Installation Instructions

Electronic Lock Indicator (ELI®) RK-10855-L, RK-10855-R and RK-10855-A 2-Sensor Retrofit Kit

- For XA-311, XA-351 and XA-331 Series Fifth Wheel Top Plates
Introduction

This manual provides retrofit procedures for installing the Electronic Lock Indicator System (ELI) for the Holland FW35 series fifth wheels. See page 3 for exact model identification.

**NOTE:** For Holland replacement components contact SAF-HOLLAND Customer Service: 888-396-6501.

Notes, Cautions, and Warnings

You must read and understand all of the procedures presented in this manual before starting work on any Electronic Lock Indicator System (ELI) for the Holland FW35 series fifth wheels.

**IMPORTANT:** Keep this manual in a safe location for future reference.

Proper tools must be used to perform the maintenance and repair procedures described in this manual.

**NOTE:** In the United States, work shop safety requirements are defined by federal and/or state Occupational Safety and Health Acts. Equivalent laws may exist in other countries. This manual is written based on the assumption that OSHA or other applicable employee safety regulations are followed by the location where work is performed.

Throughout this manual, you will notice the terms "NOTE," "IMPORTANT," "CAUTION," and "WARNING" followed by useful product information. So that you may better understand the manual, those terms are defined as follows:

**NOTE:** Includes additional information to enable accurate and easy performance of procedures.

**IMPORTANT:** Includes additional information that if not followed could lead to hindered product performance.

**CAUTION**

Used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
1. Model Identification

This manual contains retrofit procedures for installing an Electronic Lock Indicator (ELI) on the 3500 Fifth Wheel Top Plate (XA-351 Series), and for the 3500 LowLube Fifth Wheel Top Plate (XA-331 Series) manufactured after January 1, 1997, as well as 3500 NoLube fifth wheel top plate (XA-311 Series) (Figure 1).

The ELI is NOT available for FW3500 fifth wheel top plates manufactured before December 31, 1996 (Figure 2).

2. General Safety Instructions

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

The Electronic Lock Indicator System (ELI) installation must be performed by a trained technician using proper tools and safe procedures.

**IMPORTANT:** The Electronic Lock Indicator (ELI) is a tractor-trailer fifth wheel coupling aid and is intended as an additional safety check to assure the driver of a safe and complete coupling. It does not eliminate the requirement for a visual inspection of the fifth wheel. Always get out of the tractor cab and visually inspect the fifth wheel coupling before proceeding.

**IMPORTANT:** Prior to operation of the fifth wheel you must be thoroughly satisfied that the fifth wheel has been properly installed on the vehicle.

**WARNING** Failure to properly install, the fifth wheel may result in tractor trailer separation which, if not avoided, could result in death or serious injury.


We recommend only the use of HOLLAND Original Parts.

A list of SAF-HOLLAND technical support locations to supply SAF-HOLLAND Original Parts can be found at www.safholland.us or contact our customer service group at 888-396-6501.

Updates to this manual will be published as necessary on the Internet at www.safholland.us.
REQUIRED TOOLS AND SUPPLIES

- Electric Drill
- Torque Wrench (ft.-lbs.)
- 3/8” Wrench
- 3/4” Wrench (2)
- 13/16" dia. Hole Cutter
- Isopropyl Alcohol
- Clamps
- Scissors/Knife
- Hammer or Mallet

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* Not included in this kit. Items are listed only for reference.
† Included in this kit, but not shown in this drawing.
3. Top Plate Removal

**NOTE:** Some fifth wheel assemblies have replaceable pocket inserts installed between fifth wheel top plate and mounting base. Take care when removing the fifth wheel top plate not to lose pocket inserts.

**CAUTION** Failure to prevent pocket inserts from falling out of the top plate could cause a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

1. Remove bracket pin retention bolts and nuts from both sides of fifth wheel top plate *(Figure 3).*
2. Using a pry bar, pull bracket retention pins out of fifth wheel top plate *(Figure 3).*
3. Using a lifting device capable of lifting 500 lbs. (227 kg), remove top plate from mounting base. Place fifth wheel upside down on a flat, clean working area.

**NOTE:** Follow instructions published by lifting device manufacturer for proper operation of lifting device.
4. Remove retaining rings from lock pins and discard (Figure 4).

5. Place drill fixture over lock pins (Figure 5) with “UP” mark facing up. Clamp the fixture to the fifth wheel.

6. Drill both holes 1/2” deep with a #1 (.228) drill bit. Remove and discard the fixture. DO NOT reuse the drill fixture (Figure 6).

**NOTE:** Before proceeding, make sure the top plate and work areas are free of chips and burrs.

7. Install the new retaining rings (Figure 4).

8. Determine whether your top plate has a right-hand, left-hand, or air release and follow the appropriate instructions. For left-hand release and air release, see pages 7 and 8. For right-hand release, see pages 9 and 10.
4. Left-Hand and Air Release Installation

**NOTE:** For right-hand release instructions, see page 9.

1. Remove the cam bolt and rotate the cam away from lug “A” *(Figure 7)*.

2. Place drill fixture on top of the lugs with the “L” facing up. Place the cam bolt into the fixture. Insert the locator pin into the hole in lug “B” *(Figure 8)*.

3. Clamp drill fixture to the fifth wheel. Drill through lug “A” with a #7 (0.201) drill bit *(Figure 9)*. Remove and discard the drill fixture. DO NOT reuse the fixture.
4. Pound the roll pin into the newly drilled hole flush with the top of the lug (Figure 10).

**NOTE:** Before installing the sensors and harness, make sure the top plate and work areas are free of chips and burrs.

5. **Left-Hand and Air Release Harness Installation**

**Cam Sensor Bracket Installation**

1. Clean and lubricate the cam plate. Install cam sensor bracket under lug “A”. Position hole “B” onto the bottom of the roll pin.

2. Once the cam sensor bracket is attached to the roll pin, line up hole “C” (Figure 11) with the cam bolt hole. Replace the washer over the cam bolt hole, and rotate the cam plate back into position (Figure 12). Re-install the roller and second washer. Finally, guide the hex head cap screw through the washer, roller, cam plate, washer, lug, and the cam sensor bracket, add washer. Screw the new lock nut onto the hex head cap screw and tighten securely. Check the cam operation for free movement. Clean away excess grease.

**NOTE:** When installing the washers, the rounded edge of the washers must always face the cam plate.

_Proceed to “Kingpin Sensor Bracket Installation” on page 11._

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**Figure 10**

![Figure 10](image1)

**Figure 11**

![Figure 11](image2)

**Figure 12**

![Figure 12](image3)
6. **Right-Hand Release Installation**

1. Remove the cam bolt and rotate the cam away from lug “B” (Figure 13).

2. Place drill fixture on top of the lugs with the “R” facing up. Put cam bolt into the fixture. Insert locator pin into the hole in lug “A” (Figure 14).

3. Clamp the drill fixture to the fifth wheel. Drill through lug “B” with a #7 (0.201) drill bit (Figure 15). Remove the fixture after drilling. DO NOT reuse the drill fixture.
4. Pound the roll pin into the newly drilled hole flush with the top of the lug (*Figure 16*).

**NOTE:** Before installing the sensors and harness, make sure the top plate and work areas are free of chips and burrs.

7. **Right-Hand Release Harness Installation**

   **Cam sensor bracket installation**

   1. Clean and lubricate the cam plate. Install cam sensor bracket under lug “B” (*Figure 17*). Position hole “B” onto the bottom of the roll pin.

   2. Once the cam sensor bracket is attached to the roll pin, line up hole “C” with the cam bolt hole. Place the washer over the cam bolt hole, and rotate the cam plate back into position (*Figure 17*). Re-install the roller and second washer. Finally, guide the hex head cap screw through the washer, roller, cam plate, washer, lug, the cam sensor bracket, and washer (*Figure 18*). Screw the new lock nut onto the hex head cap screw and tighten securely. Check the cam operation for free movement. Clean away excess grease.

**NOTE:** When installing the washers, the rounded edge of the washers must always face the cam plate.
8. Kingpin Sensor Bracket Installation

1. Mount the kingpin sensor bracket to the fifth wheel *(Figure 19)* with the thread-cutting screws. Torque screws to 12 ft.-lbs. DO NOT overtighten the screws. DO NOT use air or impact tools.

**NOTE:** The kingpin sensor bracket mounts in the same position for both left-hand, right-hand and air release fifth wheels.

2. Assemble the cable ties and spring clips together before pressing the clips onto the casting *(Figure 20)*.

3. Route the harness on the fifth wheel as shown *(Figure 21)*. Use clips and cable ties to fasten the harness to the fifth wheel ribs in the locations shown *(Figure 21)*.

**NOTE:** A left-hand release fifth wheel is shown here. For a right-hand release, the cam sensor bracket and wiring are mirrored on the opposite side of the top plate.

4. Re-install the fifth wheel top plate onto the tractor.
9. Sensor Position Check

1. Lock the fifth wheel top plate using a Holland lock tester TF-TLN-5001 and flip the top plate upside down.

2. Check to make sure the cam plate (Figure 22) and the kingpin (Figure 23) are both within 3/8" of their respective sensor. Pull the cam plate, by hand, away from the sensor as far as possible when checking the distance. The cam must not be able to touch the sensor. The cam sensor bracket may be bent slightly to adjust its distance from the cam. To avoid damaging the sensor, only pry on the metal when bending the bracket. DO NOT pry on the sensor. After adjusting, push cam towards sensor, making sure they do not touch.

3. Remove the lock tester and check that the kingpin sensor is not too close to the locks when they are open. There should be a minimum of .15" between the sensor and the bottom of the locks (Figure 24). If the distance is close the kingpin bracket can be bent slightly. After adjusting away from the locks, recheck the distance to the kingpin by use of the lock tester.
10. Top Plate Installation

1. Visually inspect both pocket inserts for excessive wear, chips, cracks or gouges. If any of these conditions are found, the pocket insert(s) must be replaced (Figure 25). For pocket insert replacements, contact SAF-HOLLAND Customer Service and request RK-PKT-2.

2. If pocket inserts are dislodged from fifth wheel casting, clean pocket area of casting and apply a strip of double face tape in bottom of pockets. Install pocket inserts by pressing them down into the pocket areas (Figure 26).

3. Using a lifting device capable of lifting 500 lbs. (227 kg), install fifth wheel top plate onto its mounting base.

   NOTE: Follow instructions published by lifting device manufacturer for proper operation of lifting device.

4. Install bracket pins through fifth wheel casting and mounting base and secure by installing the bracket pins retention bolts and nuts (Figure 27). Torque retention bolts not to exceed 60 ft.-lbs. (81 N•m).
11. Wire Routing Procedure

1. Mount the display box in the cab so that it is easily visible and accessible to the driver. Clean the dash and display box mounting surfaces with isopropyl alcohol, and allow to air dry. Use the provided, re-closable adhesive fastener to mount the display box on the dash.

2. Route the cable on the Electronic Lock Indicator (ELI) display box to approximately where the 25’ extension cable will enter the cab.

3. Install corrugated loom around extension cable (Figure 28).

4. Cut one (1) slit into the grommet (Figure 29).

5. Wrap the grommet around the 25’ extension cable in the approximate location where it will enter the cab.

6. Drill a 13/16” diameter utility hole in the cab making sure that there are no obstructions near the drilling area.

7. Run the end of the 25’ extension cable with the power lines through the utility hole and into the cab.

8. Install the 1-amp fuse, which is included with the extension cable (Figure 30).
   a. Strip 3/8” of insulation from the RED extension cable power wire and the tractor’s positive (+) power wire. It is recommended that a switched terminal in the main fuse box be used so that power is supplied when the ignition is turned on.
   b. Insert the wires into each end of the fuse holder.
   c. Crimp the terminal through the fuse holder body.

   **CAUTION** Failure to connect a voltage source that matches the specification on the box will result in a damaged and inoperable display box.

9. Connect the 2-wire power cable from the extension cable to a 12- or 24-volt power supply. (The back of each display box is marked with 12- or 24-VDC.) Be sure to connect the RED wire with the fuse — as outlined in Step 8 — to the positive (+) terminal, and the BLACK wire to the (-) terminal.
10. Connect the 25’ extension cable to the ELI display box cable inside the cab.

11. Press the grommet into position in the utility hole. Apply sealant to the grommet and extension cable to prevent moisture intrusion into the cab.

12. Route the 25’ extension cable from the cab to the fifth wheel (Figure 31).

13. Route the wire clear of pinch points.

**NOTE:** For sliding fifth wheels, be sure to leave enough slack for travel and route the wire clear of pinch points. It can be helpful to route the wire through an existing coiled air line.

14. Secure the 25’ extension cable so that it is free of interference from the fifth wheel articulation, brake lines, light cord, drive line etc.

15. Connect the 25’ extension cable to the wire harness on the fifth wheel (Figure 32).

16. Test ELI for proper operation:
   a. Make sure the fifth wheel locks are open.
   b. Turn on the ignition/power. The ELI display should run through a short system check, shown by the brief illumination of the three display icons (Figure 33). After the system check is complete, the yellow “Ready to Couple” icon should be illuminated.

**NOTE:** If the display does not illuminate or an icon other than the yellow “Ready to Couple” icon is illuminated, proceed directly to the SAF-HOLLAND ELI Troubleshooting Guide XL-FW10063TS-en-US.

   c. Lock the fifth wheel top plate using a Holland lock tester (TF-TLN-5001). The green “Closed Lock” icon should be illuminated to indicate a proper coupling. If the green icon does not appear:
      - Open the locks with the lock tester and re-lock while observing how quickly the handle and cam plate move into position. If the mechanism is sluggish; lubricate the cam, yoke tips and the handle according to the procedures found in your fifth wheel owner’s manual.
      - Relock the fifth wheel again while observing the operation of the locking mechanism.
      - If the fifth wheel locking mechanism is operating correctly and the green “Closed Lock” icon still does not illuminate, proceed directly to the SAF-HOLLAND ELI Troubleshooting Guide XL-FW10063TS-en-US.

For operating and maintenance instructions, see SAF-HOLLAND ELI Owner’s Manual XL-FW10062UM-en-US.
From fifth wheel rebuild kits to suspension bushing repair kits, SAF-HOLLAND Original Parts are the same quality components used in the original component assembly.

SAF-HOLLAND Original Parts are tested and designed to provide maximum performance and durability. Will-fits, look-alikes or, worse yet, counterfeit parts will only limit the performance potential and could possibly void SAF-HOLLAND’s warranty. Always be sure to spec SAF-HOLLAND Original Parts when servicing your SAF-HOLLAND product.