

Freightliner / Daimler Corporation

Western Star Mirror Systems Manual

Table of Contents

(G.1) Removal of Entire Bracket and Mirror	3
(G.2) Changing the Upper Fastener Kit	4
(G.3) Removing & Installing Mirror Plates	4
(G.4) Removing & Installing the Back Cover	6
(G.5) General Maintenance and Cleaning Tips	9
(T.1) Adjusting Folding Bracket	9
(T.2) Mirror Movement Analysis Flowchart – Western Star	10
(T.3) Removing, Attaching, or Adjusting the Mirror Head (From the Bracket).....	11
(W.1) Warranty Coverage	12
Figure 1: Lower Bracket Holder	3
Figure 2: Upper Bracket Holder	3
Figure 3: Enhanced Scene-Upper Fastener Kit.....	4
Figure 4: Convex Mirror Removal	5
Figure 5: Convex Mirror Interior	5
Figure 6: Main Glass Plate Removal.....	6
Figure 7: Main Mirror Housing.....	6
Figure 8: Left Hand Hole Template	7
Figure 9: Left Hand Mirror System Measurements	7
Figure 10: Right Hand Hole Template	8
Figure 11: Right Hand Mirror System Measurements	8
Figure 12: Lower Holder.....	9
Figure 13: Lower Holder Disassembly.....	9
Figure 14: Mirror Head Disassembly.....	11

(G.1) Removal of Entire Bracket and Mirror

1. Remove the antenna from the top of the mirror.
2. Disconnect the CB cable inside the cab. The control cable must be detached from the connector in order to remove the mirror from the vehicle.
3. Ensure that the mirror has support and remove the 3 bolts from the lower holder using a ___ driver.
4. Remove the 3 bolts at the upper holder using a ___ driver.

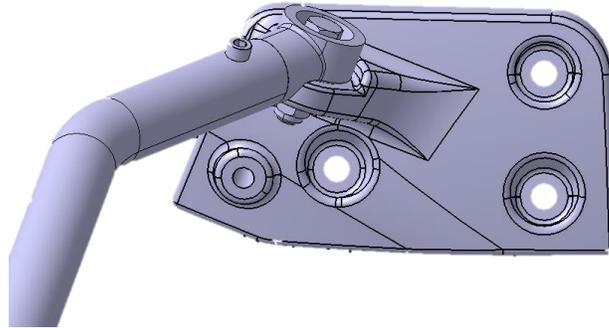


Figure 2: Upper Bracket Holder

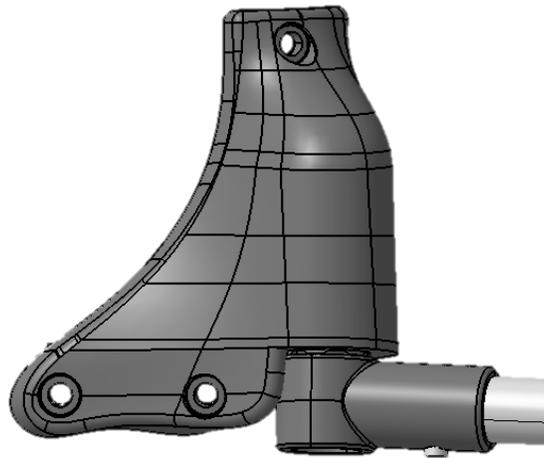


Figure 1: Lower Bracket Holder

(G.2) Changing the Upper Fastener Kit

- Ensure that the mirror and bracket system is firmly secured throughout the process in order to prevent injury or damage.
- 1. Remove the entire fastener kit, using a ___ mm socket and wrench.
- 2. Assemble the upper fastener kit as shown in figure 3.
- 3. Hand tightens the nut to 30 N-m.

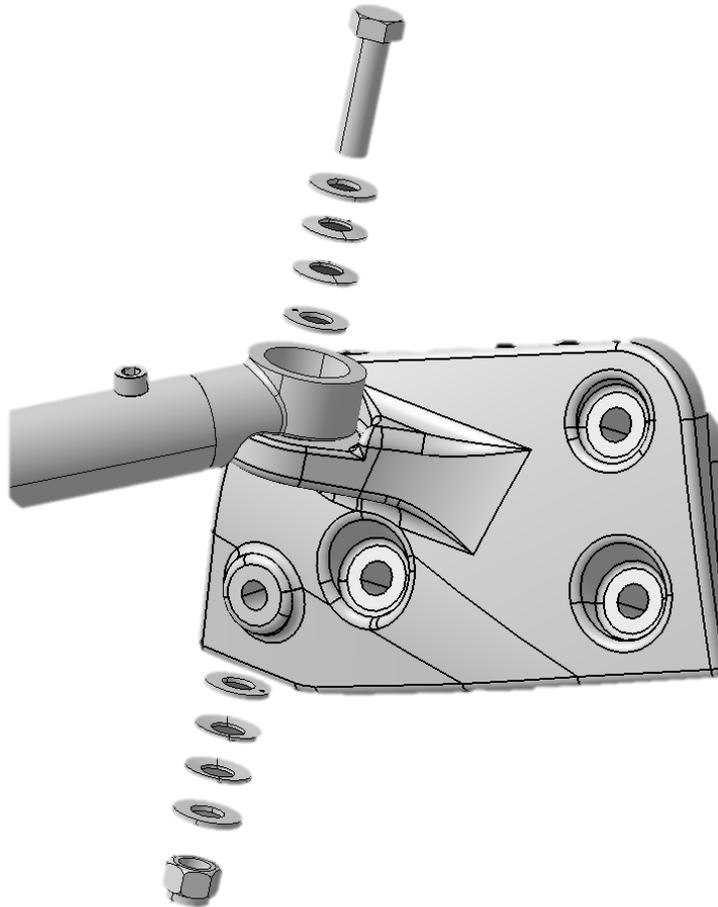


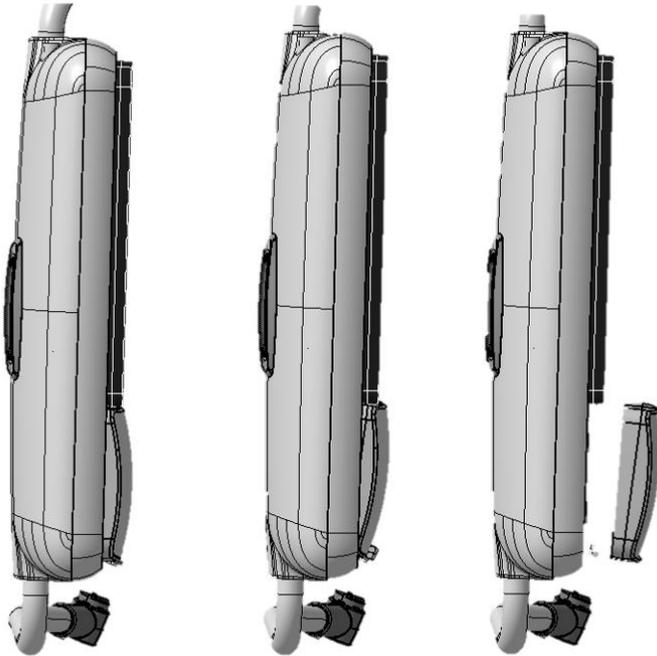
Figure 3: Enhanced Scene-Upper Fastener Kit

(G.3) Removing & Installing Mirror Plates

Your Mekra-Lang mirror system is equipped with a durable mirror plate assembly reinforced with shatter-resistant adhesive to minimize splintering in the event of breakage. It is strongly recommended to immediately replace damaged mirror plate assemblies.

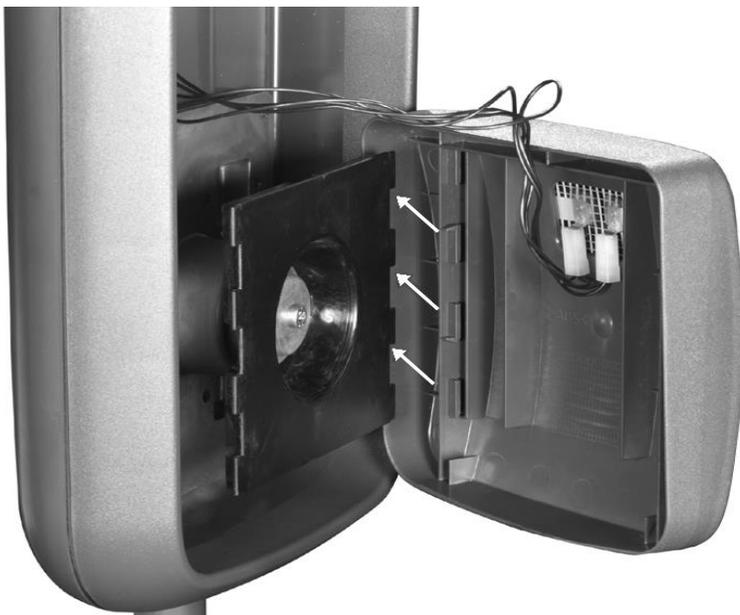
If you have a heated mirror, be careful not to damage the wiring, or push upward on the heater foil terminals. Make sure you pull or push on the wire terminal, rather than the wire itself.

Please note that the main glass plate and convex glass plate are removed in the same manner.



1. Actuate the mirror down by applying pressure to the bottom edge.
2. Push the convex mirror up until it clicks out of locking position.
3. Slide the mirror up and out.

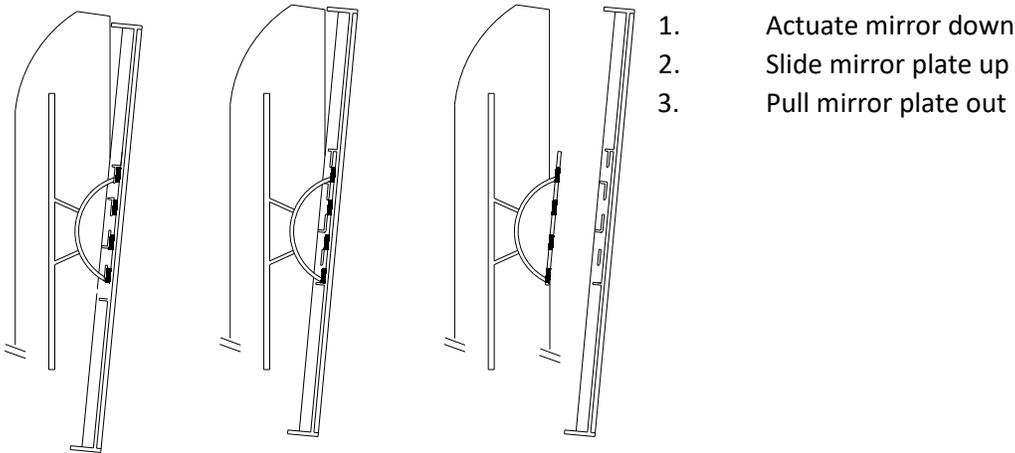
Figure 4: Convex Mirror Removal



This illustration shows the installation of the convex mirror plate assembly. The steps are the same for the flat or convex glass plates.

Where possible, use the remote function of the mirror to place the socket plate in the extreme “down” position in order to install the mirror plate as shown in figure 5. Once the convex glass is actuated down apply pressure upward in order to dislocate glass from actuator teeth as shown in figure 5.

Figure 5: Convex Mirror Interior



1. Actuate mirror down
2. Slide mirror plate up
3. Pull mirror plate out

Figure 6: Main Glass Plate Removal

(G.4) Removing & Installing the Back Cover

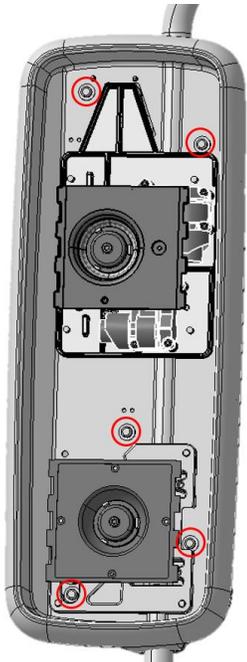


Figure 7: Main Mirror Housing

➤ Removal

In order to properly remove the back cover, it is critical that you first remove the mirror plates, as explained in G.3.

After removing the mirror plates, remove the five bolts using a T-20 driver as shown in figure 7 below.

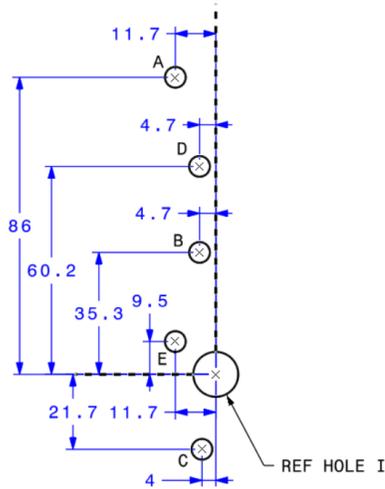
After removing the bolts gently apply pressure to the groove between the housing and back cover with a flat screwdriver until the back cover snaps free.

➤ Installation

In order to properly install the back cover remove the Main mirror assembly and convex mirror assembly as per instructions in G3.

Tools Required: Drill, 7mm or ¼ inch drill bit, marker, and a scale or a measuring tape

Use the below template or measurements to drill the 7mm or ¼ inch holes on the bezel.



LEFT HAND MIRROR SYSTEM

Figure 8: Left Hand Hole Template

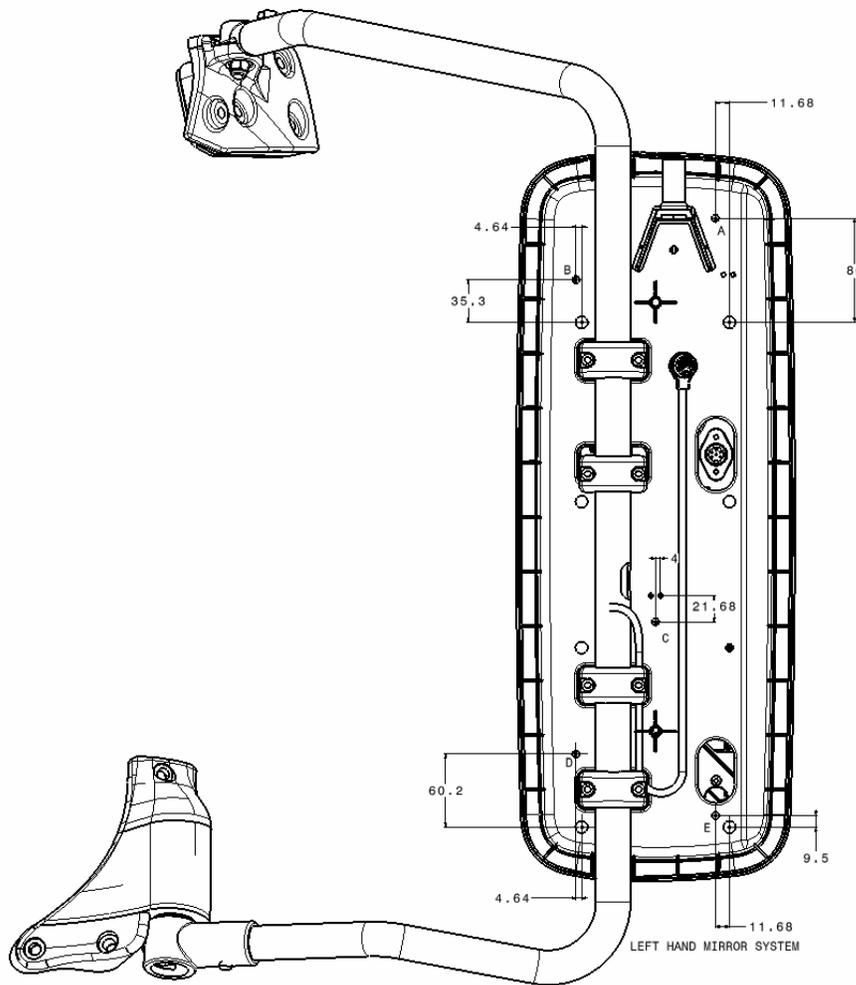


Figure 9: Left Hand Mirror System Measurements

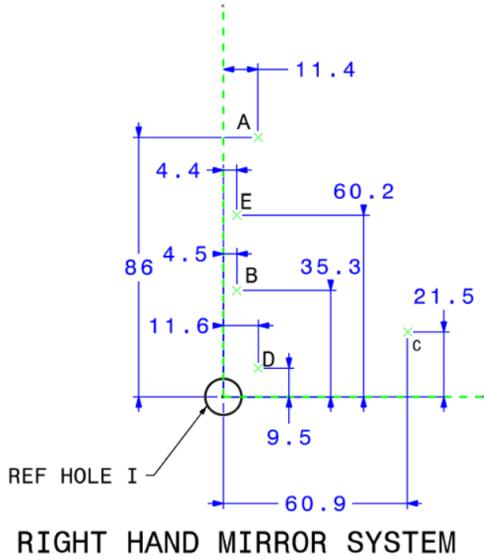


Figure 10: Right Hand Hole Template

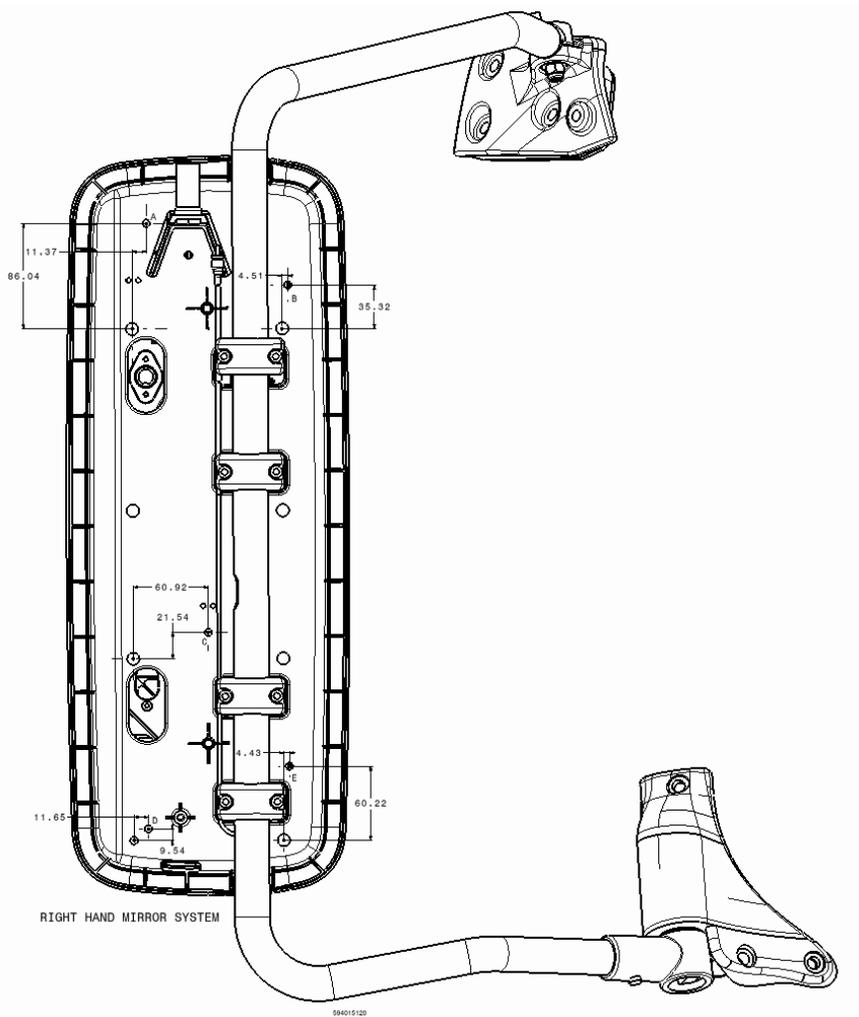


Figure 11: Right Hand Mirror System Measurements

(G.5) General Maintenance and Cleaning Tips

1st surface glass has an exposed reflective surface and is not subject to corrosion. When cleaning 1st surface mirror glass, abrasive cleaners or brushes should be avoided. Excessive abrasion may damage the reflective surface. All glass can be scratched.

A standard glass cleaner and a soft, clean cloth should be used to clean the mirror surface.

(T.1) Adjusting Folding Bracket

Your Mekra-Lang mirror brackets are equipped with a fold-away feature, also known as the break-away system. The mirrors will fold back either manually or spontaneously, with impact. This feature aids in minimizing damage to the mirror system and vehicle door.

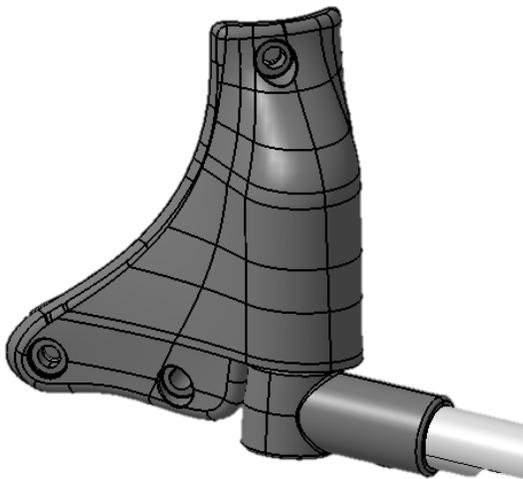


Figure 12: Lower Holder

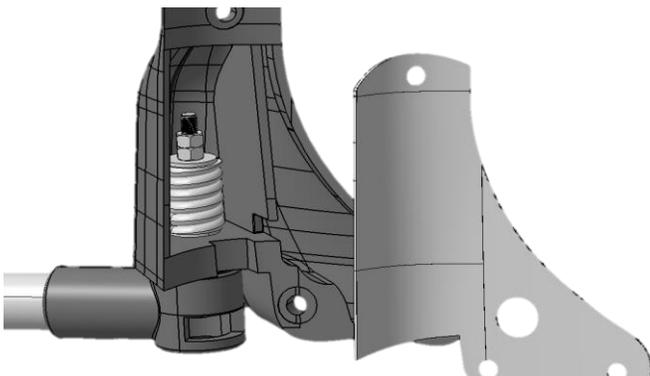


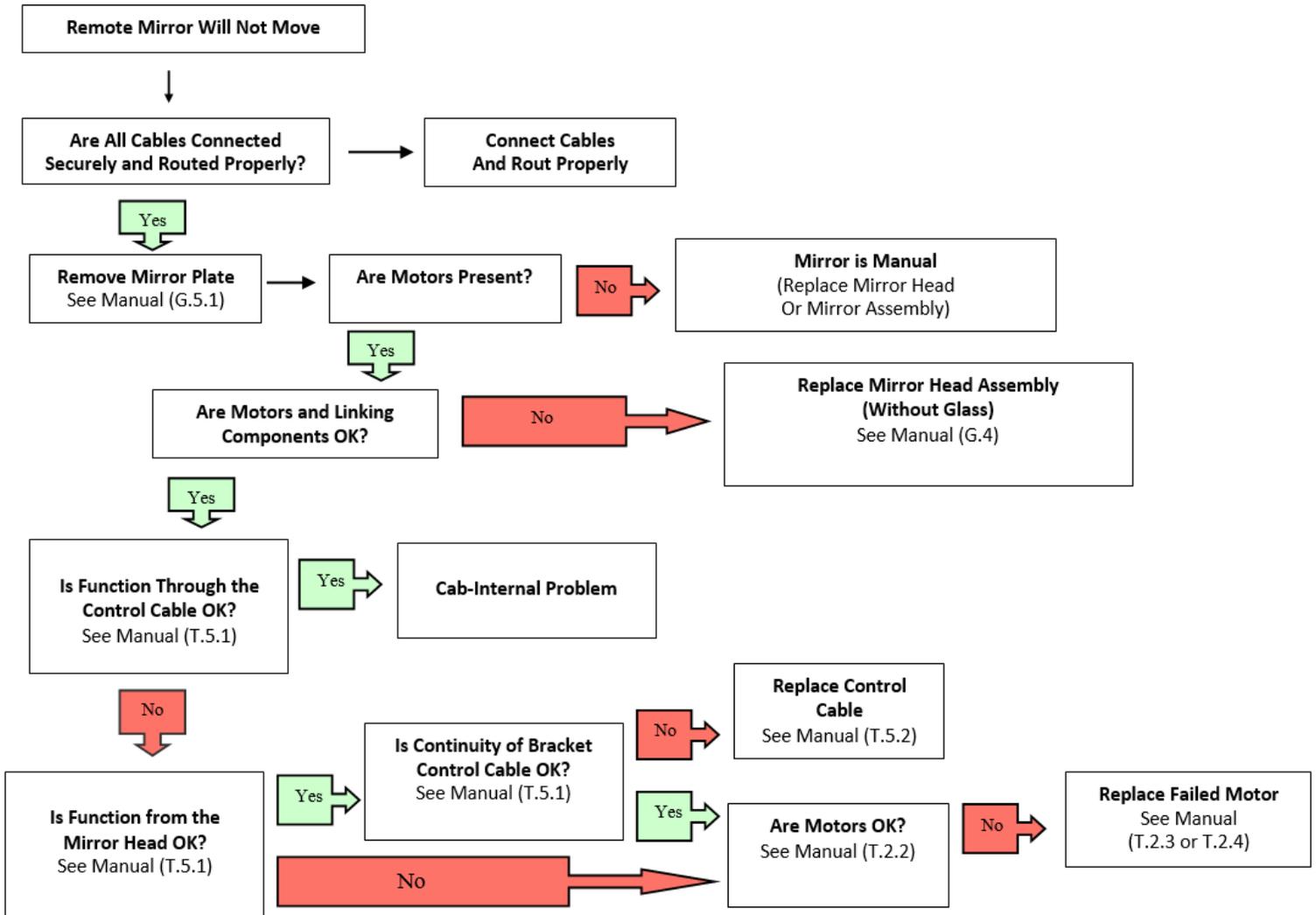
Figure 13: Lower Holder Disassembly

The brackets have rotating attachments that allow the fold away function. The lower holder is designed to give the bracket stability. However, the lower holder may sometimes require adjustment.

Start by disassembling the lower holder. Remove the 3 bolts from the holder and then remove the rubber spacer, pictured in figure 9. This should expose the spring and allow for break-away adjustment. If the break-away feature requires too much force to fold back, loosen the nut above the spring in the lower holder. Nominal setting for the torque is $_ \text{ N-m}$. When the detent is in the nominal position, the detent spring should be almost fully compressed.

If the bracket folds back too easily, however, take the following steps to tighten the break-away function. The upper holder should be torqued to 30 N-m. Tighten upper fastener kit if found to be too loose. Check the torque at the lower holder, which should be $\sim 9 \text{ N-m}$ in order to compress the detent spring almost completely.

(T.2) Mirror Movement Analysis Flowchart – Western Star



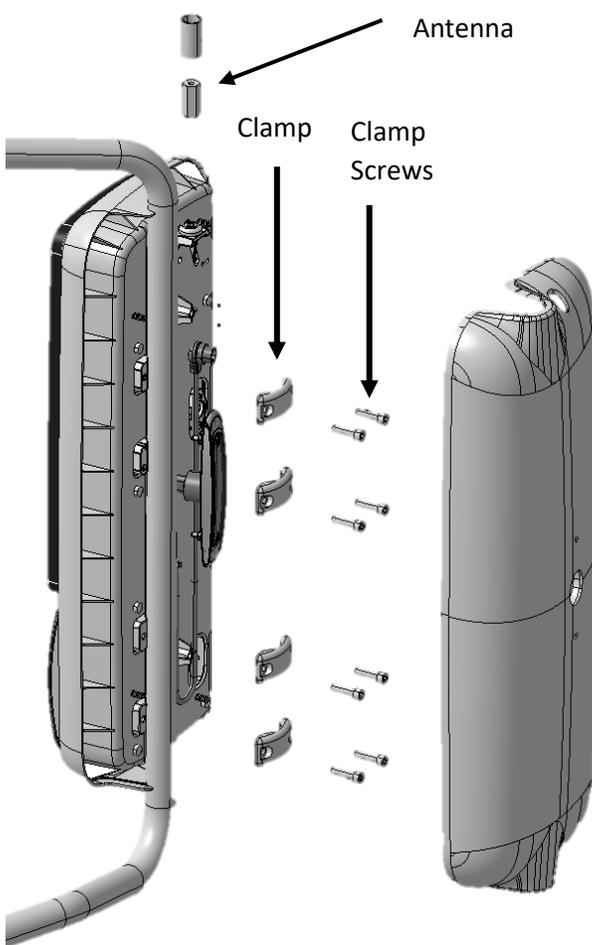
1. Follow the flowchart above in order to promptly diagnose mirror movement problems.
2. Make sure all cables and connections are tight.
3. Remove the mirror plates according to (G.3). Check to ensure the mirror is remote and the motors are present.
4. Check that the motor arms and linking components are in good visual condition and function.
5. Use a tester unity to check the mirror function from the end of the control cable ate the door. If the mirror functions properly, the fault is cab-internal.
6. Use a tester unit to check the function of the mirror head. If the mirror functions at this point, but not from the control cable, the problem is in the control cable. Check the connections, and if necessary replace the control cable according to ___.
7. If the motor does not function when power is directly applied, the motor must be replaced.

(T.3) Removing, Attaching, or Adjusting the Mirror Head (From the Bracket)

➤ Adjustment

1. Remove antenna. Use a 9/16" wrench to hold the antenna hex nut in place.
2. Remove back cover from the bottom first. See G.4
3. Slightly loosen all four clamps using a T30 bit or 3/16" Allen wrench. To prevent the mirror from sliding down, hold in place from the bottom.
4. Adjust mirror head to the desired position. Tighten clamp screws to ~4 N-m.
5. Attach back cover, from the top first, in order to fit over antenna holder. See G.4 for details.
6. Attach antenna.

IT IS IMPORTANT TO ENSURE THAT THE DRIVER HAS THE OPTIMUM VIEWING ANGLE OF MIRRORS AT ALL TIMES.



➤ Removal

1. Remove the antenna cover and the antenna.
2. Remove the back cover according to G.4.
3. Remove all four clamps by unscrewing the 8 screws that hold the clamps. It's important to note that after doing this, stripping in the housing will occur. Therefore, it is recommended to use 8 new screws that come with the kit.

➤ Installation

1. Position the new mirror housing in order to give the driver an optimum viewing level.
2. Attach the four clamps with the new eight screws using a T30 bit and tighten to ~4 N-m.
3. Attach back cover by snapping into grooves of new housing. See G.4 for details.
4. Attach antenna.

Figure 14: Mirror Head Disassembly

(W.1) Warranty Coverage

Lang-Mekra provides a warranty for production parts covering materials and workmanship. The time period of the warranty coverage, as well as terms of reimbursement, are determined by Western Star.

The warranty will cover:

- Functional Quality of Components
- Lang-Mekra Workmanship
- Confirmed Field Failures
- Labor Costs for Replacement
- Reasonable Administrative Costs

The warranty will not cover:

- Glass Breakage and Other Impact, Abuse, Mistreatment
- Minor Re-assembly
- Unnecessary and/or Improper Service
- Unauthorized Product Alterations and/or Additions
- Unreasonable Costs

Please Do Not Submit Warranty Claims for Items That Have Suffered Impact!

Parts Returned Exhibiting Impact Damage Will Be Denied Coverage, and May Be Returned Freight-Collect

Lang-Mekra reserves the right to inspect submitted warranty claims. Upon satisfactory performance and history, dealers, fleets, and other end users may be granted coverage based on description alone. Evaluation points will include:

- Complete and Accurate Claim Descriptions
- The absence of Rejected Claims
- Use of Appropriate Replacement Parts
- Constructive Feedback