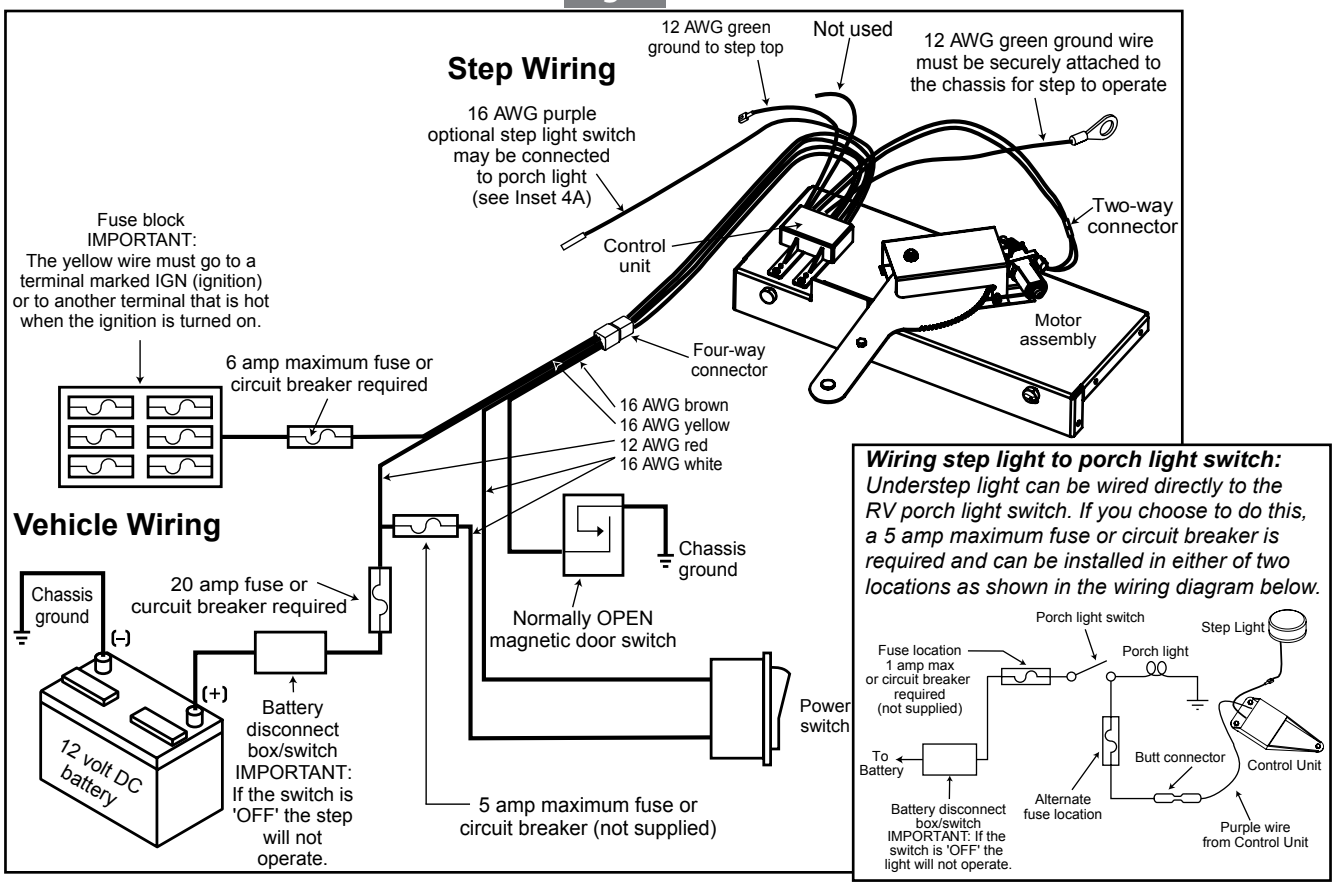
NOTE: Do not allow the battery terminals to come in contact with step. Complete a ground for step testing by connecting 10 AWG wire from the negative battery terminal to the green ground wire of the control unit.

5. To supply power, attach the red wire from pigtail to positive battery terminal. 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 battery terminal.
8. To extend the step, remove the brown wire from the negative battery terminal.
   - **A.** To test the Ignition Override feature, extend the step.
   - **B.** With the step extended, connect the white wire to the positive battery terminal and attach the brown wire to the negative battery terminal.
   - **C.** Next, touch the yellow wire to the positive battery terminal. The step should retract.
   - **D.** Remove the brown wire and the step should extend.
9. To test the Override Switch, with the step retracted, touch the brown wire to the negative battery terminal to retract the step.
   - **A.** While holding the brown wire to the negative battery terminal, touch the white wire to the positive battery terminal, and remove the yellow from the positive battery terminal. The step will stay retracted.
   - **B.** Now, remove the brown wire. The step should extend.
   - **C.** Now touch the brown wire to the negative battery terminal and the step should stay extended.

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 Testing the Motor section.

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.

Fig. 1



Testing The Motor

⚠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 step extends and retracts during this test, the condition of the step motor is good.

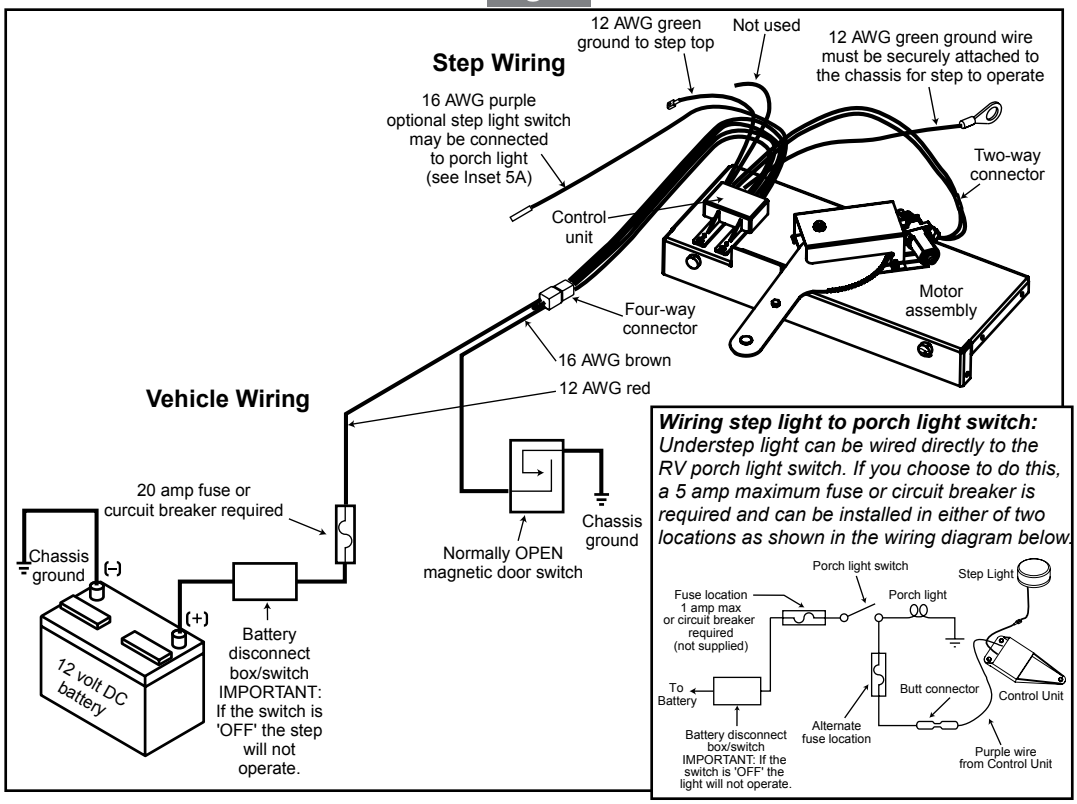
1. Disconnect the 2-way connector between the step motor and the control unit.
2. Connect the motor's yellow wire to the positive battery terminal and touch the motor's red wire to the negative battery terminal to extend the step.
3. To retract the step, reverse the connections.

Testing The 4-Way Connector

To check the main power source:

1. 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 (Fig. 3).
2. The reading should be a minimum of 12 volts DC.

Fig. 2



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 volts:

1. Check the step fuse/circuit breaker
2. Check all connections
3. Check the condition of the wiring between the battery and the plug, including the ground connection at the chassis.

To check the override switch:

1. 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 (Fig. 4). The reading should be a minimum of 12 volts DC when the switch is on, and zero volts DC when the switch is off.
2. If the voltmeter reads zero volts when the override switch is on, there is a problem in the override switch circuit.
   - **A.** Check the 6 amp in-line fuse
   - **B.** Check the override switch
   - **C.** Check the condition of the circuit's wiring and terminal connections.

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.

3. For steps equipped with door switch only operation:
   - **A.** Connect the white jumper wire from the vehicle half of the 4-way connector and the ground terminal at the end of the control unit's green ground wire (Fig. 7). Make sure to use the terminal with only the white wire.
   - **B.** The reading should be zero volts DC. If the voltage reading is more, the white wire is connected to 12 volts DC and should be cut.

Fig. 3

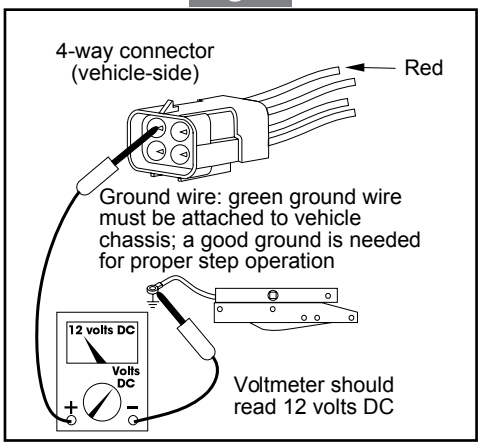


Fig. 4

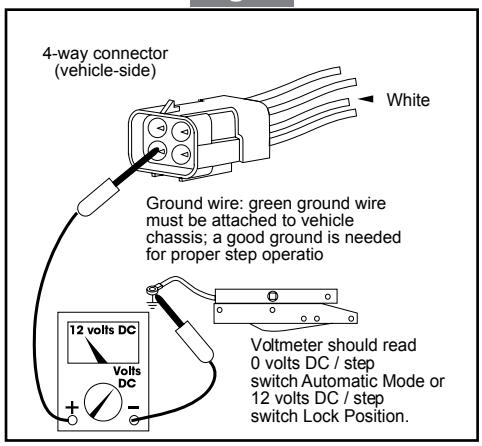


Fig. 5

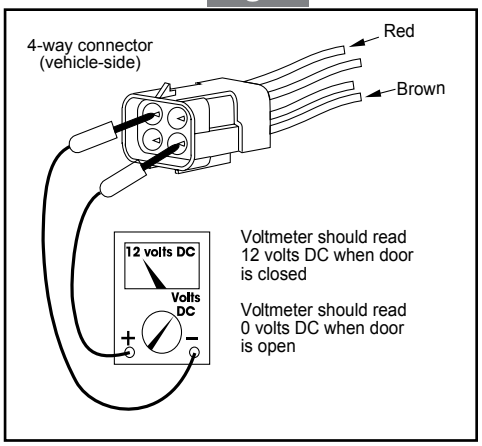


Fig. 6

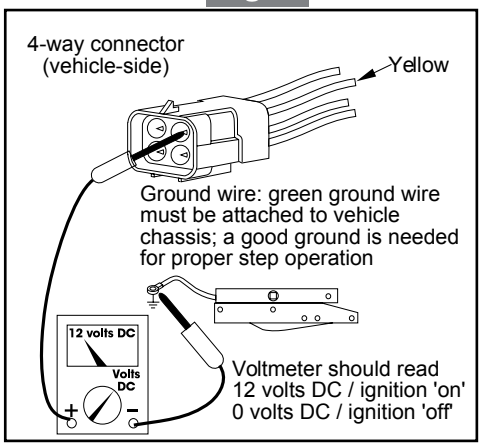
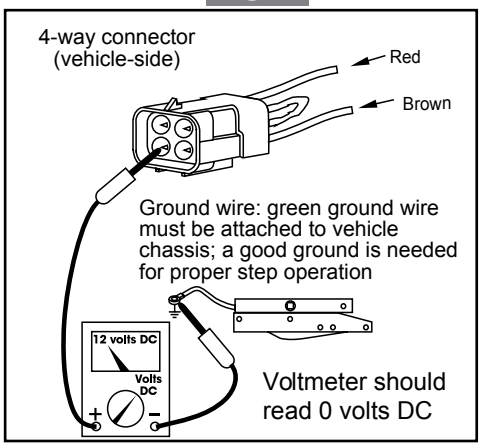


Fig. 7



Maintenance

Step Assembly Lubrication

Clean all mud, salt, and road grime from the step before lubricating. Lubricate all moving parts (bearings, pivot points, slides, clevis pin, and drive linkage ball) every 30 days with a good quality moisture and heat resistant penetrating grease. KwikLube™ Spray Grease is specially formulated to lubricate Kwikee® Electric Steps and is recommended for lubricating all moving parts. Refer to the figures 8-15 for lubrication locations.

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.

1. On the square shaft bearing, lubricate around outside (Fig. 8) and under head of bearing (Fig. 10).
2. On step models equipped with a plastic cover, this cover will have to be removed to lubricate center bearings (Fig. 11). Lubricate bearings under cover every 90 days.
3. Lubricate around the bushing-in-bushings (Fig. 11).
4. Maintain clean, dry electrical connections at the 2-way and 4-way connectors and any butt connections leading from the 4-way connector to the vehicle. A small dab of dielectric 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.

NOTE: Figures are to be used for general reference purposes only. Some may not pertain to your particular step model.

Fig. 8

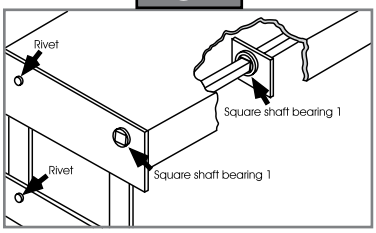


Fig. 9

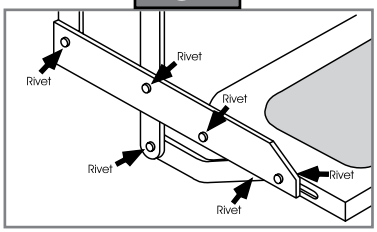


Fig. 10

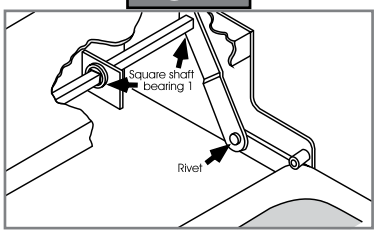


Fig. 11

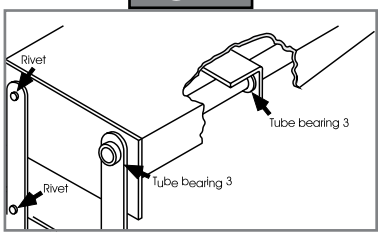


Fig. 12

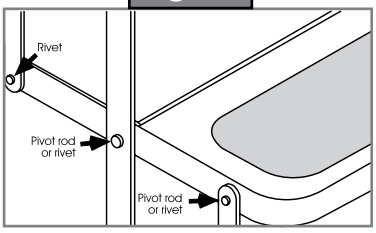


Fig. 13

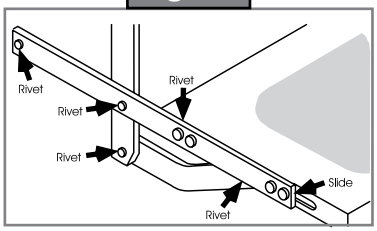


Fig. 14

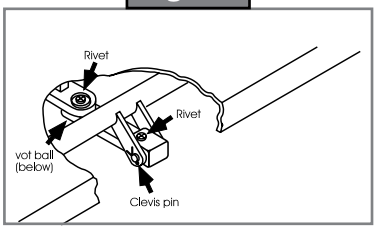
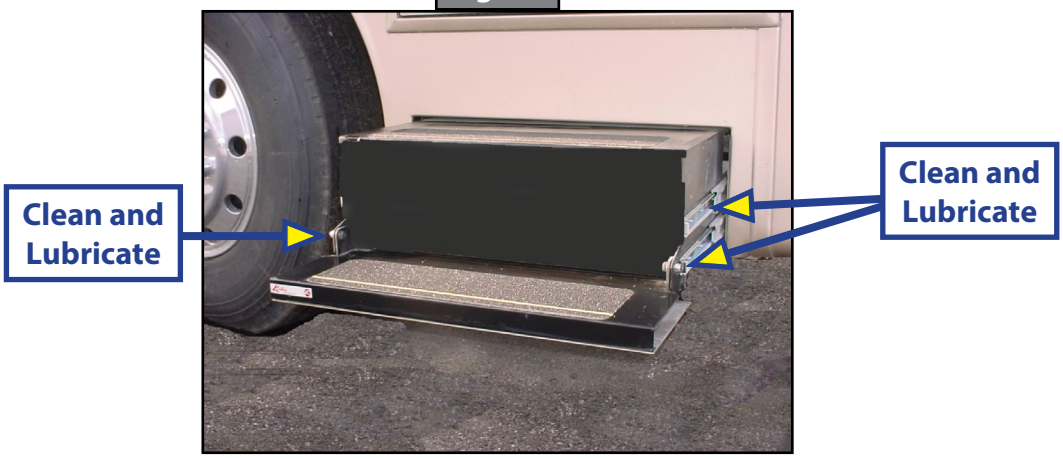


Fig. 15



Maintenance In A Salt Environment

To maintain step finish when the step is exposed to a salt environment for extended periods of time, routinely spray step with fresh water.

Adjusting Cam Stops

⚠WARNING

If the cam stops are not properly adjusted the step may not extend fully to the locked-out position. Using a step with loose or out-of-adjustment cam stops may cause damage to the motor assembly and/or the drive linkage.

NOTE: The adjustment of cam stops applies to 24, 25, 27, 32, 34, 35, 36, 38, and 40 Series Steps.

Kwikee® Steps are fitted with adjustable cam stops on the step frame that help lock the step in the "out" position, creating a firm stepping platform and relieving load-bearing stress on the motor and drive linkage. The cam is adjusted at the factory, but due to the rigors of shipping, installation, and normal use the cam may fall out of adjustment and need to be tightened. When the cam stops are out of adjustment, the step may feel loose or "mushy" when stepped on. The cam stops are located under the step top on the 32, 36, and 38 Series Steps, and on the bottom tread side rail on the 24, 25, 27 and 40 Series Steps. There is one stop on each side of the step.

⚠ CAUTION

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

1. Loosen the stops so they move freely, and retract the step.
2. Extend the step fully to its locked extended position (Fig. 15). Make sure that the motor assembly linkage rests against the gear case as illustrated (Fig. 16). Repeat if needed until the motor assembly locks in the extended position.
3. Push the stops against the leg and tighten securely (Fig. 17). Make sure that both stops are tightened and that they rest securely against the leg.
4. Retract and fully extend the step. Check the motor assembly to be sure that it is locked all the way out, and that both stops are secure against the legs. Repeat the procedures if needed to properly adjust the stops.
5. Push on the front edge of the step tread. If the step seems loose, the stops may not be properly adjusted so that they rest tightly against the leg. Repeat steps 1-4.

Fig. 16

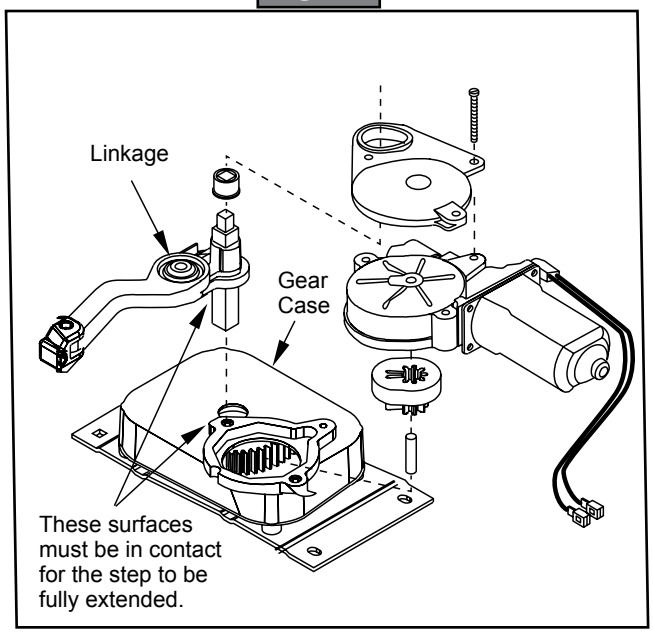
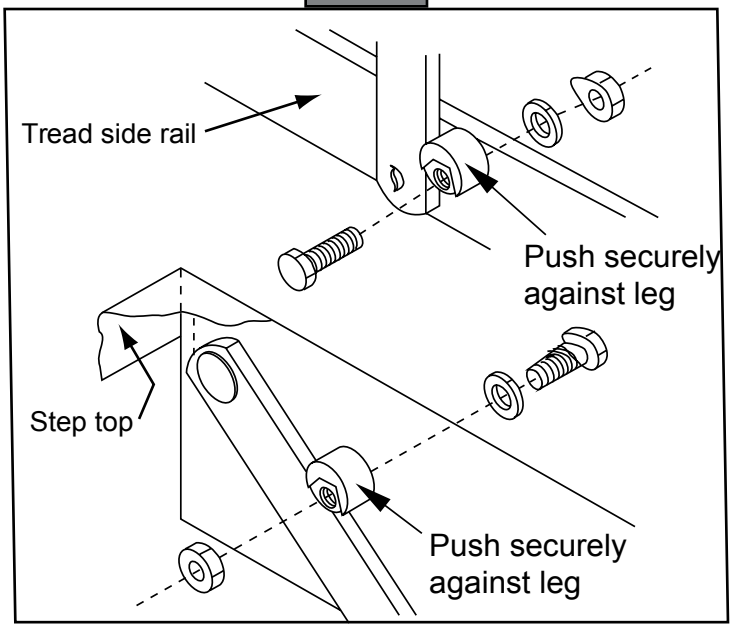


Figure 16 shows motor removed and some parts enlarged for clarity. Disassembly not necessary for cam adjustment.

Fig. 17



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