


**MAINTENANCE
INFORMATION**

MI15-40A

DATE :	JUNE 2015	SECTION :	18 - Body
SUBJECT :	USE OF THE COMMUTER TYPE BI-PART DOOR		

APPLICATION

Model	VIN
 <p>X3-45 coaches With Commuter type door</p>	

DESCRIPTION

This document offers an overview of the operation and precautions to be taken by drivers of vehicles equipped with Commuter type bi-part doors. A safety locking system (interlock) is also described, along with the main items to be familiar with in terms of the design and upkeep of this type of door.



FIGURE 1

SAFETY PRECAUTIONS

- The door is operated by pneumatic cylinders. These open and close the door with a significant amount of force, although this occurs slowly and under the driver's control.
- Since the run of the door closing occurs under the driver's control, the rubber edges located at the junction of the two panels are not equipped with a sensor capable of automatically interrupting the closing action.
- Do not operate the door if the closing mechanism damper is not installed. This damper serves to reduce the speed of opening/closing.

USE OF THE BI-PART DOOR

- LOCKING THE DOOR

Lock/unlock the bi-part entrance door by turning the key in the door lock (counter-clockwise to lock, clockwise to unlock). The entrance door may be unlocked from the inside by using the small lever located on the door.

- OPENING

Opening the door requires only one short press on the OPEN button located inside the vehicle (FIGURE 2). From the outside, opening the door requires only one short activation of the door opening command. The door will open completely.

The interior door control button will blink when the speed of the vehicle is less than 2 mi/h (3 km/h).

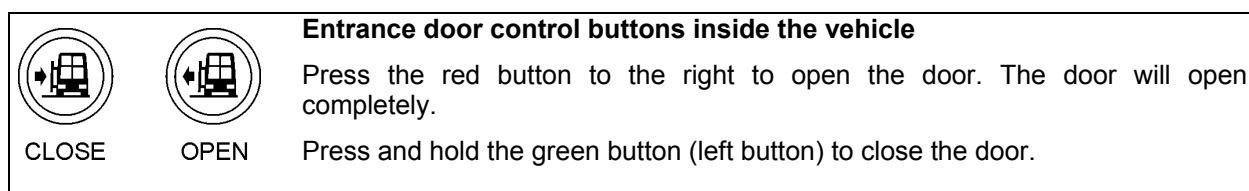


FIGURE 2

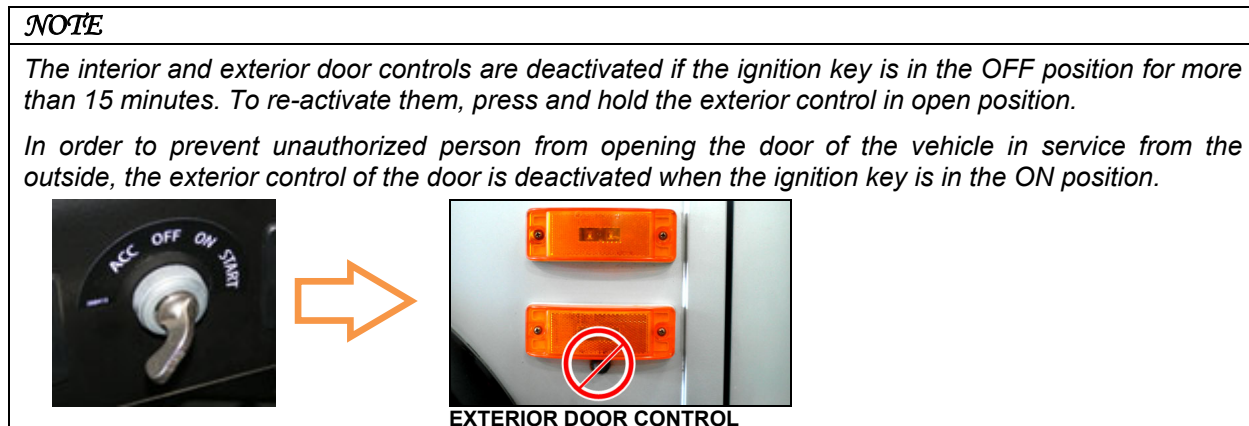
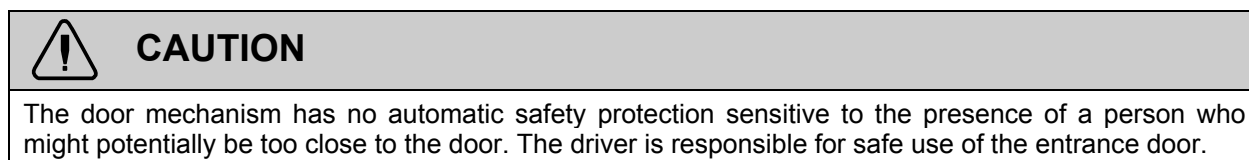


FIGURE 3

- CLOSING

To close the door, press and hold the interior or exterior control depending on the situation (FIGURE 2 & FIGURE 3).

Closing of the door may be interrupted at any time by releasing the closing control. The door will not lock when it is in any position other than completely closed, and it can thus be opened or closed further by pushing or pulling on it manually.

NOTE

Once the door is completely open or closed, the system will maintain the pressure in the pneumatic door cylinder in order to keep it in that position.

EMERGENCY ENTRANCE DOOR OPENING

COMMENT: This system is identical to the one found on regular vehicles and operates in the same manner.

An emergency opening valve located on the right of the control panel near the entrance door (FIGURE 4) serves to release the air pressure in the locking and opening/closing cylinders. Another emergency opening valve is located in the front service compartment (FIGURE 5) and serves to open the door from the outside. In order to open the door in an emergency, turn the emergency opening valve in the direction of the arrows, then push or pull the door manually.

To close the door again after an emergency opening, turn the valve back to its original position (counterclockwise), open the door using the door opening controls, then close the door again normally.



FIGURE 4: INTERIOR EMERGENCY DOOR OPENING VALVE

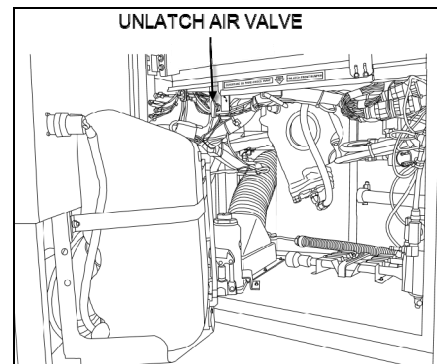


FIGURE 5: FRONT SERVICE COMPARTMENT

SAFETY LOCKING SYSTEM (INTERLOCK)

WHAT IS THE SAFETY LOCKING SYSTEM (INTERLOCK)?

The safety locking system performs 2 actions:

- 1) It maintains an air pressure of 55 lb/in² in the rear service brake (primary system), preventing movement of the vehicle when the entrance door is open.
- 2) It makes the accelerator pedal temporarily inoperable (a function commonly known as "throttle inhibit").

COMMENT: It is not necessary to place the gear selector in neutral position (N) to open the entrance door.

DEACTIVATION OF THE SAFETY LOCKING SYSTEM (INTERLOCK)



FIGURE 6

- An "Interlock Cancel" toggle switch located on the left panel serves to temporarily deactivate the safety locking system (interlock) by holding down the switch.

COMMENT: The "Interlock Cancel" toggle switch serves, for maintenance purposes and in case of emergency, to move the vehicle with the entrance door open.



MASTER INTERLOCK SWITCH
VERIFY THAT PARKING BRAKE IS APPLIED
BEFORE SWITCHING OFF THE SAFETY
LOCKING SYSTEM (INTERLOCK)

FIGURE 7

- The "Master Interlock" switch located in the front electrical compartment serves to turn the safety locking system (interlock) off for a prolonged period of time.



**REAR START
SELECTOR**
VERIFY THAT PARKING
BRAKE IS APPLIED
BEFORE SWITCHING
OFF THE ENGINE

REAR START

FIGURE 8

- Rear start selector located in the engine compartment.

Turning the engine off with this selector also turns off the safety locking system (interlock).



WARNING

The vehicle might be held in a stopped position on a slope by the action of the safety locking system (interlock). If this system is deactivated, there is a risk that the vehicle may start moving if the parking brake is not applied.

In order to prevent any undesired movement of the vehicle, **make sure that the parking brake is applied** before deactivating the safety locking system (interlock).



WARNING

Turning the engine off with the **rear start selector** (FIGURE 8) will turn off the safety locking system (interlock). There is a risk that the vehicle may start moving if the parking brake is not applied.

Make sure that the parking brake is applied before turning the motor off using this selector.

CONDITIONS REQUIRED TO OPEN THE DOOR FROM THE INSIDE

- The safety locking system (interlock) "Master Interlock" switch must be in the ON position.
- The ignition switch must be in the ON position.

The safety locking system (interlock) will activate when **all** of the following conditions are met:

- Vehicle speed < 2 mi/h (3 km/h).
- Momentarily application of the service brake, pressure > 20 lb/in².
- The driver presses the interior door opening control button within 3 seconds.

*COMMENT: To open the entrance door while the safety locking system (interlock) "Master Interlock" switch is in the OFF position, the driver must press the OPEN door control button and simultaneously press the service brake pedal **OR** press the OPEN door control button and then press the service brake pedal within three seconds.*

WHAT CONDITIONS END THE OPERATION OF THE SAFETY LOCKING SYSTEM (INTERLOCK)?

The safety locking system (interlock) will deactivate when **all** the following conditions are met:

- The entrance door is closed and locked.
- The driver briefly presses the service brake pedal.

COMMENT: The safety locking system (interlock) will stop its action if the "Interlock Cancel" toggle switch is pressed or if the "Master Interlock" switch is placed in the OFF position.

PICTOGRAPHS OF THE STATUS BAR ON THE DISPLAY SCREEN



The "Master Interlock" switch is OFF.
The safety locking system (interlock) is off.



The "Master Interlock" switch is at ON and the safety locking system is currently intervening.

none The "Master Interlock" switch is at ON but the safety locking system is not currently intervening.

TESTING THE BI-PART DOOR AND THE SAFETY LOCKING SYSTEM (INTERLOCK)	
VEHICLE IN MOTION	
Drive at a speed of more than 3 km/h and attempt to open the door while in motion	The door should not open The message "REDUCE SPEED TO OPEN THE DOOR" should appear on the DID ¹
VEHICLE STOPPED	
CONDITION	RESULTS
<ul style="list-style-type: none"> • engine running • transmission in neutral • door closed • parking brake <u>not</u> applied (<i>Warning: be sure you are on level ground</i>) • service brake <u>not</u> applied (<i>Warning: be sure you are on level ground</i>) 	
Press the accelerator pedal	The accelerator pedal is operational
Try to open the entrance door	The door should not open The message "PRESS BRAKE PEDAL TO OPEN DOOR" should appear on the DID
Try to open the entrance door while pressing down on the service brake	The door opens The accelerator pedal is not operational The pictograph of the system (interlock) is displayed on the status bar
Release the service brake pedal	The brake is kept applied because of the safety locking system (interlock), The accelerator pedal is not operational
Press the accelerator pedal	The message "CLOSE DOOR TO RELEASE BRAKE

¹ DID: Driver Information Display = display screen on the dashboard panel

(INTERLOCK)" should appear on the DID	
Close the door	The brake is kept applied because of the safety locking system (interlock),
Press on the service brake pedal and release it	The brake is released, The accelerator pedal is operational, The pictograph in the status bar disappears
<p style="text-align: center;">CONDITION</p> <ul style="list-style-type: none"> • engine running • transmission in neutral • door closed • parking brake <u>not</u> applied (<i>Warning: be sure you are on level ground</i>) • service brake <u>not</u> applied (<i>Warning: be sure you are on level ground</i>) 	RESULTS
Try to open the entrance door while pressing down on the service brake	The door opens The accelerator pedal is not operational The pictograph of the system (interlock) is displayed on the status bar
Briefly press the "Interlock Cancel" toggle switch	The brake is released, The accelerator pedal is operational, The pictograph in the status bar disappears <i>The vehicle may be moved for maintenance needs</i>
<p style="text-align: center;">CONDITION</p> <ul style="list-style-type: none"> • engine running • transmission in neutral • door closed • parking brake <u>not</u> applied (<i>Warning: be sure you are on level ground</i>) • service brake <u>not</u> applied (<i>Warning: be sure you are on level ground</i>) • The "Master Interlock" switch is in the OFF position. 	RESULTS
Try to open the entrance door	The door does not open, The accelerator pedal is operational, The service brake is not automatically applied because the system (interlock) is turned off.

DESIGN OF THE DOOR

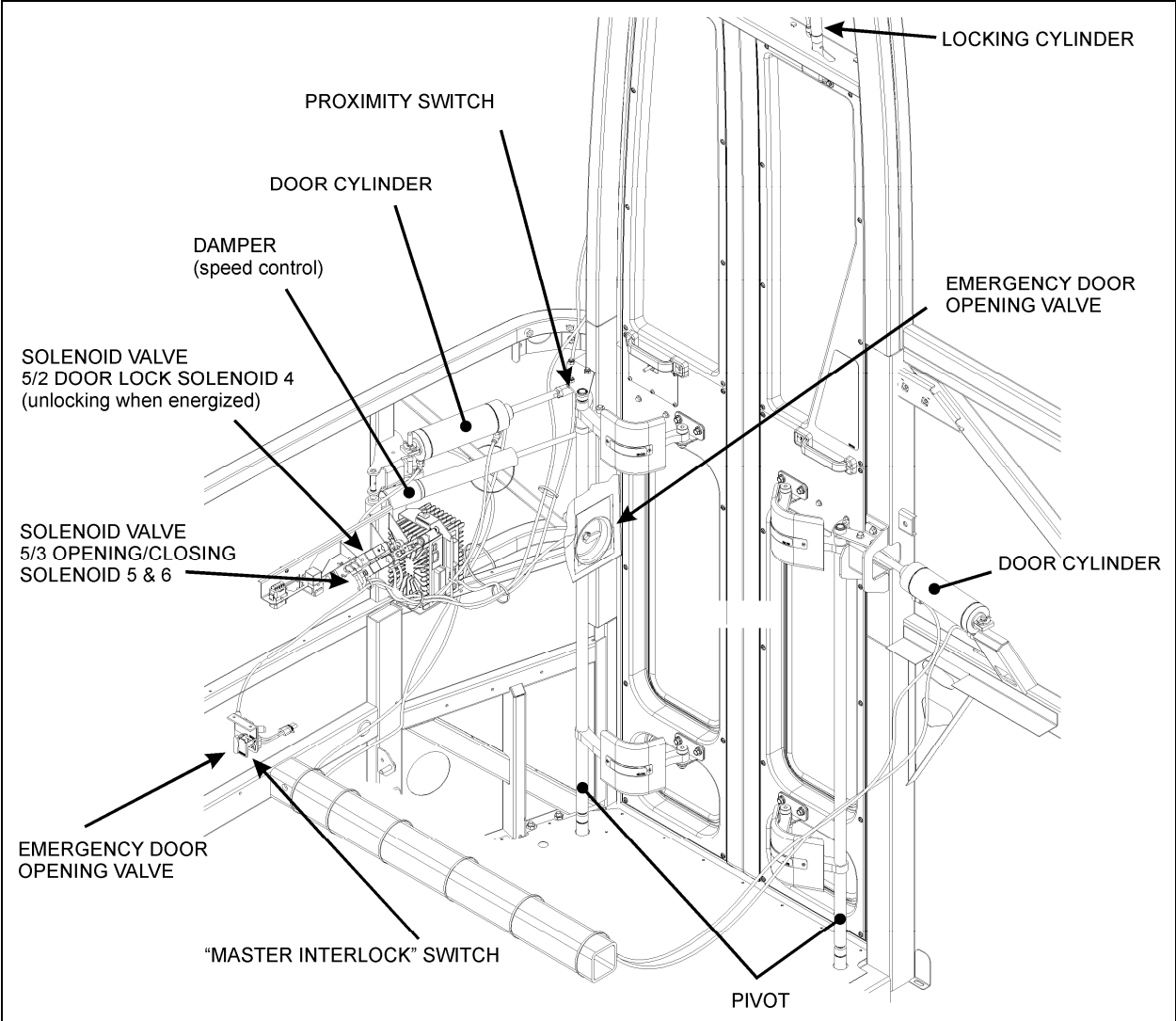


FIGURE 9

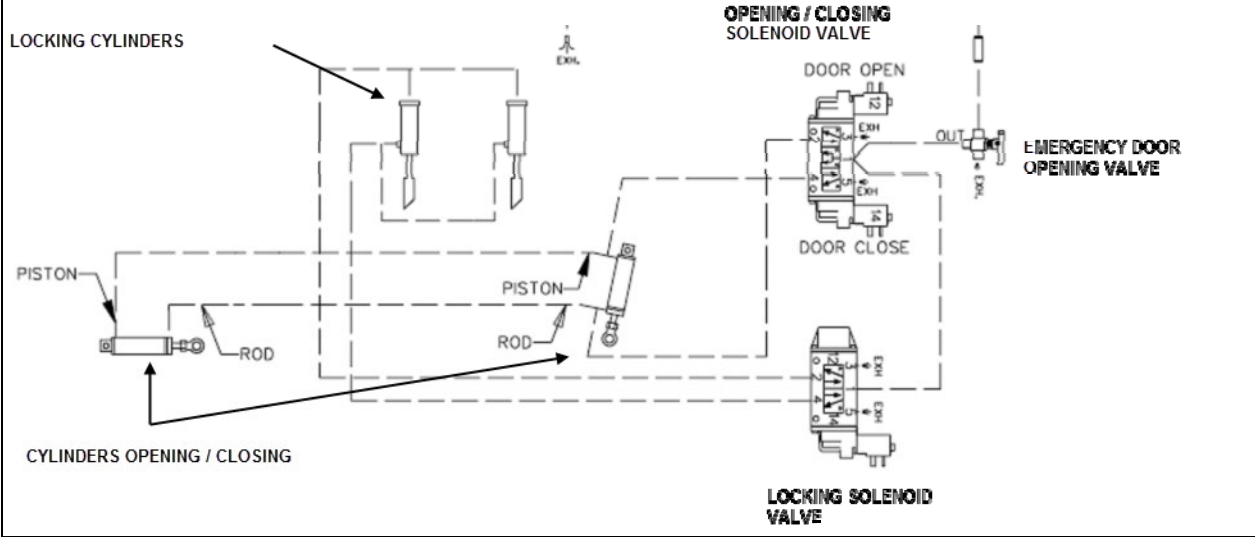


FIGURE 10

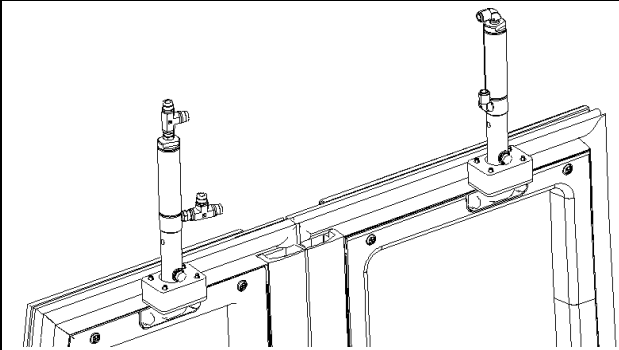


FIGURE 11: LOCKING CYLINDERS

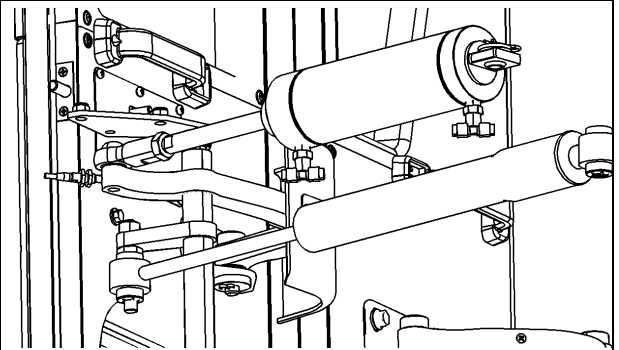


FIGURE 12: OPENING/CLOSING CYLINDER, PROXIMITY SWITCH AND DAMPER - FRONT PANEL

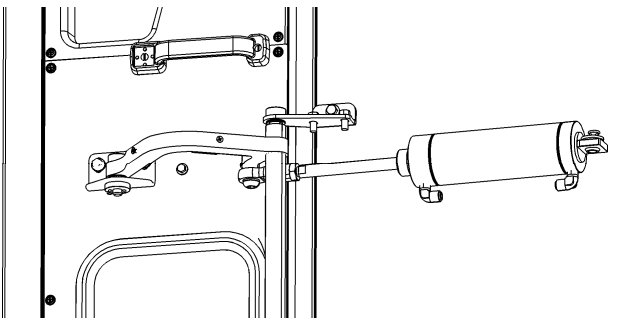


FIGURE 13: OPENING/CLOSING CYLINDER - REAR PANEL

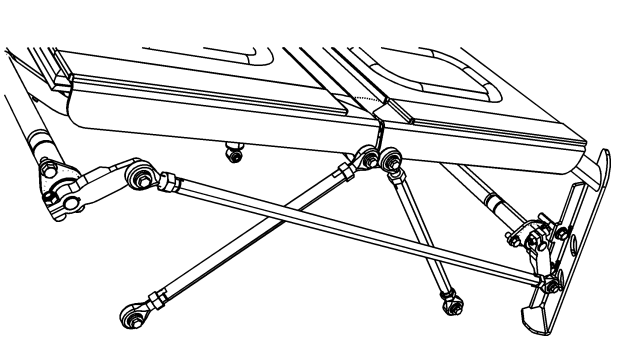


FIGURE 14: OPENING MECHANISM RODS LOCATED UNDER THE VEHICLE

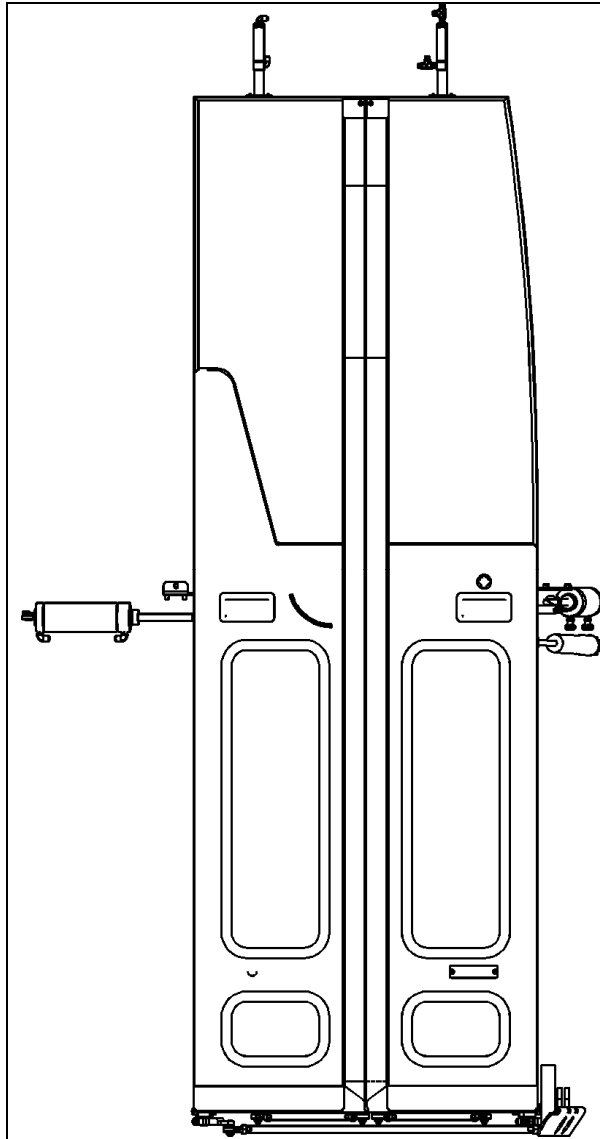


FIGURE 15: EXTERIOR SIDE

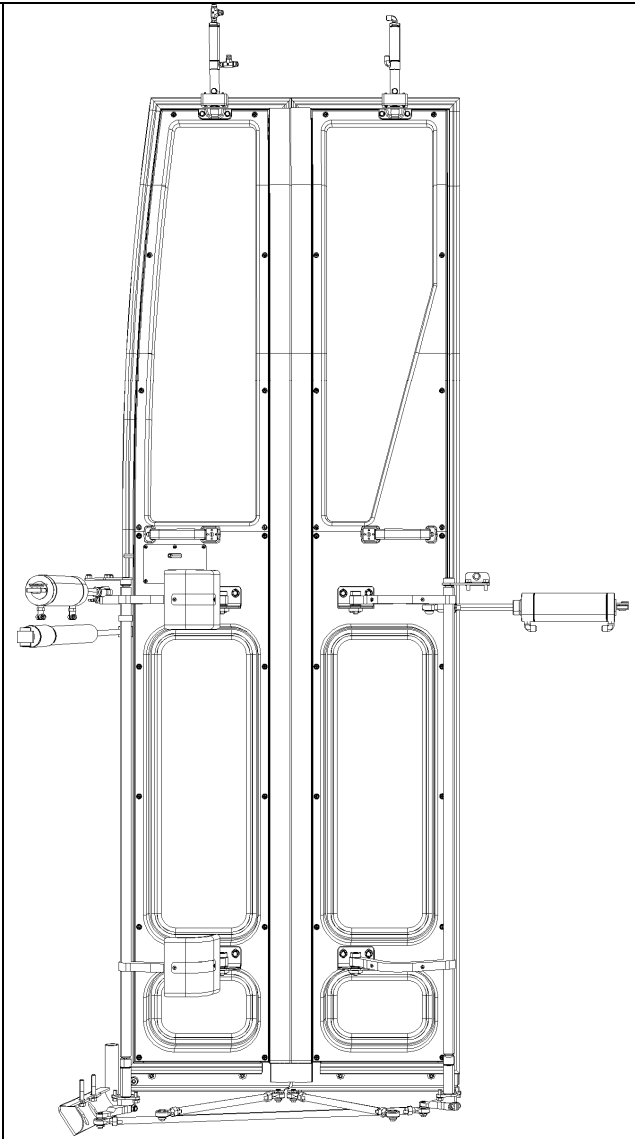


FIGURE 16: INTERIOR SIDE

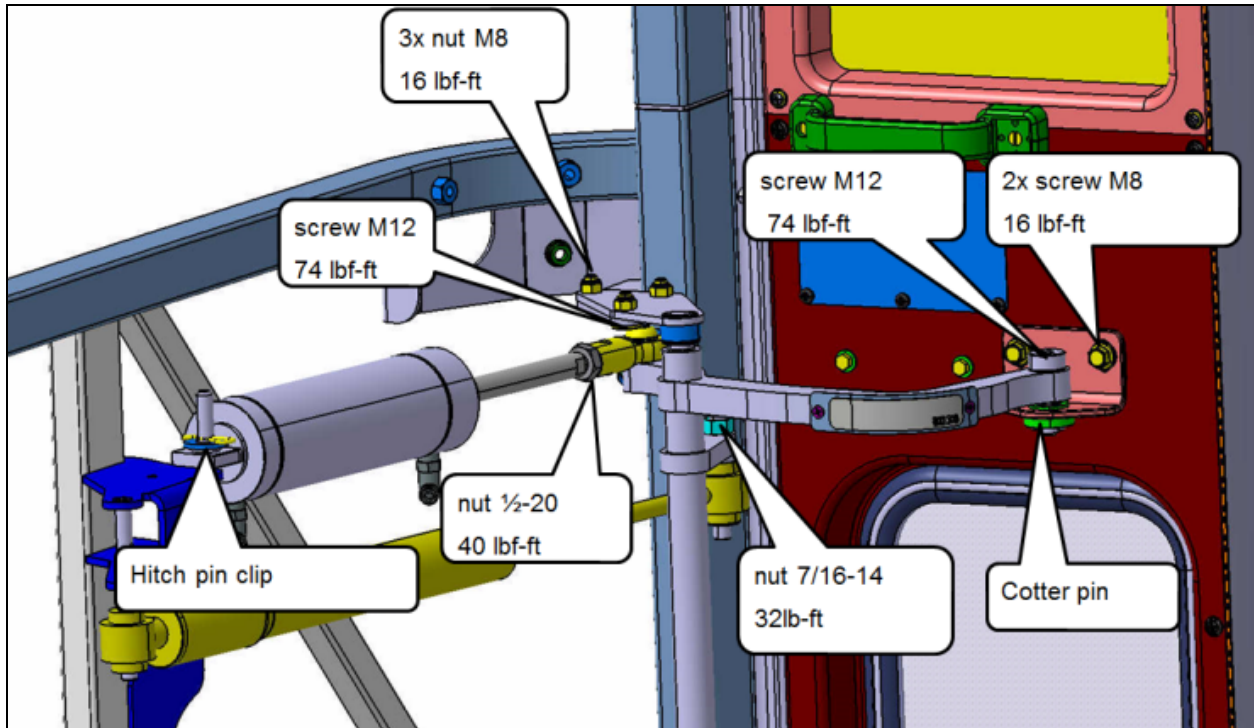


FIGURE 17: TIGHTENING TORQUES

6 lbf-ft (8 Nm)	16 lbf-ft (22 Nm)	22 lbf-ft (30 Nm)	32 lbf-ft (43 Nm)	40 lbf-ft (54 Nm)	60 lbf-ft (81 Nm)	74 lbf-ft (100 Nm)
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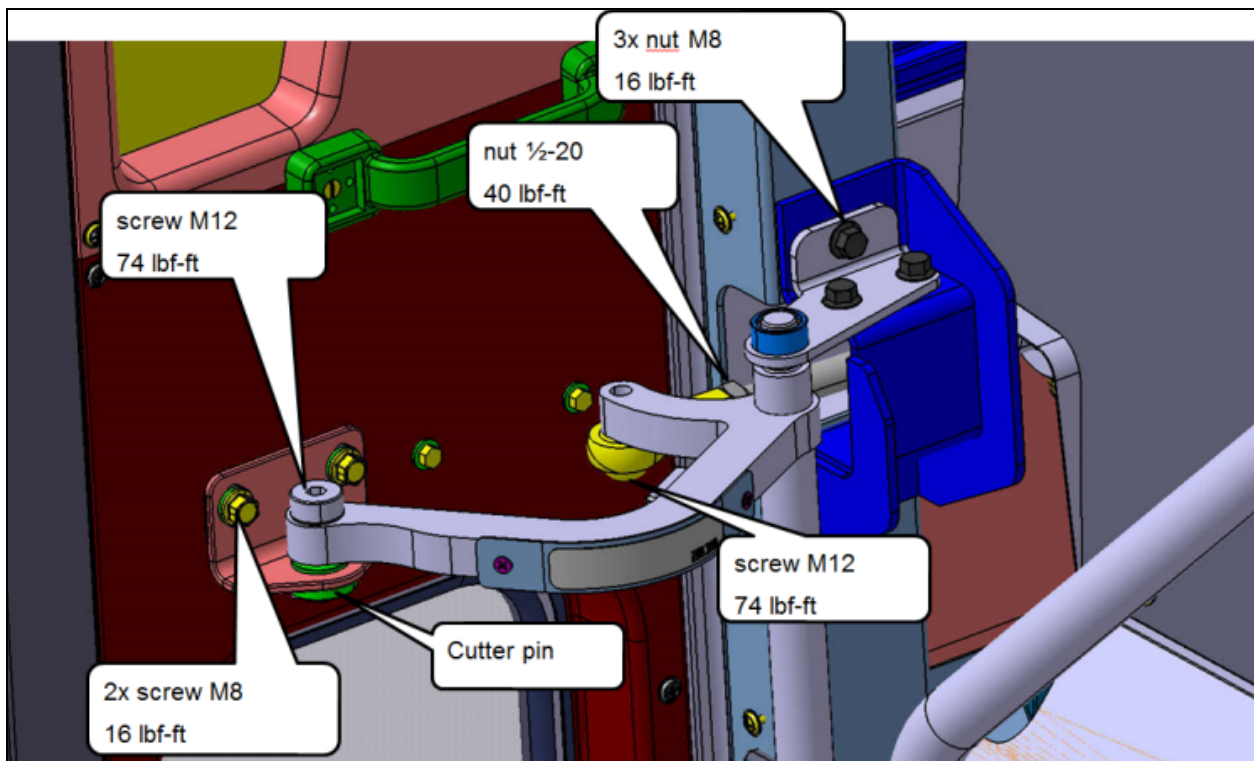


FIGURE 18: TIGHTENING TORQUES

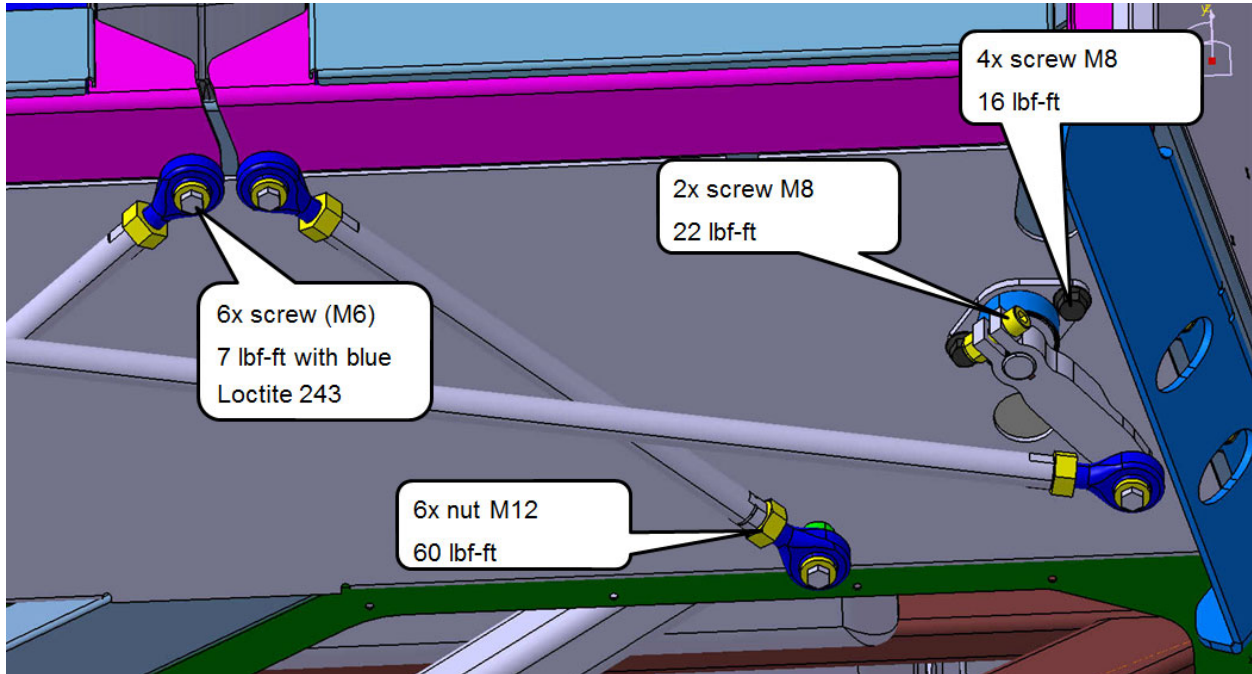


FIGURE 19: TIGHTENING TORQUES

6 lbf-ft (8 Nm)	16 lbf-ft (22 Nm)	22 lbf-ft (30 Nm)	32 lbf-ft (43 Nm)	40 lbf-ft (54 Nm)	60 lbf-ft (81 Nm)	74 lbf-ft (100 Nm)
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MAINTENANCE

There is no special maintenance other than verifying that the components work correctly and keeping the ends of the rods (FIGURE 14) located under the vehicle clean.

PARTS / WASTE DISPOSAL

Discard waste materials according to applicable environmental regulations (mun./prov./fed.).



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