

**INTERNATIONAL SERIES
MIRROR SYSTEM MANUAL**



FOREWORD

Read this manual carefully before operating.

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Navistar 466 MIRRORS SERVICE MANUAL

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1. BRACKET ASSEMBLY

1.1. BRACKET ASSEMBLY REMOVAL

- Remove antenna from antenna base.
- Disconnect control cable and CB cable inside the cab.
- Remove the three screws from the upper holder using a T-40 torx bit screwdriver. (figure 2)
(Be sure to hold the mirror steady to prevent damage or personal injury)
Important! DO NOT use the flip-out arm as a handle to hold or carry the mirror!
- Remove the three screws from the lower holder using a T-40 torx bit screwdriver. (figure 3)



Figure 1: Bracket Removal (Mounted)



Figure 2: Bracket Removal (Upper Holder)



Figure 3: Bracket Removal (Lower Holder)

1.2. BRACKET ASSEMBLY INSTALLATION

- Hold the bracket tightly and position bracket so that holder holes align with the door holes.
- Reconnect control cable and CB cable inside the cab.
- Screw in the three screws into the lower holder. (figure 4)
- Screw in the three screws into the upper holder. (figure 5)
- Tighten all screws to the correct torque 7.5-8.2 Nm using a T-40 torx bit screwdriver.
- Reattach antenna to antenna base.



Figure 4: Bracket Installation (Lower Holder)

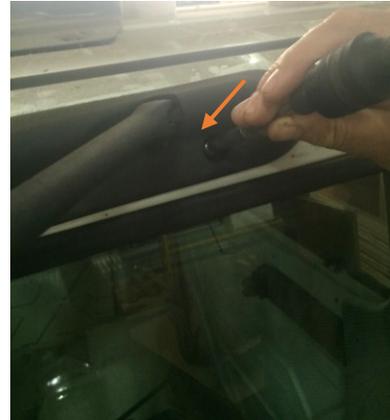


Figure 5: Bracket Installation (Upper Holder)

2. 3-D ARM

2.1. 3-D ARM REMOVAL

- To remove 3-D Arm, use a T-20 torx wrench and 13 mm socket to remove the nut and bolt.
- Unhook the 3-D Arm from the receiver and completely remove it.

2.2. 3-D ARM INSTALLATION

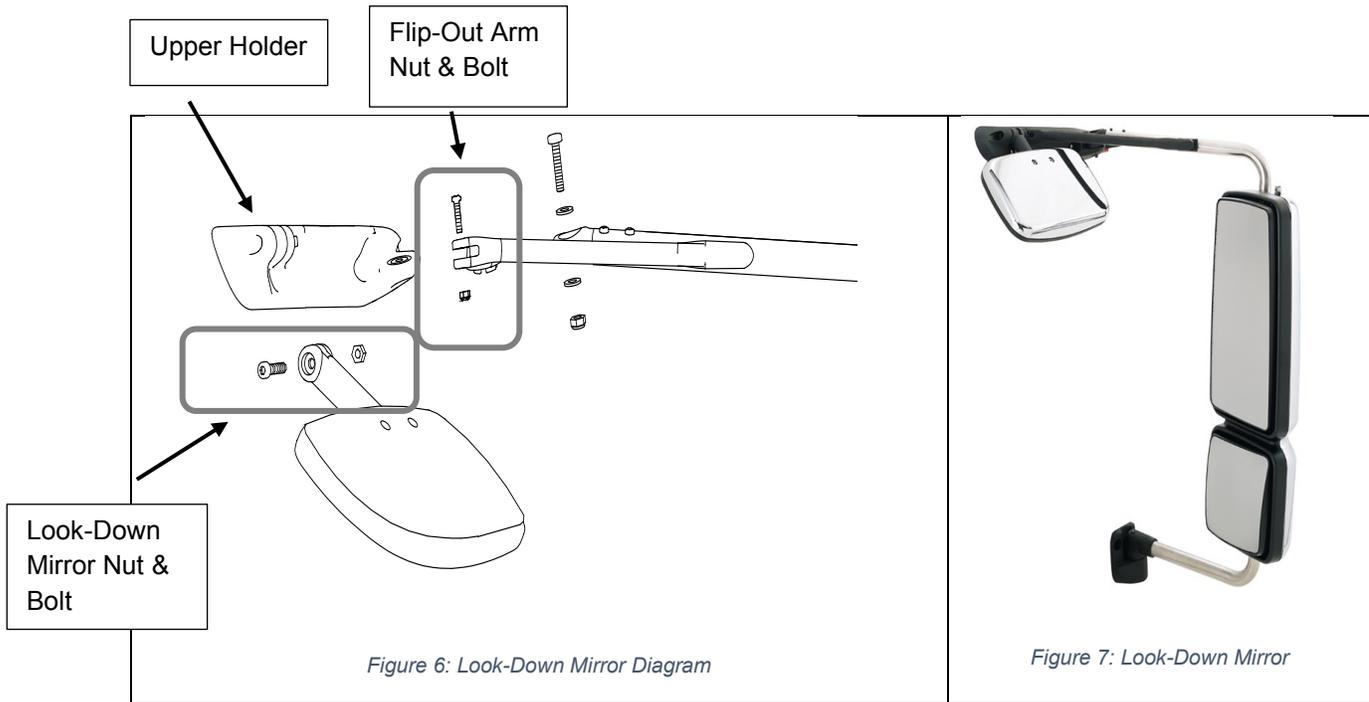
- Hook the back end of the 3-D Arm into the receiver.
- Place the nut and bolt back into position and hand tighten the nut onto the bolt.
- Torque nut to 10 Nm.

3. LOOK-DOWN MIRROR

For Right Hand Mirrors Only

3.1. LOOK-DOWN MIRROR REMOVAL OR ADJUSTMENT

- To remove or adjust the look-down mirror, use a 6 mm torque wrench and 13 mm socket on the look-down mirror nut and bolt. Nominal setting for the look-down mirror nut and bolt is 14 Nm.



4. GASKET

4.1. GASKET REMOVAL

- Remove the mirror system from the truck.
- Pull the gasket on a corner to unstick it progressively from the holder. The gasket can be easily torn, so remove it gently to avoid any damage especially if you have to re-use it.

4.2. GASKET INSTALLATION

- For a new gasket, remove the paper liner with the pull away tab.
- Fold the enter tab on the gasket that is under the mirror's connector.
- Insert trucks connector into the mirror's connector.

5. SLIP DISK

Slip Disk must be set in place in order for actuator to smoothly transition mirror to all positions.

The key and locking pin will hold clampless socket and slip disk in place.

5.1. SLIP DISK REMOVAL

- Depending on whether you have a motorized or manual mirror, see instructions for mirror housing removal. (7.1, 7.3, 8.1)
- Proceed by removing the clampless socket.
- Slide the used and worn slip disk off and replace with a new one.



Table 1: Slip Disk Removal

5.2. SLIP DISK INSTALLATION

- Slide the new slip disk onto the extended tube protruding from the clampless socket.
- Insert the clampless socket into the hole in the middle of the mirror housing.
- Depending on whether you have a motorized or manual mirror, see instructions for mirror housing installation. (7.2, 7.4, 8.2)



Table 2: Slip Disk Installation

6. GLASS PLATES

Procedure for Main and Convex Mirror Glass Removal and Installation are the same.

6.1. MAIN MIRROR GLASS PLATE REMOVAL

- Slide the clip at the top of the main mirror housing over to the right. (figure 8)
- Pop this clip up and off the housing and it should completely come off. (figure 9)
- Insert a finger in the slot behind the main mirror glass where the clip at the top previously located. (figure 10)
- Pull the glass forward until it can be pulled out of the main housing. (figure 10)
- Before pulling away completely, be sure to disconnect the heater wires from the heater foil. (figure 11)



Figure 8: Main Glass Removal (Clip)



Figure 9: Main Glass Removal (Clip)



Figure 10: Main Glass Removal (Glass Plate)



Figure 11: Main Glass Removal (Heater Wires)

6.2. MAIN MIRROR GLASS PLATE INSTALLATION

- There will be bars going across the inside of the housing. Ensure that there is a foam pad placed on each horizontal bar (6 in total) for protection between the glass plate and the housing. (figures 14 & 15)
- Connect the heater wires to the heater foil located on the back of the glass plate, polarity is not important and can be inserted either way. (figure 12)
- Place the bottom of the main glass mirror plate behind the lip on the bottom of the housing.
- Push the top of the glass plate against the housing to secure with the clip. (figure 13)
- Push the clip that was removed earlier back on the top of the main housing and slide it to the left to lock it in place. (figures 16 & 17)
- Ensure that it is fully locked.



Figure 12: Main Glass Installation (Heater Wires)



Figure 13: Main Glass Installation (Glass Plate)



Figure 14: Main Glass Installation (Foam Pads)



Figure 15: Main Glass Installation (Foam Pads)

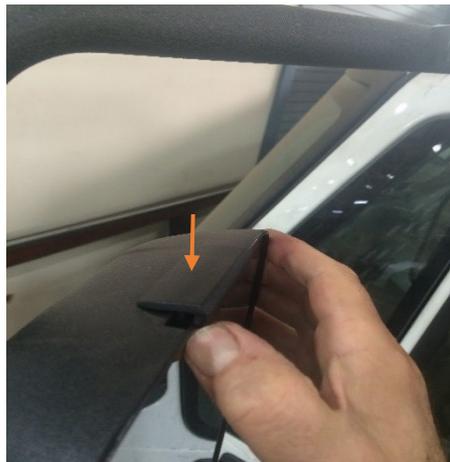


Figure 16: Main Glass Installation (Clip)



Figure 17: Main Glass Installation (Clip)

6.3. CONVEX MIRROR GLASS PLATE REMOVAL

- Slide the clip at the top of the convex mirror housing over to the right. *(figure 8)*
- Pop this clip up and off the housing and it should completely come off. *(figure 9)*
- Insert a finger in the slot behind the convex mirror glass where the clip at the top was previously located. *(figure 10)*
- Pull the glass forward until it can be pulled out of the convex housing. *(figure 10)*
- Before pulling away completely, be sure to disconnect the heater wires from the heater foil. *(figure 18)*



Figure 18: Convex Glass Removal (Heater Wires)

6.4. CONVEX MIRROR GLASS PLATE INSTALLATION

- There will be bars going across the inside of the housing. Ensure that there is a foam pad placed on each horizontal bar (2 in total) for protection between the glass plate and the housing. *(figure 19)*
- Connect the heater wires to the heater foil located on the back of the glass plate, polarity is not important and can be inserted either way. *(figure 19)*
- Place the bottom of the main glass mirror plate behind the lip on the bottom of the housing.
- Push the top of the glass plate against the housing to secure with the clip.
- Push the clip that was removed earlier back on the top of the convex housing and slide it to the left to lock it in place. *(figures 16 & 17)*
- Ensure that it is fully locked.



Figure 19: Convex Glass Installation (Foam Pads)

7. MIRROR HOUSING (W/O MOTOR)

Procedure for Main and Convex Mirror Housing (W/O Motor) Removal and Installation are the same.

7.1. MAIN MIRROR HOUSING REMOVAL (W/O MOTOR)

- First the main glass plate must be removed. (2.1)
- Once it is removed, there will be two outlined circles directly above and below the center wire hole on the back of the inside of the housing.
- These circles must be opened completely by using a 10mm drill. Be careful not to damage wires and/or other parts. (figures 19 & 20)
- Once opened, these will expose 2 screws that need to be loosened as explained below.
- Proceed by removing the top screw completely from behind the top hole by inserting a T20 torx screwdriver through the top hole. (figure 22)
- For the bottom hole, use a T20 torx screwdriver to only loosen the screw without completely removing it seeing as it is a slot hole.
- All of the connectors/adapters must be removed from the end of the wires in order for them to fit through the wire hole in the middle of the housing. (figure 23)
- Remove the adapters by pushing down on their tabs and then pulling apart. (figures 23 & 24)
- Take a firm hold of the housing and push upwards to unlock from tube. It should slide out of place and can be removed from the bracket. (figures 25 & 26)
- **IMPORTANT:** Keep in mind before pulling the housing away from the bracket that there will still be connected wires which should first be disconnected.



Figure 20: Top Hole Drill (w/o motor)



Figure 21: Bottom Hole Drill (w/o motor)

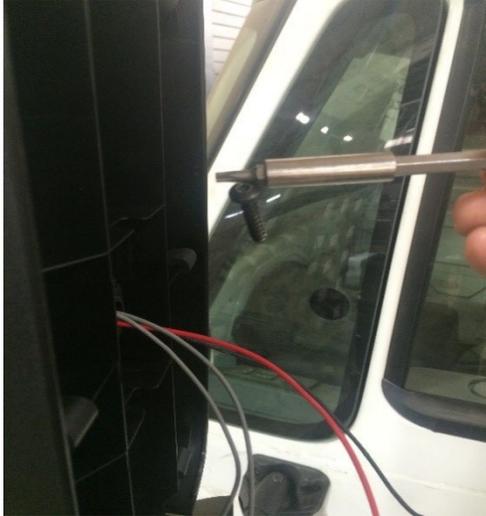


Figure 22: Top Hole Screw Removal (w/o motor)

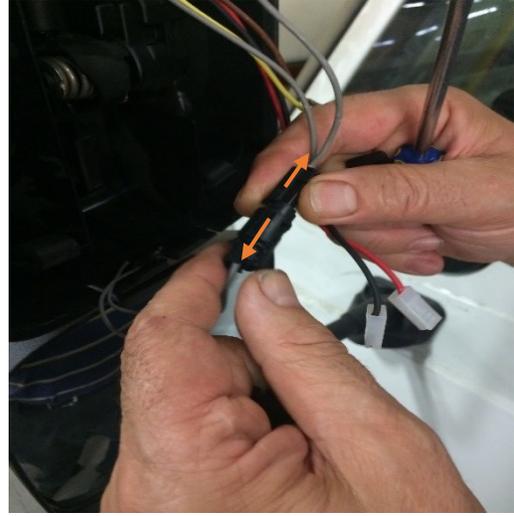


Figure 23: Wire Connector/Adapter Removal (w/o motor)



Figure 24: Wire Connector/Adapter Removal (w/o motor)

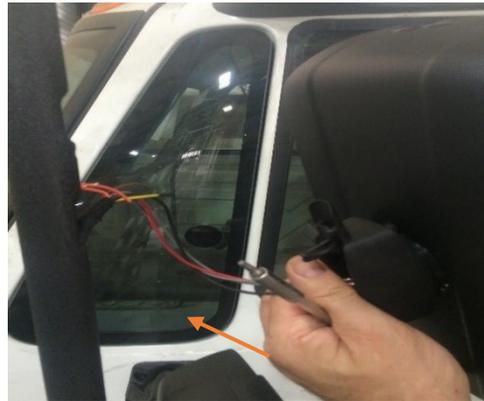


Figure 25: Wire Removal (w/o motor)

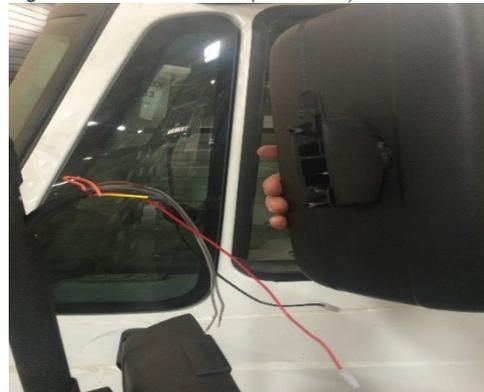


Figure 26: Housing Removed (w/o motor)

7.2. MAIN MIRROR HOUSING INSTALLATION (W/O MOTOR)

- Run the wires hanging from the bracket through the wire hole in the middle of the housing. (figure 27)
- Insert the clampless socket sticking out of the back of the main mirror housing and place it in the space in which it was removed from on the bracket. (figure 28)
- Slide the housing downward until locked into place, ensure that the top hole aligns and that the bottom screw has slid into place in the slot hole. (figure 28)
- First lightly tighten the bottom screw with a T20 torx screwdriver and then place the other screw through the top hole that was drilled out and into the top hole located in the bracket and tighten lightly to a torque of 7.5-8.2 Nm.
- Hook the wires into the correct connector or positions. (figure 29)
- Replace main glass plate. (2.2)
- Ensure that no wires got caught between the bracket and main mirror housing. Also, ensure that no wires get caught between the glass and horizontal bars. Ensure wires are placed correctly.

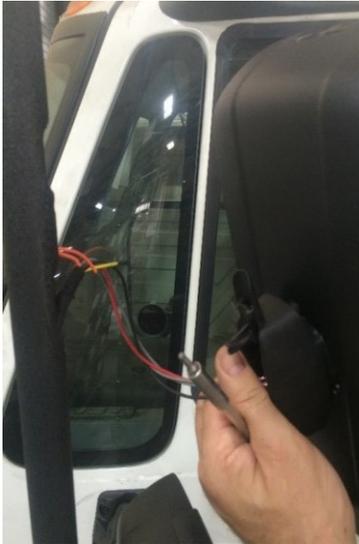


Figure 27: Wire Installation (w/o motor)



Figure 28: Housing Installation (w/o motor)

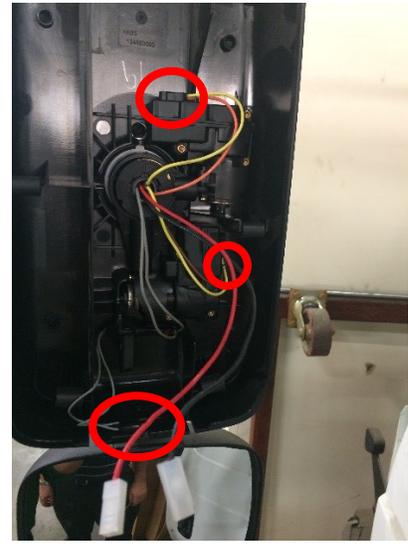


Figure 29: Wire Positioning

7.3. CONVEX MIRROR HOUSING REMOVAL (W/O MOTOR)

- First the convex glass plate must be removed. (2.3)
- Once it is removed, there will be two outlined circles on the back of the inside of the housing.
- These circles must be opened completely by using a 10mm drill. Be careful not to damage wires and/or other parts. (figures 30 & 31)
- Once opened, these will expose 2 screws that need to be loosened as explained below.
- Proceed by removing the screw completely from behind the top hole by sticking a T20 torx screwdriver through the top hole. (figure 32)
- For the bottom hole, use a T20 torx screwdriver to only loosen the screw without completely removing it seeing as it is a slot hole.
- All of the connectors/adapters must be removed from the end of the wires in order for them to fit through the wire hole in the middle of the housing. (figure 33)

- Remove the adapters by pushing down on their tabs and pulling apart. (figures 33 & 34)
- Take a firm hold of the housing and lift it upward. It should slide out of place and can be removed from the bracket. (figures 35 & 36)
- **IMPORTANT:** Keep in mind before pulling the housing away from the bracket that there will still be connected wires which should first be disconnected.

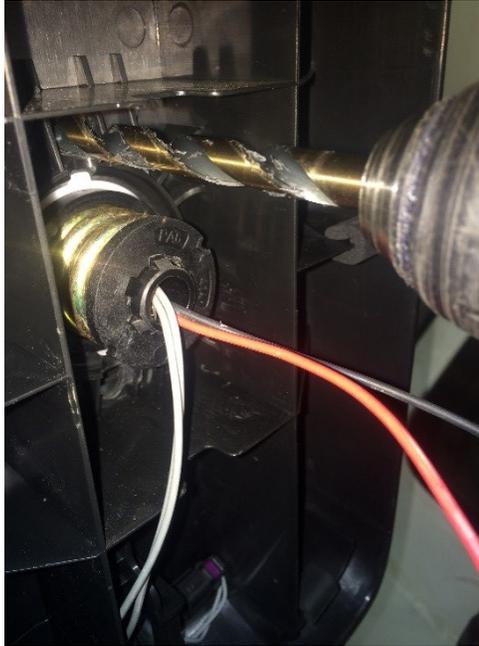


Figure 30: Convex Top Hole Drill (w/o motor)

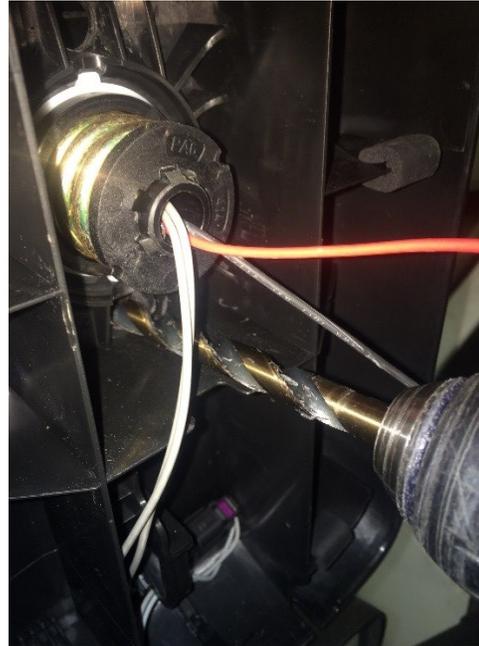


Figure 31: Convex Bottom Hole Drill (w/o motor)



Figure 32: Convex Top Screw Removal (w/o motor)



Figure 33: Wire Connector/Adapter Removal (w/o motor)



Figure 34: Wire Connector/Adapter Removal (w/o motor)

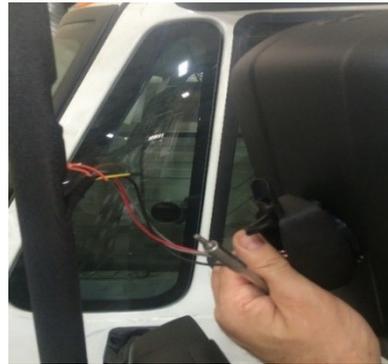


Figure 35: Wire Removal (w/o motor)

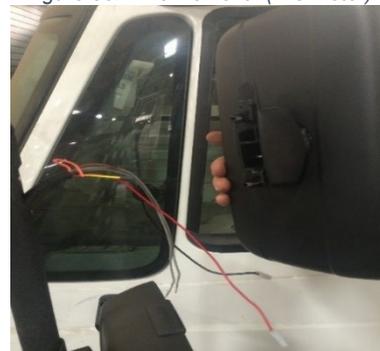


Figure 36: Convex Housing Removed (w/o motor)

7.4. CONVEX MIRROR HOUSING INSTALLATION (W/O MOTOR)

- Run the wires hanging from the bracket through the wire hole in the middle of the housing. (figure 37)
- Insert the clampless socket sticking out of the back of the convex mirror housing and place it in the top hole on the bracket. (figure 38)
- Slide the housing downward until locked into place, ensure that the top hole aligns and that the bottom screw has slid into place in the slot hole. (figure 38)
- First lightly tighten the bottom screw with a T20 torx screwdriver and then place the other screw through the top hole that was drilled out and into the top hole located in the bracket and tighten lightly with a torque of 7.5-8.5 Nm.
- Hook the wires into the correct connector or positions. (figure 39)
- Replace convex glass plate. (2.4)
- Ensure that no wires got caught between the bracket and convex mirror housing. Also ensure that no wires get caught between the glass and horizontal bars. Ensure wires are placed correctly.



Figure 37: Convex Wire Installation (w/o motor)



Figure 38: Convex Housing Installation (w/o motor)

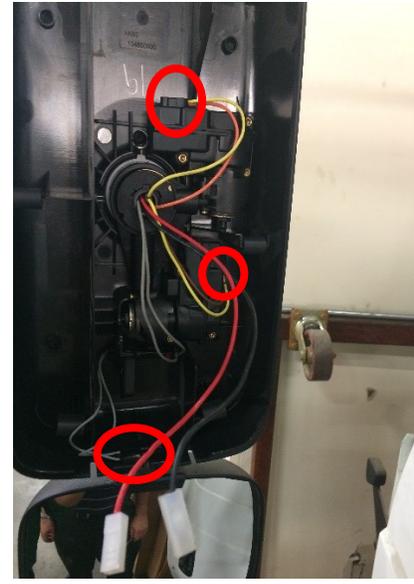


Figure 39: Wire Positioning

8. MIRROR HOUSING (MOTOR)

Procedure for Main and Convex Mirror Housing (Motor) Removal and Installation are the same.

The motor located inside the housing will block the bottom slot hole so you will not be able to drill through the housing.

8.1. MAIN MIRROR HOUSING REMOVAL (MOTOR)

- First the main glass plate must be removed. (2.1)
- Once it is removed, there will be two outlined circles on the back of the inside of the housing.
- The top circle must be opened completely by using a 10mm drill. Be careful not to damage wires and/or other parts. (figure 40)

- Once opened, the top circle will expose a screw that needs to be loosened as explained below.
- Proceed by removing the screw completely from behind the top hole by inserting a T20 torx screwdriver through the top hole. (figure 41)
- Tilt the main housing upward so that a space is created between the bracket and the bottom slot hole. (figure 42)
- Using a T20 torx wrench, loosen the screw in the slot hole but do not remove completely. (figure 43)
- Disconnect the wires from the actuator, AAT sensor, and the marker light.
- All of the connectors/adapters must be removed from the end of the wires in order for them to fit through the wire hole in the middle of the housing. (figure 45)
- Level the mirror housing back to its original position which would be parallel to the bracket or completely vertical. (figure 44)
- Take a firm hold of the housing and push upwards to unlock from tube. It should slide out of place and can be removed from the bracket.
- **IMPORTANT:** Keep in mind before pulling the housing away from the bracket that there will still be connected wires which should first be disconnected.

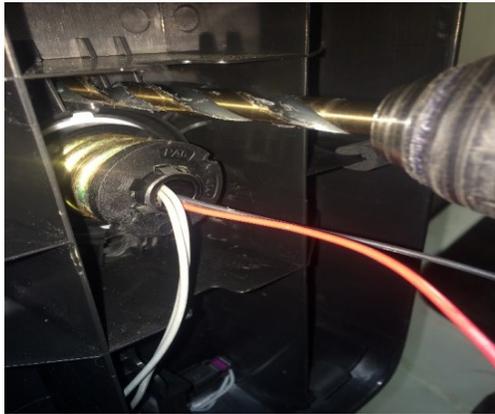


Figure 40: Top Hole Drill (motor)

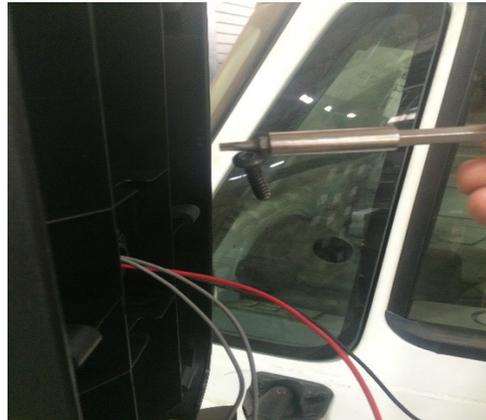


Figure 41: Top Hole Screw Removal (motor)



Figure 42: Main Housing Tilted (motor)

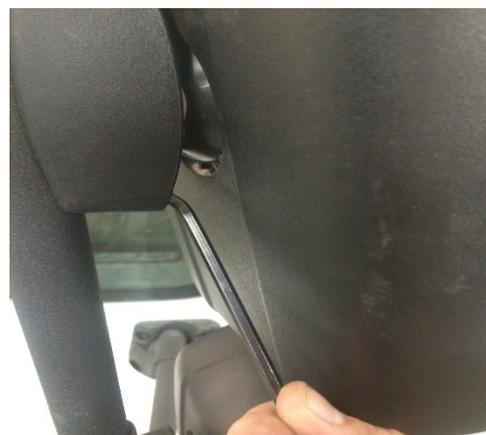


Figure 43: T20 Torx Lower Screw Loosening (motor)



Figure 44: Housing Original Positioning (motor)



Figure 45: Wire Connector/Adapter Removal (motor)

8.2. MAIN MIRROR HOUSING INSTALLATION (MOTOR)

- Run the wires hanging from the bracket through the wire hole in the middle of the housing. (figure 46)
- Insert the clampless socket sticking out of the back of the main mirror housing and place it in the space in which it was removed from on the bracket. (figure 45)
- Slide the housing downward until locked into place, ensure that the top hole aligns and that the bottom screw had slid into place in the slot hole.
- Tilt the main housing upward creating a space between the bracket and the bottom slot hole. (figure 42)
- First lightly tighten the bottom screw with a T20 torx wrench. (figure 41)
- Level the mirror housing back to its original position which would be parallel to the bracket or completely vertical. (figure 44)
- Place the other screw through the top hole that was drilled out and into the top hole located in the bracket and tighten lightly using a T20 torx screwdriver.
- Hook the wires into the correct connector or positions. (figure 48)
- Replace main glass plate. (2.2)
- Ensure that no wires get caught between the bracket and main mirror housing. Also ensure that no wires get caught between the glass and horizontal bars. Ensure wires are placed correctly.



Figure 46: Wire Installation (motor)



Figure 47: Housing Installation (motor)



Figure 48: Wire Placement (motor)

9. ACTUATOR

These instructions apply to both actuators (top & bottom).

9.1. ACTUATOR WIRING

- The actuator wires consist of two pairs of wires. (Orange & Yellow) and (Yellow & Brown). (figures 49 & 50)
- The actuator wires are held together with a connector at the end of each of the two pairs. (figures 49 & 50)
- The actuator wires must be plugged into the actuator to power it.
- Remove the actuator wires by using a screwdriver to prop them out of the slots on the actuator by placing the head of the screwdriver underneath the area where the actuator wires go into the connector. (figures 49 & 50)



Figure 49: Actuator Wires

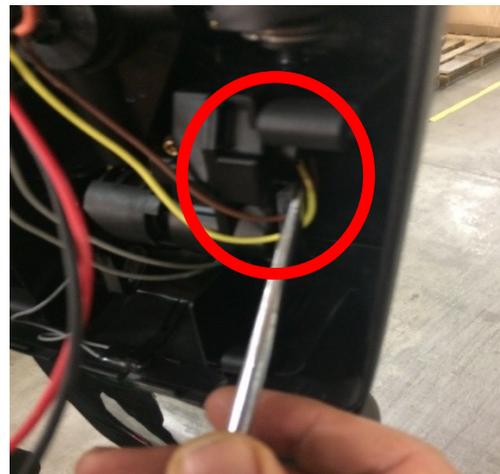


Figure 50: Actuator Wires

9.2. ACTUATOR REMOVAL

- Remove the two pairs of actuator wires from the actuators.
- The actuator wires can be propped out of the actuator by using a screwdriver. (figures 51 & 52)

- Proceed by using a T20 screwdriver to remove the 3 screws holding the actuator in place. (*figure 53*)
- Remove the entire actuator by pulling it forward and then pulling it to the right which will remove the extended tube on the actuator from its holder. (*figure 54*)
- Ensure that the actuator is not dropped once removed.

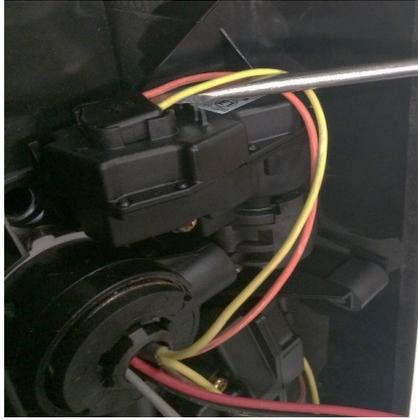


Figure 51: Actuator Wires



Figure 52: Actuator Wires



Figure 53: Actuator Screws



Figure 54: Actuator Removed

9.3. ACTUATOR INSTALLATION

- Place the extended tube on the actuator into the holder which is located on the outside of the wire hole.
- Push the top of the actuator towards the back of the housing to seat it in its rightful position.
- Replace all three screws that were removed using a T20 screwdriver to a torque of 0.7-1.2 Nm.
- Ensure that the actuator is sturdy and in the correct position.
- Plug the two pairs of actuator wires back into the actuators. The orange and yellow pair plug into the top actuator while the yellow and brown pair go into the bottom actuator.

10. MARKER LIGHT

10.1. MARKER LIGHT REMOVAL

- First disconnect the marker light wire (green wire) from the marker light connector wires (red and black wires w/ black adapter). (figure 55)
- Remove the two screws holding the marker light to the main mirror housing. (figure 56)
- Ensure that the marker light does not fall out of the housing and break. (figure 57)

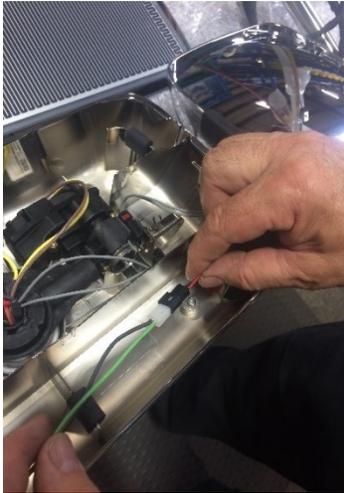


Figure 55: Wire Connector/Adapter Removal



Figure 56: Unscrewing Marker Light



Figure 57: Removed Marker Light

10.2. MARKER LIGHT INSTALLATION

- Place the marker against the housing and run the marker connector wires through the hole at the bottom of the housing.
- Place the two screws in the bolt holes and tighten them using a T20 torx screwdriver with a torque of 0.7-1.2 to secure the markers positioning on the main housing. (figure 58)
- Connect the marker wire (green wire) to the marker connector wires (red and black wires w/ black adapter). (figure 58)

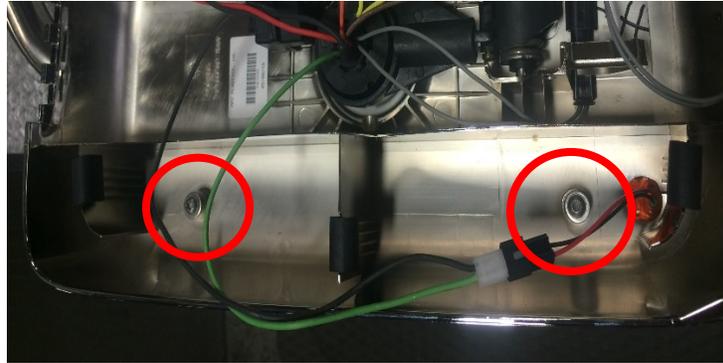


Figure 58: Marker Light Screws

11. AAT SENSOR

11.1. AAT SENSOR WIRING

- The AAT sensor wires consist of two grey wires. (figures 59-61)
- The wire connector on the AAT sensor should fit under a clip on the bottom of the inside of the housing. (figures 60 & 61)
- Place the AAT sensor under this clip to secure the AAT sensor's positioning within the housing. (figures 60 & 61)



Figure 59: AAT Sensor Wire Connector



Figure 60: AAT Sensor Holding Clip



Figure 61: AAT Sensor Holding Clip

12. WIRING DIAGRAM

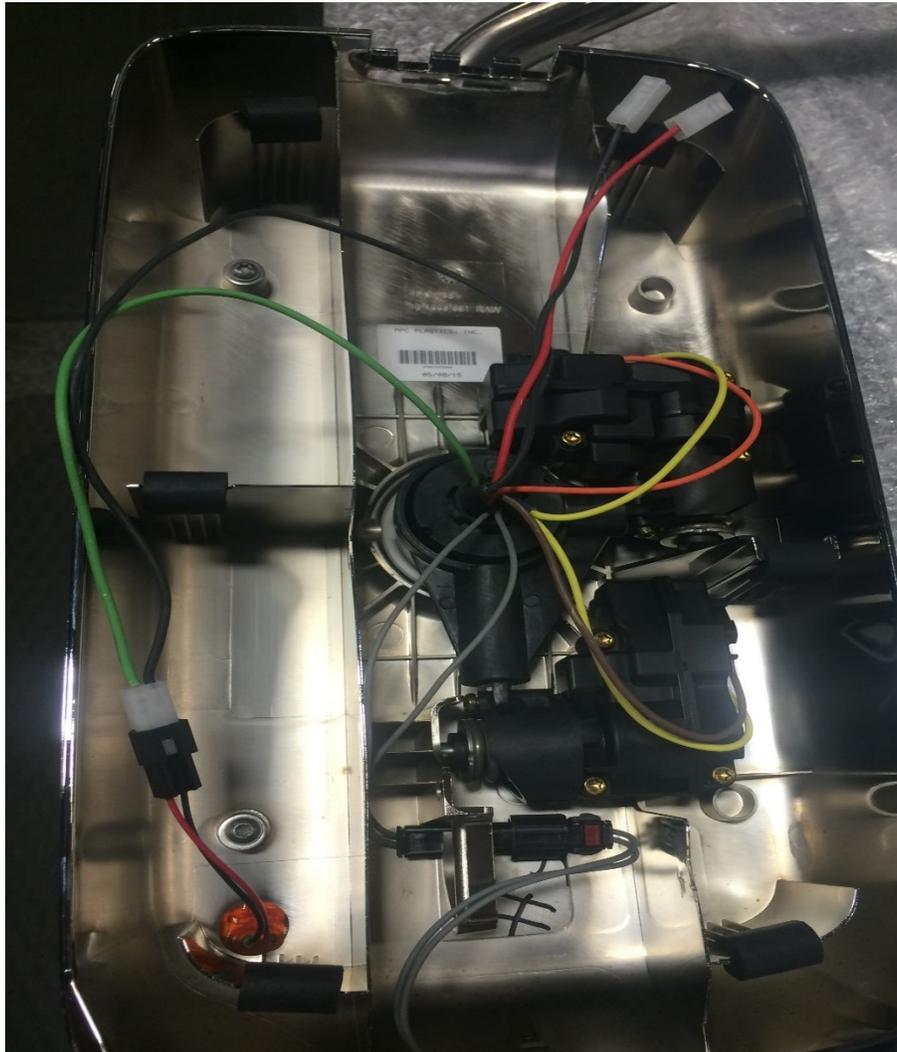


Figure 62: Wiring Diagram

Wires	Function
Yellow & Orange	Actuator Left & Right
Yellow & Brown	Actuator Up & Down
Grey & Grey	AAT Sensor Wires
Black & Green	Marker Light Wires
Black & Red	Heater Wires (main & convex)

Table 3: Wiring Chart

13. FOLD-AWAY BRACKET FEATURE

13.1. FOLD-AWAY BRACKET PURPOSE

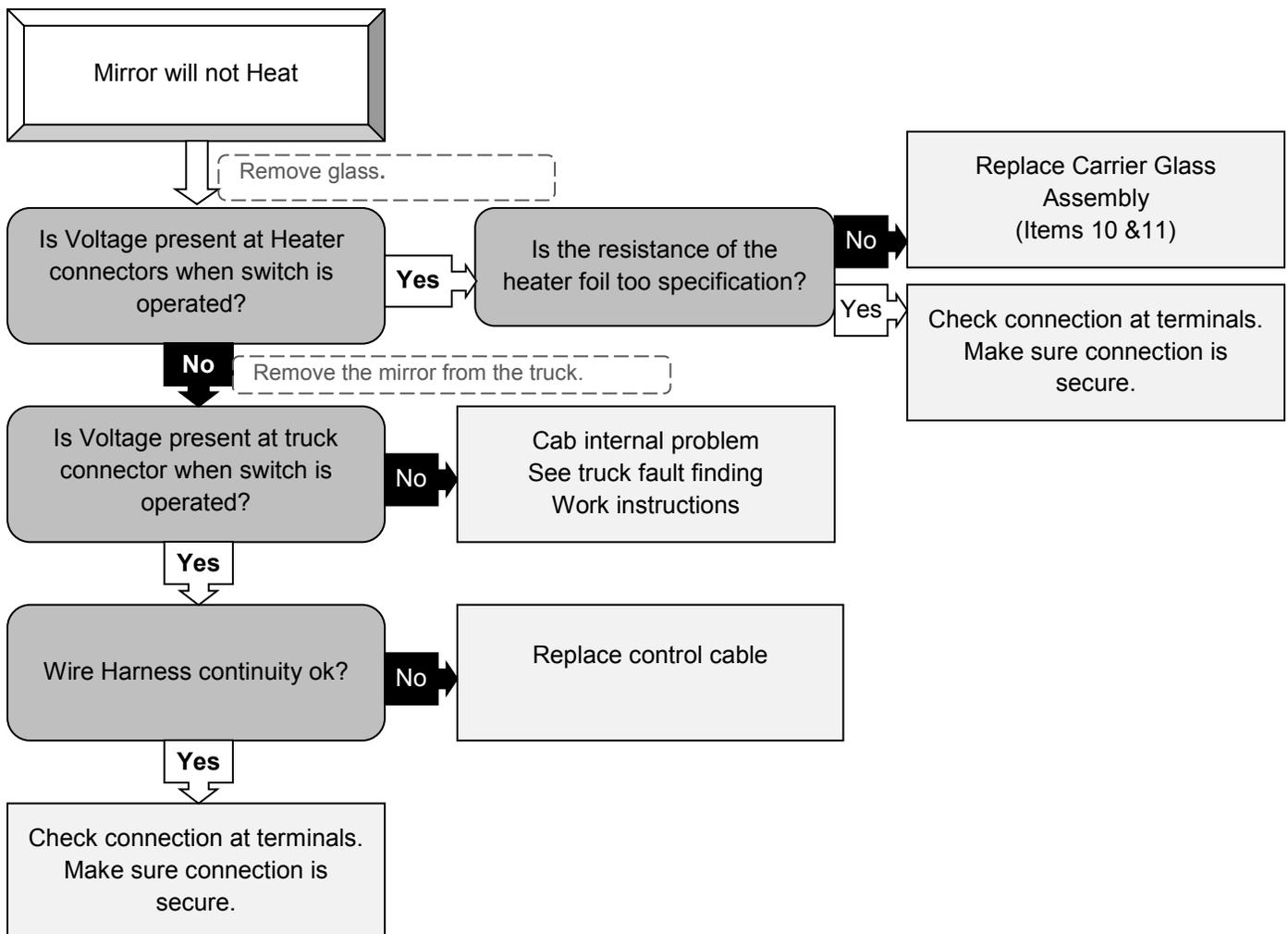
- The mirror brackets are equipped with a Fold-Away Feature, sometimes referred to as a Break-Away System. The mirror system will fold forward or backward manually, or upon impact. This feature minimizes damage to the mirror system and the vehicle door.

14. TROUBLESHOOTING

14.1. HEATER WIRES TROUBLESHOOTING

- Ensure that the heater wires are tight and secure in the heater terminals.
- Inspect and make sure that there are no ripped, torn, or exposed wiring.
- If the mirror works, then the fault is cab-internal.
(red and black wires)

14.2. ANALYSIS



14.3. ACTUATOR CHECKING

- Apply 12V between “yellow and brown”: the actuator should work up or down.
- Apply 12V between “yellow and orange” and “4”: the actuator should work left or right.

14.4. TRUCK CONNECTOR CHECKING

- With a voltmeter check if there is 12V **while operating** the mirror from the truck cab.
- Up and down- check between cavities “yellow and brown”.
- Left and right- check between cavities “yellow and orange”.
- If no voltage is recorded then problem is inside the cab.

14.5. AAT SENSOR CHECKING

- Ensure that the AAT sensor wires are fully installed and secured in the AAT sensor connector.
- Inspect and make sure that there are no ripped, torn, or exposed wiring.
- If the mirror works, then the fault is cab-internal.
(two grey wires)

14.6. FOLD-AWAY FEATURE (BRACKET DOES NOT FOLD BACK)

- If the Break-Away force is too high (difficult to fold back), you may loosen the nut in the lower holder with a 9/16” socket head driver (the torque should be between 15 Nm and 20 Nm). When the mirror system is in the driving position, the detent spring should be almost fully compressed.
- The torque for the upper fastener kit should be 5 Nm. If the upper fastener kit is too tight, loosen the nut with a 6mm torque wrench to reach the specified torque.

14.7. FOLD-AWAY FEATURE (BRACKET FOLDS BACK TOO EASILY)

- If the bracket folds back too easily, check that the upper fastener kit is torqued to 5 Nm with a 6mm torque wrench.
- Ensure that the lower pivot is not too loose; you may tighten it to the specified torque of 15 Nm-20 Nm using a 9/16” socket head driver.
- Ensure that the flip out arm is properly engaged into the receiver.

15. PDC LIST

Routing Code	Description	Work Center
584660001-PDC	400/405/425/454 NGV Asy	1404
584660002-PDC	400/405/425/454 NGV Asy	1404
584660003-PDC	400/405/425/454 NGV Asy	1404
584660004-PDC	400/405/425/454 NGV Asy	1404
584660005-PDC	400/405/425/454 NGV Asy	1404

584660006-PDC	400/405/425/454 NGV Asy	1404
584660007-PDC	400/405/425/454 NGV Asy	1404
584660008-PDC	400/405/425/454 NGV Asy	1404
584660009-PDC	400/405/425/454 NGV Asy	1404
584660010-PDC	400/405/425/454 NGV Asy	1404
584660011-PDC	400/405/425/454 NGV Asy	1404
584660017-PDC	400/405/425/454 NGV Asy	1404
584660018-PDC	400/405/425/454 NGV Asy	1404
584660019-PDC	400/405/425/454 NGV Asy	1404
584660020-PDC	400/405/425/454 NGV Asy	1404
584660021-PDC	400/405/425/454 NGV Asy	1404
584660023-PDC	400/405/425/454 NGV Asy	1404
584660102-PDC	400/405/425/454 NGV Asy	1404
584660104-PDC	400/405/425/454 NGV Asy	1404
584660106-PDC	400/405/425/454 NGV Asy	1404
584660108-PDC	400/405/425/454 NGV Asy	1404
584660110-PDC	400/405/425/454 NGV Asy	1404
584660118-PDC	400/405/425/454 NGV Asy	1404
584660120-PDC	400/405/425/454 NGV Asy	1404
204004403-PDC	LH LWR HLDR KIT	1701
204004404-PDC	RH LWR HLDR KIT	1701
614003501-PDC	LH ARM KIT	1701
614003502-PDC	RH ARM KIT	1701
614000001-PDC	KIT, UP HDR, LH, W/ FLIP-O	1404
614000002-PDC	KIT, UP HDR, RH, W/ FLIP-O	1404
614000003-PDC	KIT, UP HDR, RH, W/ FLIP-O	1404
614000004-PDC	KIT, UP HDR, LH, W/ FLIP-O	1404

614000005-PDC	KIT, UP HDR, RH, W/ FLIP-O	1404
614000006-PDC	KIT, UP HDR, RH, FO, LD-ATT	1404

16. GENERAL MAINTENACE AND CLEANING TIPS

When cleaning the surface mirror glass, abrasive cleaners or brushes should be avoided. Excessive abrasion may damage the reflective surface. A standard glass cleaner and a soft, clean cloth should be used to clean the mirror surface.

17. WARRANTY COVERAGE

Mekra-Lang provides a warranty for production and service parts per Navistar Supplier Warranty Agreement.

The warranty will cover:

- **Functional quality of components**
- **Mekra-Lang workmanship**
- **Confirmed field failures**
- **Labor costs for replacement**
- **Approved administrative costs**

The warranty will not cover:

- **Glass breakage and other impact which have been abused or mistreated**
- **Minor reassembly**
- **Unnecessary 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 user may be granted warranty coverage based on submitted description alone.

Evaluation points will include:

- **Complete and accurate claim descriptions**
- **Absence of rejected claims**
- **Use of appropriate replacement parts**