

Technical Service Bulletin



Hadley 4WAY™ Mirror Systems

After-market kits are also available for retrofitting trucks that have only standard mirrors. For more information, contact Hadley's Sales Department at 616-530-1717.

TROUBLESHOOTING GUIDE

The Hadley 4WAY™ series of mirrors are all manually adjustable due to the fact that the glass moves and NOT the entire mirror head/housing as in traditional single axis movement mirrors. Whether they are motorized or manual mirror heads you may change glass position by simply pushing on the glass (without causing any drive system damage).

Symptom:

Mirror glass will not move when activating mirror switch:

(Before replacing the motor/actuator)

- Confirm the mirror head is a motorized head, by removing the glass and checking if there are wires going to the motor/actuator.
- Check fuse/circuit breaker.
- Have an assistant listen to the motor/actuator to see if there is power to the motors as you activate the mirror switch. If the motors are attempting to move check for any possible obstructions keeping the glass from moving.
- Check motor/actuator dust boot for proper setting on motor/actuator attachment ring. If the boot comes off the ring it can become lodged under the lip and limit or stop the glass from moving.
- Find and disconnect mirror harness connector from truck cab connector. Using the mirror operation tables provided (here in), power up motors using an external power source, if the motors or motor still doesn't function replace motor/actuator. If they both function, the trouble is in the mirror switch or truck wiring.

Symptom

Excessive mirror glass vibration:

- Check all mirror bracket fasteners confirming they are tight.
- Check to see if mirror head mounting nuts are tight.
- Check to see if motor/actuator screws are tight. To tighten use a T15 Torx driver.
- Check for broken or worn parts, mirror glass sub-assembly, motor/actuator-mounting ring, and internal mirror bracket. Note, that if, there is noticeable wear on the motor/actuator or the mirror glass sub-assembly, it is recommended to replace both components.

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M25216_Service Sheet

Rev. A

Symptom:

Mirror heater not working:

(Before replacing the mirror glass sub-assembly)

- Check fuse/circuit breaker.
- Check heater switch connections.
- Remove mirror glass sub-assembly and carefully disconnect heater pad wires from heater pad terminals. Turn on mirror heater switch and with a voltage meter, check the heater pad wires for the presence of “12 volts” (or battery source voltage). If the source voltage is present, replace mirror glass sub-assembly, if not present check truck wiring/connectors.
- Also, you can check the heater pad independently by applying “12 volts” directly from a battery or power supply to the heater pad terminals. Note the heater pad is not polarity sensitive, so it doesn’t matter which power lead goes to the terminal. The heater should draw approximately 2 to 5 amps depending on the ambient temperature at the time of the test. Allow approximately 2 minutes for the glass to become warm to the touch.

GLASS REPLACEMENT

The mirror glass is fully serviceable in the field. Should you experience a cracked mirror glass or heater pad failure, follow these simple steps for replacement.

1. Rotate mirror glass completely to the right. There is a small lever on the left edge of the mirror glass toward the center. Move this lever downward while holding onto the mirror glass. The mirror glass should pull easily toward you out of the housing.
2. Disconnect the heater wire connections at the bottom of the mirror glass. Discard the broken mirror glass assembly. Reconnect heater wire connections to new mirror glass assembly. Note: Heater wires maybe connected to either heater terminal, (it’s not polarity sensitive).
3. Move mirror lever fully down before attempting to align mirror glass assembly onto motor/actuator. Make sure mirror glass assembly is completely engaged onto the motor/actuator, then holding in place, move the lever up to lock onto motor/actuator.

WIRE HARNESS / CONNECTOR INFORMATION

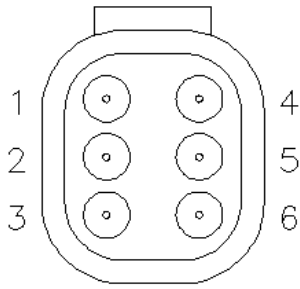


Figure 1 – Mack Connector

Table 1 – Mack Harness

Pin # (see Fig. 1)	Mirror Harness Wire Color	Wire Function
1	Blue	Light (Positive)
2	Red	Heat (Positive)
3	Black	Heat (Ground)
4	Yellow	Motor – Y axis
5	White	Motor – Common
6	Green	Motor – X axis

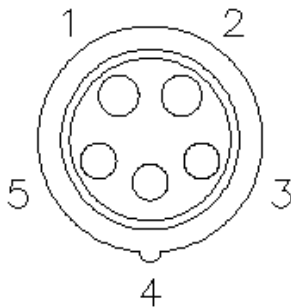


Figure 2 – International Connector

Table 2 – International Harness

Pin # (see Fig. 2)	Mirror Harness Wire Color	Wire Function
1	Green	Heat
2	White	Heat
3	Black	Motor – Common
4	Yellow	Motor – Y axis
5	Red	Motor – X axis

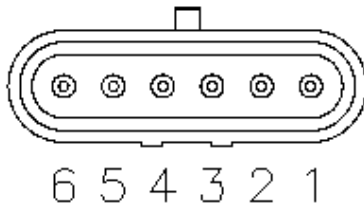


Figure 3 – Sterling Connector

Table 3 – Sterling Pin Harness

Pin # (see Fig. 3)	Mirror Harness Wire Color	Wire Function
1	Black	Heat (Ground)
2	Blue	Light (Positive)
3	Red	Heat (Positive)
4	Yellow	Motor – Y axis
5	Green	Motor – X axis
6	White	Motor – Common

Table 4 – Freightliner Harness

Note: Connector bodies not supplied by Hadley

Mirror Harness Wire Color	Wire Function
Blue	Light (Positive)
Red	Heat (Positive)
Black	Heat (Ground)
Yellow	Motor – Y axis
White	Motor – Common
Green	Motor – X axis

Table 5 – Hadley Aftermarket Harness

Mirror Harness Wire Color	Wire Function
Blue	Light (Positive)
Red	Heat (Positive)
Brown	Heat (Ground)
Black	Motor – Y axis
Green	Motor – Common
White	Motor – X axis

MOTOR/ACTUATOR OPERATION TABLES

Table 6 – Motor/Actuator Operation Table – Mack

Apply Positive (+) Voltage	Apply Negative (-) Ground	Motor Movement
Yellow (Pin #4)	White (Pin #5)	Up
White (Pin #5)	Yellow (Pin #4)	Down
White (Pin #5)	Green (Pin #6)	Left
Green (Pin #6)	White (Pin #5)	Right

Table 7 – Motor/Actuator Operation Table - International

Apply Positive (+) Voltage	Apply Negative (-)Ground	Motor Movement
Yellow (Pin #4)	Black (Pin #3)	Up
Black (Pin #3)	Yellow (Pin #4)	Down
Black (Pin #3)	Red (Pin #5)	Left
Red (Pin #5)	Black (Pin #3)	Right

Table 8 – Motor/Actuator Operation Table - Sterling

Apply Positive (+) Voltage	Apply Negative (-)Ground	Motor Movement
Yellow (Pin #4)	White (Pin #6)	Up
White (Pin #6)	Yellow (Pin #4)	Down
Green (Pin #5)	White (Pin #6)	Left
White (Pin #6)	Green (Pin #5)	Right

Table 9 – Motor/Actuator Operation Table – Freightliner

Apply Positive (+) Voltage	Apply Negative (-)Ground	Motor Movement
Yellow	White	Up
White	Yellow	Down
White	Green	Left
Green	White	Right

Table 10 – Motor/Actuator Operation Table – Hadley Aftermarket

Apply Positive (+) Voltage	Apply Negative (-)Ground	Motor Movement
Black	Green	Up
Green	Black	Down
White	Green	Left
Green	White	Right

The mirror motor/actuator is also field-replaceable. If it becomes necessary to replace the mirror motor/actuator, follow steps listed below.

MOTOR/ACTUATOR REPLACEMENT FOR FREIGHTLINER AND MACK

1. Remove mirror glass as described in the Mirror Glass Replacement instructions above.
2. Locate the wires running from the harness to the motor/actuator, and remove the electrical tape. Cut the Green, Yellow and White wires just below the connection to the motor/actuator wires.
3. Remove the three (3) retaining screws using a T15 Torx driver (do not discard screws for you will be reusing them). Remove the defective motor/actuator from the housing.
4. Re-strip the harness wires approximately to a 1/4". Connect to new motor/actuator wires as follows:

Harness wire colors	Motor/Actuator wire colors
Green	Blue
Yellow	Black
White	Yellow & White

5. Make certain that the two black motor/actuator mounting pads are still in place on the bracket before re-attaching the new motor/actuator.
6. Mount the new motor/actuator on the mounting points. Use the screws from the previous motor/actuator to mount it. Be careful not to over tighten.
7. Replace mirror glass assembly as described in the Mirror Glass Replacement instructions above. Confirm correct operation of the new motor/actuator.

MOTOR/ACTUATOR REPLACEMENT FOR STERLING

1. Remove mirror glass as described in the Mirror Glass Replacement instructions above.
2. Locate the wires running from the harness to the motor/actuator, and remove the electrical tape. Cut the Green, Yellow and White wires just below the connection to the motor/actuator wires.
3. Remove the three (3) retaining screws using a T15 Torx driver (do not discard screws for you will be reusing them). Remove the defective motor/actuator from the housing.
4. Re-strip the harness wires approximately to a 1/4". Connect to new motor/actuator wires as follows:

Harness wire colors	Motor/Actuator wire colors
Green	White
Yellow	Black
White	Yellow & Blue

5. Make certain that the two black motor/actuator mounting pads are still in place on the bracket before re-attaching the new motor/actuator.
6. Mount the new motor/actuator on the mounting points. Use the screws from the previous motor/actuator to mount it. Be careful not to over tighten.
7. Replace mirror glass assembly as described in the Mirror Glass Replacement instructions above. Confirm correct operation of the new motor/actuator.

MOTOR/ACTUATOR REPLACEMENT FOR INTERNATIONAL

1. Remove mirror glass as described in the Mirror Glass Replacement instructions above.
2. Locate the wires running from the harness to the motor/actuator, and remove the electrical tape. Cut the Green, Yellow and White wires just below the connection to the motor/actuator wires.
3. Remove the three (3) retaining screws using a T15 Torx driver (do not discard screws for you will be reusing them). Remove the defective motor/actuator from the housing.
4. Re-strip the harness wires approximately to a 1/4". Connect to new motor/actuator wires as follows:

Harness wire colors	Motor/Actuator wire colors
Green	White
Yellow	Black
White	Yellow & Blue

5. Make certain that the two black motor/actuator mounting pads are still in place on the bracket before re-attaching the new motor/actuator.
6. Mount the new motor/actuator on the mounting points. Use the screws from the previous motor to mount it. Be careful not to over tighten.
7. Replace mirror glass assembly as described in the Mirror Glass Replacement instructions above. Confirm correct operation of the new motor/actuator.

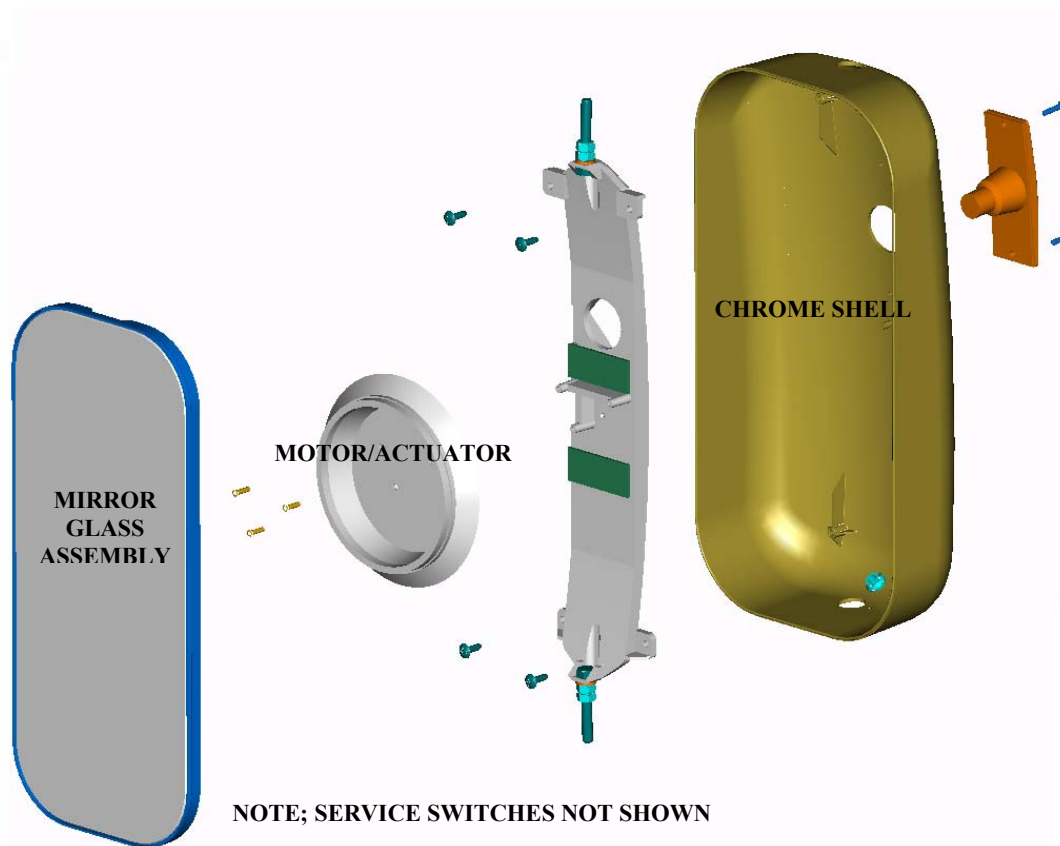
MOTOR/ACTUATOR REPLACEMENT FOR HADLEY AFTERMARKET

1. Remove mirror glass as described in the Mirror Glass Replacement instructions above.
2. Locate the wires running from the harness to the motor/actuator, and remove the electrical tape. Cut the White, Black and Green wires just below the connection to the motor/actuator wires.
3. Remove the three (3) retaining screws using a T15 Torx driver (do not discard screws for you will be reusing them). Remove the defective motor/actuator from the housing.
4. Re-strip the harness wires approximately to a 1/4". Connect to new motor/actuator wires as follows:

Harness wire colors	Motor/Actuator wire colors
White	White
Black	Black
Green	Yellow & Blue

5. Make certain that the two black motor/actuator mounting pads are still in place on the bracket before re-attaching the new motor/actuator.
6. Mount the new motor/actuator on the mounting points. Use the screws from the previous motor/actuator to mount it. Be careful not to over tighten.
7. Replace mirror glass assembly as described in the Mirror Glass Replacement instructions above. Confirm correct operation of the new motor/actuator.

AVAILABLE REPLACEMENT PARTS



<u>Part Number</u>	<u>Part Description</u>	<u>For Trucks</u>
M015376	Service Motor/Actuator	Sterling, Hadley Aftermarket
M025041	Service Mirror Glass Assembly	All Trucks
M025084S	Service Chrome Shell	All Trucks
M025085S	Service Chrome Shell, Lighted	All Trucks
M025116A	Service Switch, Single Motor/Actuator	Hadley Aftermarket
M025116FS	Service Switch, Single Motor/Actuator	Freightliner
M025116N	Service Switch, Single Motor/Actuator	International
M025117A	Service Switch, Dual Motor/Actuator	Hadley Aftermarket
M025117FS	Service Switch, Dual Motor/Actuator	Freightliner
M025117N	Service Switch, Dual Motor/Actuator	International
M025376FS	Service Motor/Actuator	Mack, Freightliner, International

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