



by  Lippert Components®

IMGL AND 9510 CONTROL
REPLACEMENT KIT #214
INSTALLATION MANUAL

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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 specifications before working underneath. Failure to do so may result in death or serious injury.

CAUTION

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

WARNING

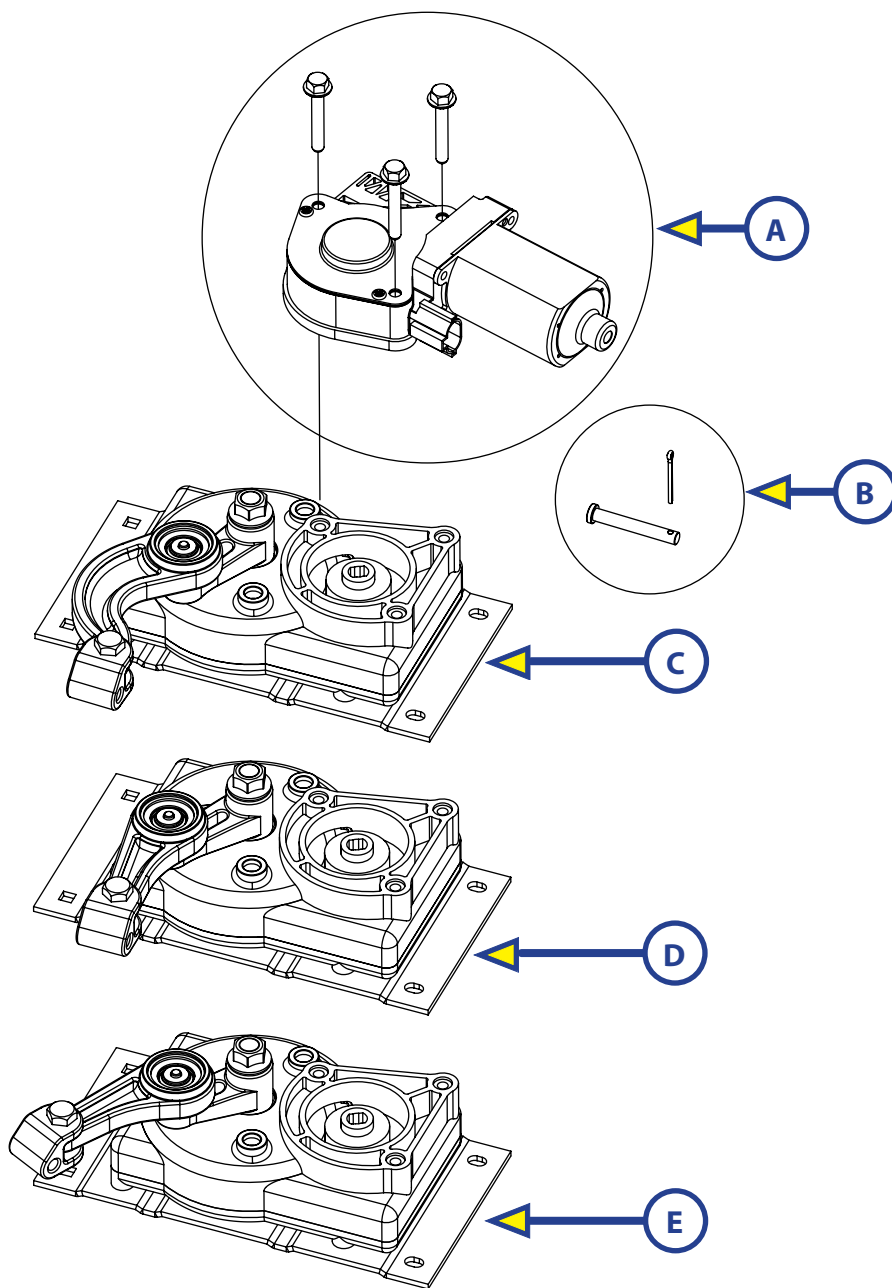
There is an electric shock hazard associated with this procedure. Disconnect power before working on this unit. Failure to follow all safety procedures and all procedures in this manual could cause serious injury or death.

Product Information

NOTE: Part Number 909770000 (Kwikiee) or [379145](#) (LCI) Replacement Kit Linkage A; applies to the following Series Steps: 22, 23, 30, 32, 33, 34, 35, 36, 38 and 40. Part Number 909772000 (Kwikiee) or [379769](#) (LCI) Replacement Kit Linkage B; applies to the following Series Steps: 28, 31, 37 and 39. Part Number 909774000 (Kwikiee) or [379801](#) (LCI) Replacement Kit Linkage C; applies to 26 Series Steps.

Replacement Kits contain an IMGL (Integrated Motor/Gearbox/Linkage Assembly), a control unit, 4-way pigtail, and a fastener kit. Replacing the motor, gear box, and linkage with the IMGL on a step **that has any other controller than a 909510000 (Kwikiee) or [379146](#) (LCI) Control Unit** (as included) requires the installation of the new control unit Part Number 909510000 (Kwikiee) or Part Number [379146](#) (LCI) included in the replacement kit.

NOTE: Any control unit or motor repair needed on steps using a Delco Field Wound motor (Part Number 8002, 8278, 8279, 8287) requires the IMGL and control unit included in the replacement kit.

Fig. 1

Callout	Kwikee Part Number	LCI Part Number	Description
A	1101428LT	379147	Motor and screws
B	905205000	379178	Cotter and clevis pins
C	909770000	366043	Motor, Gearbox and Linkage A Assembly
D	909772000	369545	Motor, Gearbox and Linkage B Assembly
E	909774000	366047	Motor, Gearbox and Linkage C Assembly
F	909306000	369243	4-Way Packard Style Connector
G	909510000	379146	Controller/Control Unit for IMGL/9510

Removal and Replacement of IMGL Assembly

CAUTION

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

1. On Van Steps, remove plastic splash cover if so equipped. If the step is locked in the retracted (up) position where the plastic cover cannot be removed, the step tread will have to be disassembled to access the plastic cover. To disassemble the tread, remove the (8) 1/4"-20 x 1" long hex head bolts in the tread side rails connecting the tread and the sliding blocks to the side rail. This will allow the tread to be dropped out of the way to access the plastic cover. Reassemble the tread after removing the cover.

NOTE: To remove the IMGL assembly from the step it is easiest if the step is partially or fully extended. If possible, extend the step with the standard door switch operation. See illustrations (Fig.1 and Fig. 2) for item numbers specified.

Steps using a control unit: Unplug the 4-way connector (Fig. 2F) to the control unit. Disconnect the wiring between the motor and the control unit (Fig. 2G).

Steps without a control unit: Cut the wires at the butt connectors approximately 12" from the motor.

2. Remove the cotter pin from the clevis pin at the linkage assembly.
3. Remove the clevis pin (Fig. 1B) from the cast "U" block in the end of the linkage assembly (Fig. 1B, Fig. 1D or Fig. 1E). Note the direction the clevis pin goes into the cast block. If the step is in its locked position, the pin may have to be pried or driven out of the block. The step tread(s) should now swing freely, if not check for a bent step frame or jammed pivot point(s).
4. Unbolt the motor assembly from the step frame.
5. Install new IMGL assembly on step frame and tighten all mounting bolts.
6. Install the clevis pin (Fig. 1B) through the drive arms attached to the step frame and the cast block in the linkage assembly (Fig. 1C, Fig. 1D or Fig. 1E). Be sure to reinstall the clevis pin in the same direction it was removed. Install the cotter pin in the clevis pin.
7. Reconnect the wiring:
 - A. **Wiring to a 909510000 (Kwikkee) or 379146 (LCI) Control Unit** - Plug the motor connector from the control unit into the motor.
 - B. **Wiring to toggle switch only** - Using the motor adapter pigtail connect the mating connector to the connector on the motor. Connect the red and yellow pigtail wires to the vehicle switch wires using heat shrink insulated butt connectors.

NOTE: Plug in the 4-way connector between the control unit and the vehicle. On 23 and 34 Series Steps, see the mounting instruction (Fig. 3 and Fig. 4) when replacing a #8287 double reduction motor with a permanent magnet motor assembly.

Removal and Replacement of the Control Unit

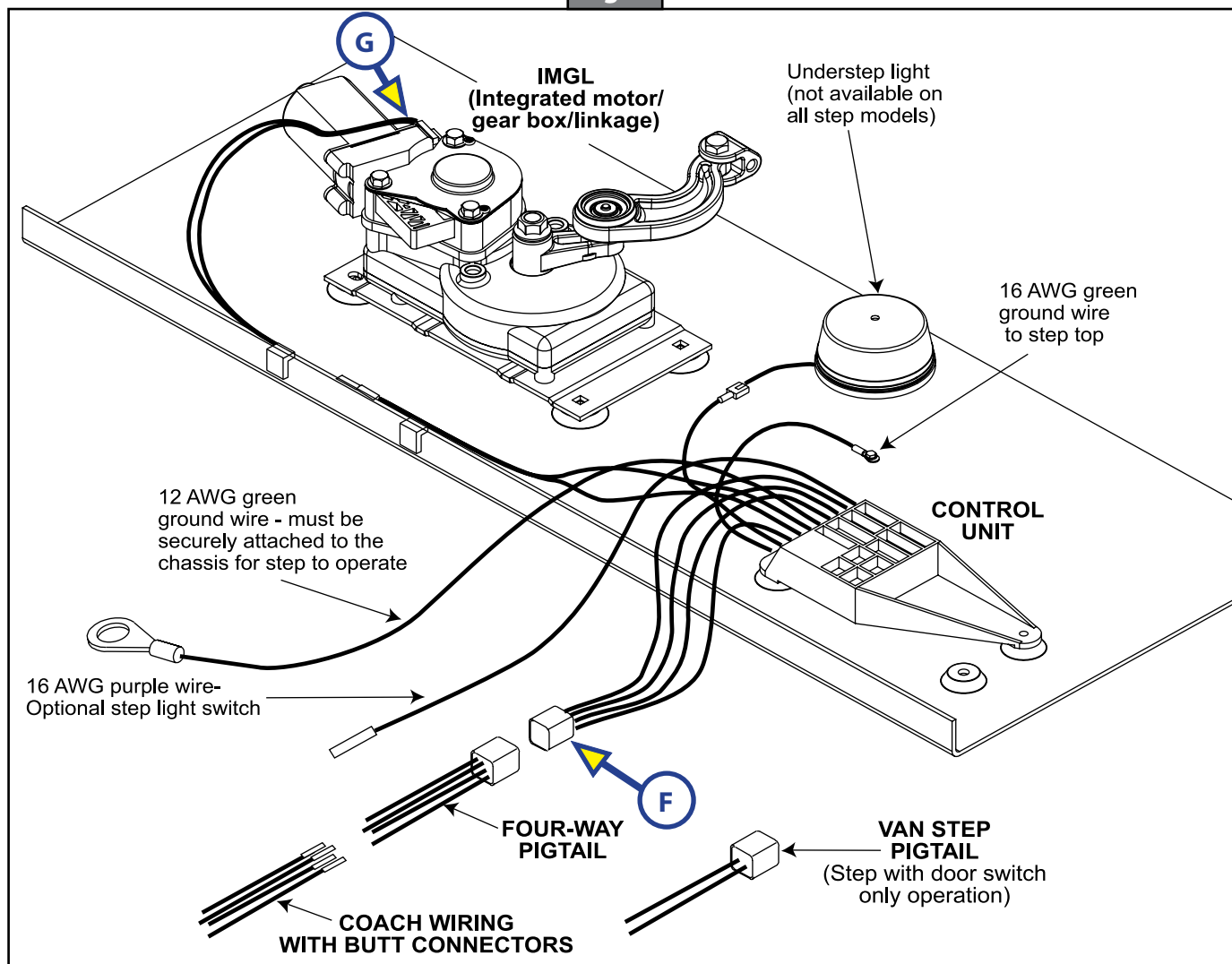
CAUTION

Control Unit Part Number 909510000 (Kwikkee) or Part Number 379146 (LCI) requires a normally open switch. If you are replacing a 9513, 9516, 9590 control unit you MUST also replace the door switch. The new control will not work with older, normally closed switches.

NOTE: Proceed to the following steps after completing IMGL Assembly Removal steps.

1. **Controls prior to the 4-way Packard style connector** - Cut the molded rubber 4-way connector pigtail off just above the vehicle half of the butt connectors. Since all manufacturers use different colored wires for vehicle wiring, take a moment to note what color wires from the vehicle are connected to the white, red, brown and yellow wires of the pigtail. Strip the vehicle wires back and connect the new Packard style pigtail connector to the vehicle wiring using heat shrink insulated butt

Fig. 2



connectors. Make sure that the vehicle wires that were connected to the old pigtail are reattached to the new pigtail in the identical way.

NOTE: Van steps using door switch only operation will have 2 wires coming from the vehicle. Cut the wires just above the connector and butt connect the pigtail wires to the vehicle wiring. Make sure that the vehicle wires that were connected to the old pigtail are connected to the new pigtail in the identical way.

2. Disconnect the black wire leading from the control unit to the under step light at the connector. Do not cut this wire.

NOTE: Not all steps are equipped with an under step light.

3. On steps with a blue, red, green, yellow, brown, or orange control unit, remove the screw securing the green wire from the control unit to the step frame. Save the screw for securing the green wire on the new control unit. On orange control units manufactured after 1991 remove the screw securing the 31" long 10 gauge green ground wire from the control unit to the vehicle chassis.
4. Remove the old control unit from the step frame. Save the mounting screws for mounting the new control unit to the step frame.
5. Using the screws saved from the old control, mount the new control to the step frame.
6. Reconnect the wiring:
 - A. Ground the 16 gauge green wire from the control unit to the step frame. Remove any corrosion at the attachment point. Attach it placing the external tooth lock washer supplied with the new control unit between the ring terminal on the end of the green wire and the step frame.

- B. Attach the 31" long 12 gauge green wire to the vehicle chassis. Scrape the connection point clear for a good ground connection. On steps with a braided ground cable, the braided cable may be removed.
- C. Connect the black wire from the control unit to the under step light. On steps not equipped with an under step light, wrap the black wire to protect it from the weather and secure it to keep it from dangling.
- D. Connect the connector to the step motor.

NOTE: The Part Number 909510000 (Kwikkee) or Part Number [379146](#) (LCI) Control Unit is to be used only with the AM Equipment 214 motor. The 214 number will be on a sticker located on the motor.

- 7. Reinstall the splash cover if the step was so equipped.
- 8. Reconnect the vehicle battery.
- 9. Test the step functions.

Fig. 3

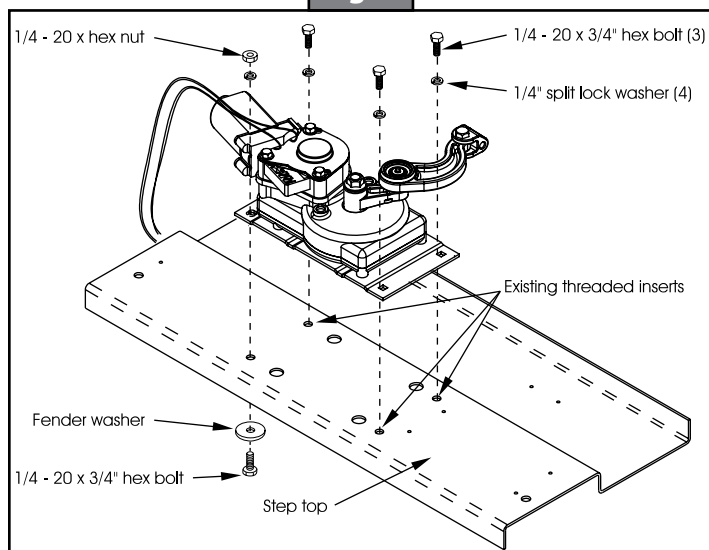
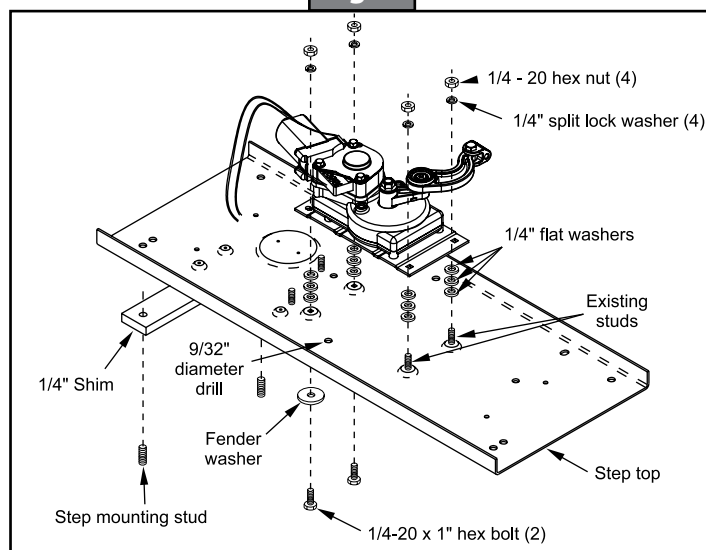


Fig. 4



Step Motor Replacement

23 Series Step

The 4-way connector should be disconnected and the old motor assembly should already be removed from the step top as previously described.

- 1. If the step frame is mounted flush against the step mounting surface, the step will have to be removed to access the top side of the step frame.
- 2. The hole pattern for the new motor assembly does not line up properly with the old mounting holes. See the following diagrams for the 23 Series Step (Fig. 3) and the 34 Series Step (Fig. 4).

NOTE: All 4 mounting bolts must be used to attach the motor assembly to the step frame or the step may not operate properly and damage to the step may occur.

- 3. Bolt down the motor assembly and install the clevis pin and cotter pin as described in Motor Assembly Replacement.
- 4. Remount the step to the vehicle.

NOTE: If you are installing a control unit, it will be easier to do this while the step is removed from the vehicle.

34 Series Step

NOTE: See (Fig. 4) for important information on remounting 34 Series Steps flush against the step mounting surface.

1. If the step is mounted flush against the mounting surface, the step must be removed from the vehicle before drilling the $\frac{9}{32}$ " dia. hole for attaching the motor assembly.
2. The $\frac{1}{4}$ " flat washers are used to shim the permanent magnet motor assembly away from the step top so the motor assembly will sit level. This is important for proper step operation.
3. If the step was originally installed flush against the step well, a $\frac{1}{4}$ " thick shim may be needed (not provided) so the motor assembly mounting bolt heads will clear the mounting surface.

Notes

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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