



# DOUBLE GLASS WINDOW - INSTALLATION PROCEDURE

## Installation Procedure # 6499576\_B

|                         |                           |
|-------------------------|---------------------------|
| <b>BUS/COACH MODEL:</b> | E4500 / J4500             |
| <b>GROUP:</b>           | 460 - WINDOWS             |
| <b>SUBJECT:</b>         | Arow Windows Installation |
| <b>DATE:</b>            | May 21, 2024              |

### Description:

This procedure provides the steps to retrofit an MCI E4500 or J4500 with the new Arow windows. The Arow windows are an alternative solution to replace the double-glass windows 03-27-2052 and 03-27-2053. The retrofit involves the removal of the existing window-latching components and to replace them with an updated design. There is no welding required, only drilling new mounting holes to the coach frame. The new windows are mounted to the coach the same way as the originals to the half-hinge at the top of the drip rail.

### Kit # 6499046 – Kit-Window, Non-Egress Long

| Item | Part Number | Description                             | Qty. | U/M |
|------|-------------|---|------|-----|
| 1    | 03-27-1395  | RETAINER HINGE WINDOW, RH               | 1    | EA  |
| 2    | 03-27-1396  | RETAINER HINGE WINDOW, LH               | 1    | EA  |
| 3    | 6466966     | #10/24 X 5/16" BUTTON HEAD SCREW, BLACK | 4    | EA  |
| 4    | 19-13-139   | RIVET, ALUMINUM, 1/8 (.125-.312 THK)    | 12   | EA  |
| 5    | 19-2-165    | FENDER WASHER, 3/16 X3/4 OD BLACK OXIDE | 4    | EA  |
| 6    | 19-1-910    | #8 x3/4" SELF TAPPING SCREWS, BLACK     | 4    | EA  |
| 7    | 6499047     | NON-EGRESS WINDOW BRACKET HARDWARE KIT  | 1    | EA  |
| 8    | 03-27-2145  | BRACKET, WINDOW BOTTOM                  | 2    | EA  |
| 9    | 19-13-169   | RIVET MONOBOLT, 1/4"                    | 4    | EA  |
| 10   | 03-27-2143  | BRACKET, WINDOW - COACH FRAME           | 2    | EA  |
| 11   | 6499048     | DUMMY RELEASE BAR ASSEMBLY - LONG       | 1    | EA  |
| 12   | 966141      | WINDOW-DOUBLE GLASS NON-EGRESS LONG     | 1    | EA  |
| 13   | 03-09-1338  | BLIND TRACK STOP NUT/BOLT               | 2    | EA  |

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## Kit # 6499049 – Kit-Window, Egress Long

| Item | Part Number | Description                             | Qty. | U/M |
|------|-------------|---|------|-----|
| 1    | 03-27-1395  | RETAINER HINGE WINDOW, RH               | 1    | EA  |
| 2    | 03-27-1396  | RETAINER HINGE WINDOW, LH               | 1    | EA  |
| 3    | 6466966     | #10/24 X 5/16" BUTTON HEAD SCREW, BLACK | 4    | EA  |
| 4    | 19-13-139   | RIVET, ALUMINUM, 1/8 (.125-.312 THK)    | 12   | EA  |
| 5    | 19-01-1571  | CAPSCREW-SERR FLG, 1/4-20UNC x1.00      | 4    | EA  |
| 6    | 946140      | WINDOW-DOUBLE GLASS EGRESS LONG         | 1    | EA  |
| 7    | 19-13-169   | RIVET MONOBOLT, 1/4"                    | 4    | EA  |
| 8    | 6499050     | CAM, WINDOW LATCH                       | 2    | EA  |
| 9    | 6499051     | STRIKER WITH ADJUSTER ASSEMBLY          | 2    | EA  |
| 10   | 03-09-1338  | BLIND TRACK STOP NUT/BOLT               | 2    | EA  |

### Required Tools & Shop Supplies:

| Item | Tool                                | Manufacturer | Part # |
|------|-------------------------------------|--------------|--------|
| 1    | CORDLESS DRILL                      | N/A          | N/A    |
| 2    | SET OF COBALT DRILL BITS            | N/A          | N/A    |
| 3    | SET OF SCREWDRIVERS                 | N/A          | N/A    |
| 4    | SET OF COMBINATION WRENCHES         | N/A          | N/A    |
| 5    | (2) HEAVY DUTY SCAFFOLD             | N/A          | N/A    |
| 6    | RIVET GUN FOR BLIND RIVETS          | N/A          | N/A    |
| 7    | FISH SCALE                          | N/A          | N/A    |
| 8    | RIVET GUN PNEUMATIC FOR 1/4" RIVETS | N/A          | N/A    |

### General notes

Read this entire procedure before beginning work. Always use safe shop practices.

## NOTICE

*There are two type of side windows, some of them are egress windows and the others are bolted-on or non-egress windows. The egress windows are top hinged, and open from the inside. To open & remove an emergency window, the outer retainer clips must be removed, follow by lifting the interior release bar to disengage the safety latches and push the window out.*

*The non-egress windows are also top hinged and to remove them, the interior screws behind the stationary release bar and outer retainer clips must be removed and to push the window out to open it.*

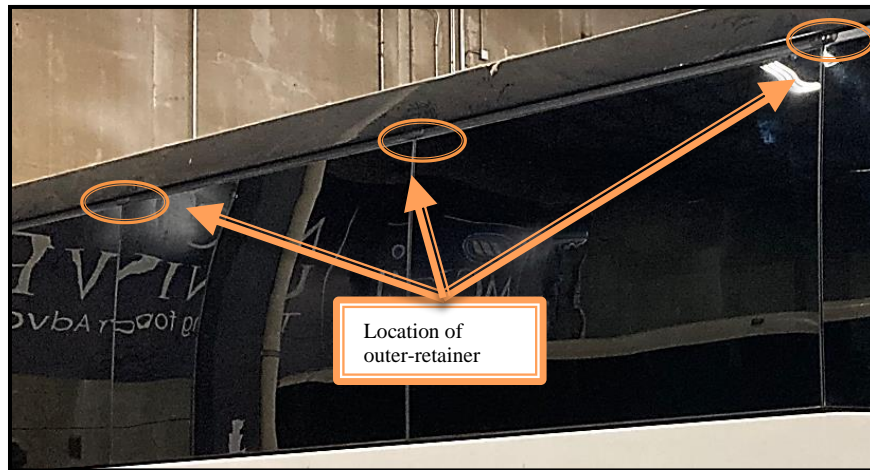
## Installation Procedure:

- (1) Park the coach in a level area with the parking brake applied. Ensure to follow the shop safety procedures and guidelines provided in the vehicle's maintenance manual.
- (2) Take two scaffolds next to the window that will be replaced. Ensure that both scaffolds are level and lock in place to prevent them from rolling.

### NOTICE

***On certain types of scaffolding, appropriate fall protection harness may still be required, follow your shop safety procedures when using a scaffold.***

- (3) Climb onto the scaffold and remove the outer-window clips. There are two clips per window.



- (4) Go to the interior of the coach and proceed to open the window, and depending on if the window is “egress” or “non-egress” either unlatch the release bar or remove the mounting hardware.
- (5) Once the window swings open, go back to the top of the scaffold and with a helper, swing the window open and up to 60-70 degrees to unhook the window from the top hinge.

### NOTICE

***The windows are heavy with an approximate weight of 100 lb. It is highly recommended for two people to do the window removal and for them to be standing on each scaffold.***

- (6) Once the old window is removed from the coach proceed to remove the existing latching components that are riveted and bolted to the frame of the coach.

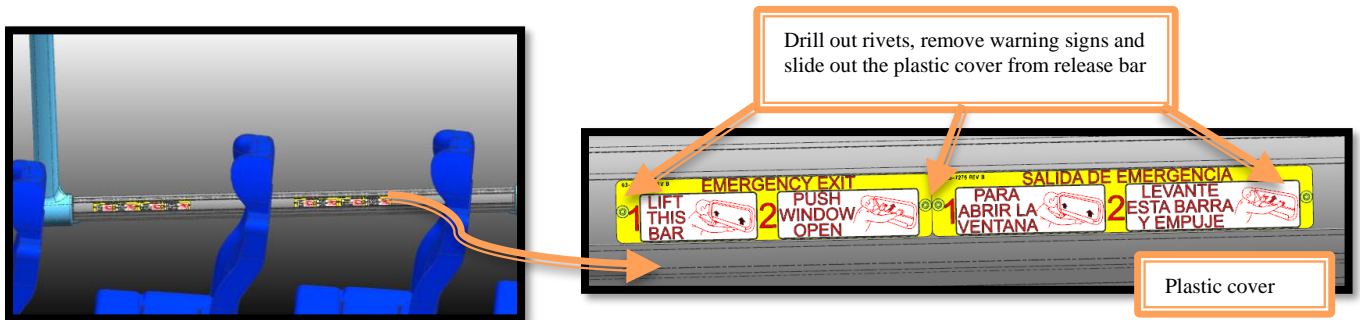
## Egress Window Installation:



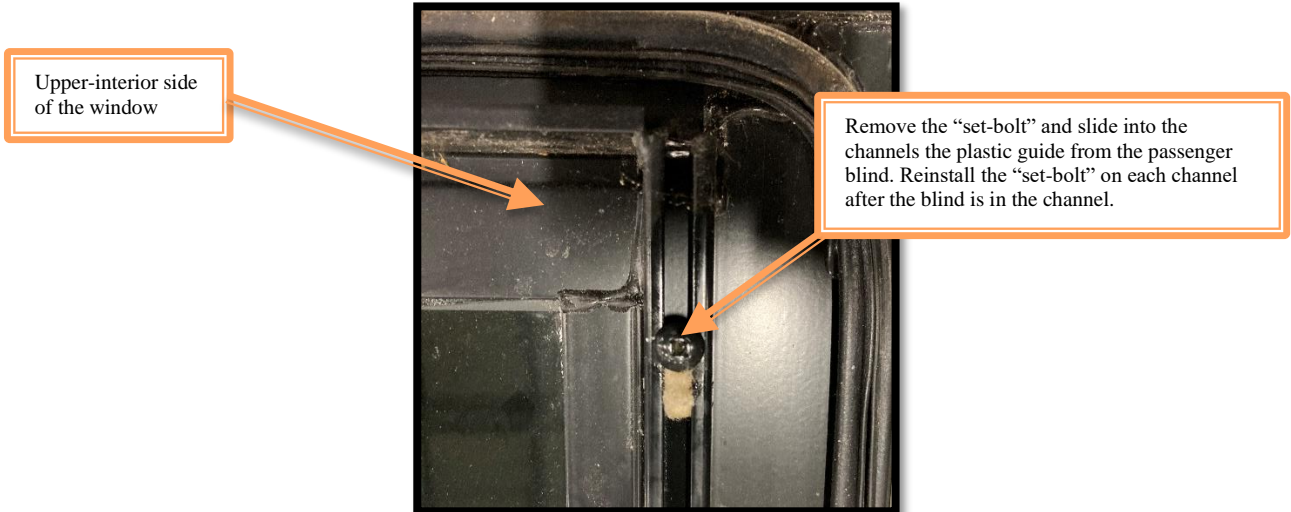
(7) Install the new brackets with locking-pin using the rivets 19-13-169.



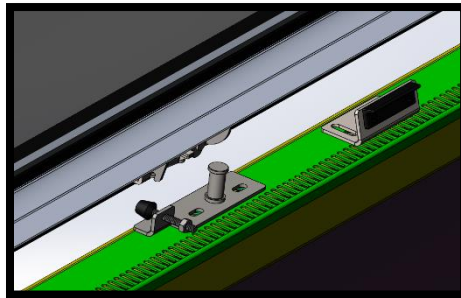
(8) Place the old window on a working bench using blanket or soft towels to protect glass with the bottom release bar facing up and drill out the rivets from the yellow-warning signs and slide out the "light grey" plastic cover from the metal release bar.



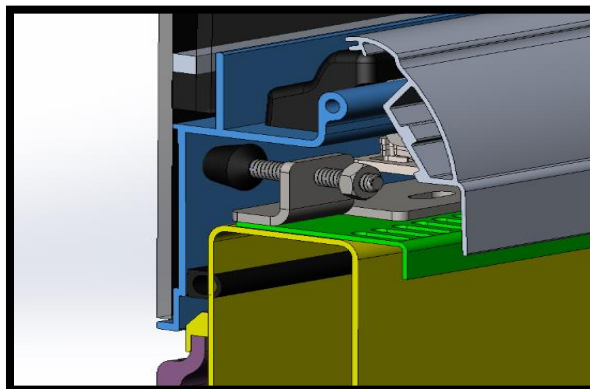
- (9) Install the light grey plastic cover onto the release bar included with the new window. Use the existing holes on the yellow-warning signs as drilling templates and install the 1/8" rivets 19-13-139 to secure all together.
- (10) Install the egress window in the reverse order that it was removed.
- (11) Once the window is hung on the coach, slide both ends of the passenger blind into the two channels on the window.



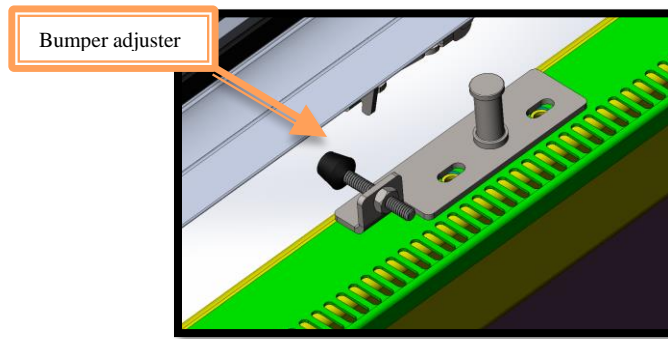
- (12) Install the new outer-window clips in the reverse order they were removed on step #3.
- (13) From inside of the coach and having the window slightly open, proceed to adjust the bumper adjuster by following the next steps:
  - a) Loosen the jamb nut and make sure the bumper is adjusted back so that it will not contact the window when closed.



- b) Close the window. Make sure that both stages of each latch are locked.
- c) Adjust the bumpers out until they contact the window frame.

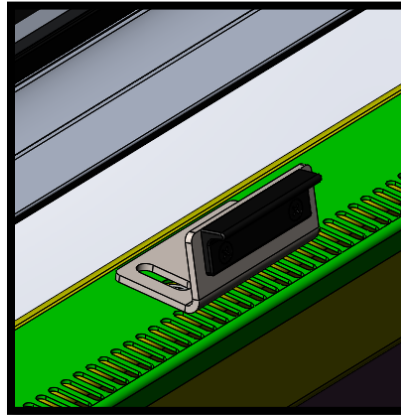


- d) Open the window.
- e) Turn each bumper an additional 1/16th to 1/8th of a turn.
- f) Tighten the jamb nuts while keeping the bumpers from turning.



- g) Close the window and verify that both latches are fully locked.
- h) Bumper adjustment complete.

(14) From the inside of the coach, and having the window slightly open, proceed to install the Window Latch Cam:



- a. Window Latch Cams (Qty:2) control the release bar opening forces.
- b. Install Window Latch Cams with 1/4-20 bolts (19-01-1571). Start adjustment with bolts centered in the slots.

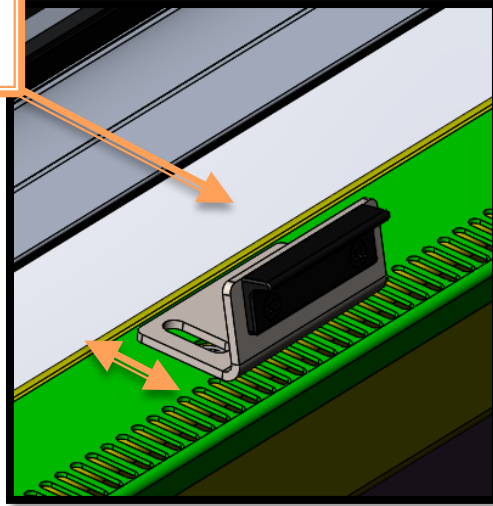
(15) Adjust Release bar latch force:

- a. Apply a light coat of multipurpose grease to the locking pins to help the window latches work freely.
- b. With window closed and fully latched, close the release bar and check for cam interaction, adjust latch cam in or out accordingly to achieve the required 15-20lb opening force.

## CAUTION

**The technician is expected to be wearing safety glasses all along the application of this procedure. On the next step special caution must be placed when pulling the fish scale, as the hook from the fish scale can become loose and injure the technician if not using their PPE.**

Adjust the Cam bracket as needed to make the release bar to open the window at 15-20 lbs. of force.



- c. Using a fish scale, place the hook to the bottom of the release bar and gradually start pulling the fish scale. The release bar should open the window with 15-20 lbs. of force. If it requires more than 20 lbs. of force for the release bar to open the window, the Cam Brackets must be adjusted to reduce the pressure against the release bar.



- (16) After all the adjustment are completed, proceed to clean the inner and outer window glass.
- (17) Procedure to install the egress window is complete.

## Non - Egress Window Installation:

(18) Follow the steps 1 through 5 of this procedure.

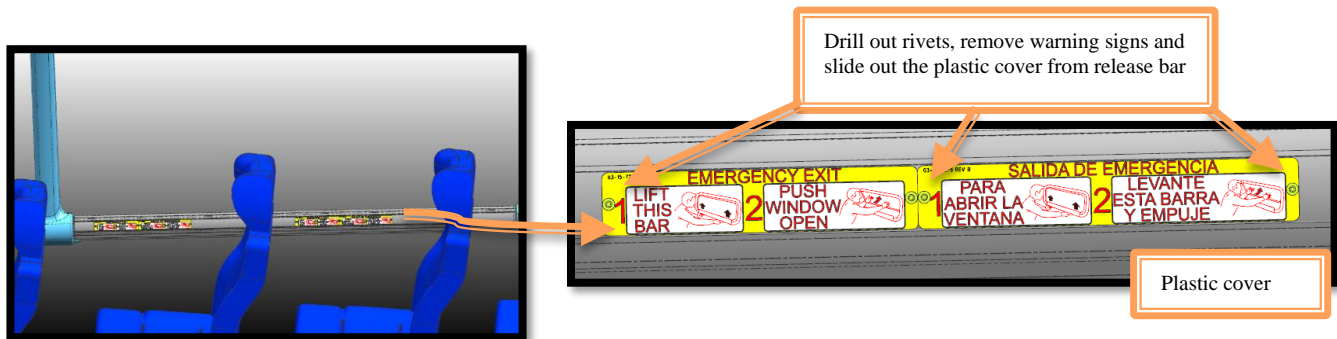
(19) Place the new window on top of a work bench using blanket or soft towels to protect glass, and the interior side facing up.

(20) Install the two 90 degrees angle brackets on the window's bottom side.



(21) Remove the light grey plastic cover from the release bar from the old window by drilling out the rivets from the yellow-warning signs.

(22) Slide the light grey plastic cover onto the new window's release bar and use the yellow-warning signs as drilling templates to drill 1/8" holes to rivet those warning signs and secure the light grey, yellow cover.



(23) Install the two mating brackets on the coach frame using the rivets 19-13-169.



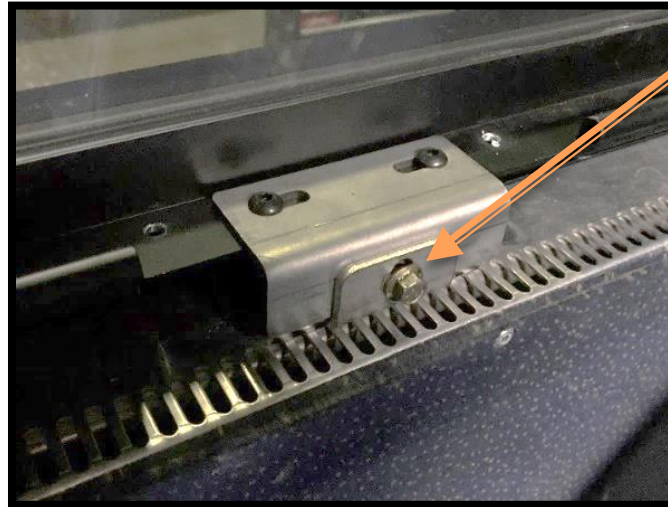
(24) Install the non-egress window in the reverse order that it was removed

(25) Once the window is hung on the coach, slide both ends of the passenger blind into the two channels on the window. Refer to step 12 for details.

(26) Install the new outer-window clips in the reverse order they were removed on step #3.



(27) Bolt-on the window with two ¼-20 nut and bolt. Add shim 03-27-2147 as required to align window.



Window is bolted to coach frame by two ¼-20 bolt

(28) Install the release bar to the new window using the four self-tapping screws included with the kit.



Release bar mounting self-tapping screws

Release bar installed

(29) After all the adjustments are completed, proceed to clean the inner and outer window glass.  
(30) Procedure to install the non-egress window is complete.