Special Bulletin SP15-343D

Date	Expiration	Release	Page
10.2015	**10.2017**	**10**	**1(33)**

Revision D: This bulletin replaces all previous versions
Dec 22, 2015 Updated per comments

SLIDING DOOR ADJUSTMENT AND HARDWARE REPLACEMENT

Prevost vehicles

DESCRIPTION

On the vehicles affected by this bulletin, replace the hardware on the sliding door of the wheelchair seating area.

MODEL YEAR(S) AND VEHICLES INVOLVED

NOTICE TO SERVICE CENTERS
*Verify vehicle eligibility by checking warranty bulletin status with **SAP** or via **ONLINE WARRANTY SYSTEM** available on Service / Warranty tab of Prevost website.*

Model	VIN
X3-45 Commuter Model Year : 2014, 2015, 2016	The following individual vehicles: 2PCG33495**E**C73**5590**; 2PCG33498**E**C73**5602**, 4RKG33494G973**7166**, 4RKG33496G973**7167**, 4RKG33498G973**7168**, 4RKG33496G973**7170**, 4RKG33498G973**7171**, 4RKG3349XG973**7172,** 4RKG33491G973**7173**, 4RKG33493G973**7174** And from 4RKG33497**F**973**7001** up to 4RKG33490**G**973**7164**

This bulletin does not necessarily apply to all the above-mentioned vehicles, some vehicles may have been modified before delivery. The owners of the vehicles affected by this bulletin will be advised by a letter indicating the Vehicle Identification Number (VIN) of each vehicle concerned.

MATERIAL NEEDED

Order Kit SP15-343 which includes the following parts:

Part No.	Description	Qty
500117	SCR CAP CK HEX M8-1.25X40 GR 10.9	1
500126	WSH FL SS 19 X 34 X 3	2
500142	WSH FL SS 6,6 X 22 X 2	10
5001308	SCR CAP HEXF N500 M10-1.5X40 G10.9	2
5001815	SCR CAP HEXF N500 M6-1 X 30 G 8.8	4
5001833	WSH BEL SPR SS 301 6.65X17.4X1.27	21
5001834	WSH BEL SPR N500 10.5X23X2.5	4
5001848	WSH BELL .827 OD X .331 ID X .098 TH SS	6
500494	WASHER BEL SPR .468x1.687x.187 N500	2
5001868	WASHER BEL SPR 8.4x18x2	1
N16891	SCREW CAP HEXF M10-1.5x35 G8.8 YP	2

Other parts that may be required:

Part No.	Description	Qty
680038	LOCTITE 243 “BLUE”	1
685353	TORQUE SEAL PAINT	1
286421	SPACER "U" 54MM X 66MM X 14GA	2
288588	SPACER 44MM x 132MM x 18GA	2
2800282	UPPER CARRIER ASSY	1
2800296	SPACER 44MM x 132MM x 24GA	2
504318	RETAINER RING	1
2800270	ROLLER	1

NOTE
Material can be obtained through regular channels.

RECOMMENDED TOOLS

Figure 1: RATCHET WRENCH

Figure 3: TORQUE WRENCHES (IN-LB & FT-LB)

Figure 2: CROWFOOT ADAPTER SET

Figure 4: FEELER GAGE SET

Figure 5: Torque adaptor, 15mm, 12 point

PROCEDURE

DANGER

Park vehicle safely, apply parking brake, stop engine. Prior to working on the vehicle, set the ignition switch to the OFF position and trip the main circuit breakers equipped with a trip button. On Commuter type vehicles, set the battery master switch (master cut-out) to the OFF position.

DANGER

Do not leave keys in wheelchair door lock while performing service operations described in this bulletin.

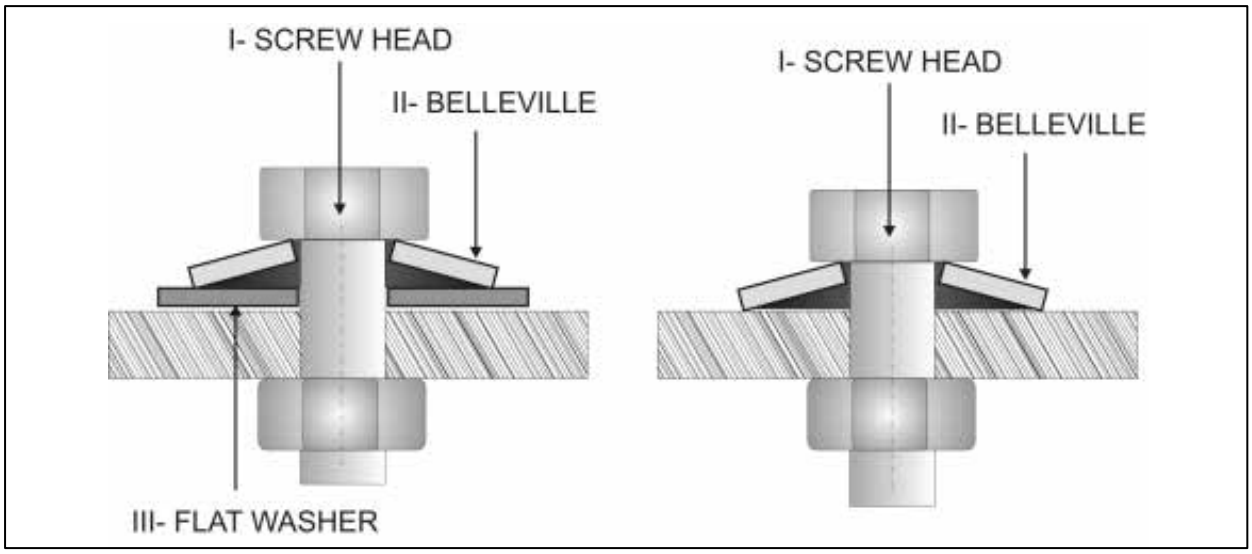

Figure 6: PROPER BELLEVILLE WASHER ARRANGEMENT.

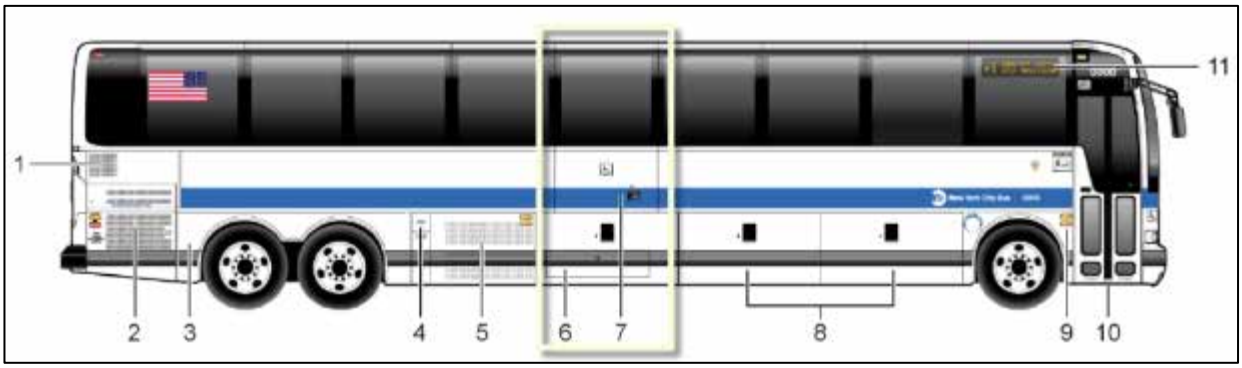

Figure 7

1. Locate the sliding door in the curbside mid-section of the vehicle. (fig. 5, item 7,)

2. From the inside, looking out, remove left hand trim on door frame.

3. Also remove the upper right hand corner trim. (Figure 8)

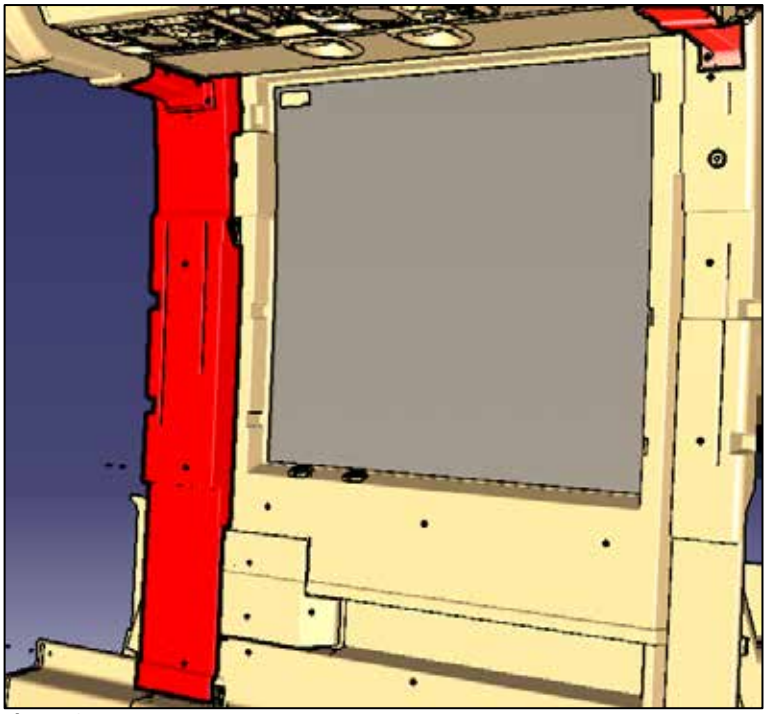

Figure 8

4. Disconnect everything preventing removal: reading lights and switches.

   The black ground may be hard to disconnect.

5. Use a pair of long nose pliers to help disconnection.

6. Disconnect the main connector of the left hand vent & light module.

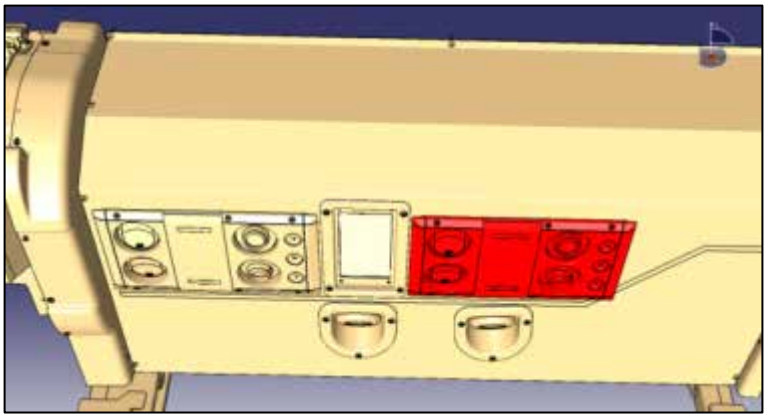

Figure 9

7. Pull on the retaining ring of the lights to release the lights.

   (Figure 10)

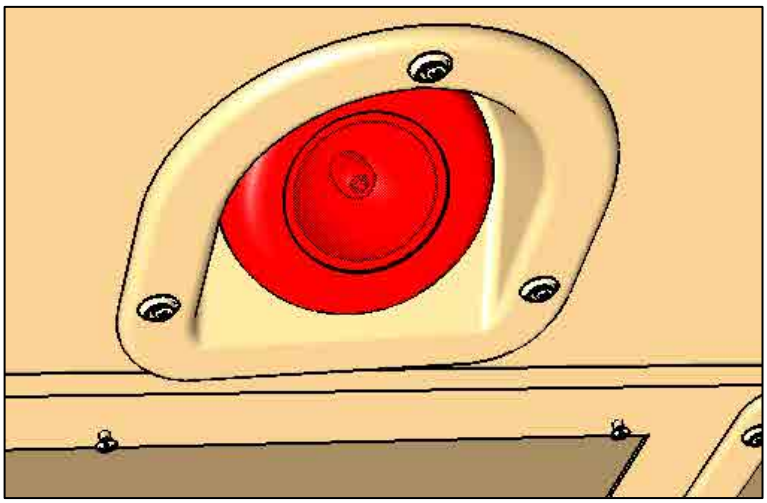

Figure 10

8. Hold the connector by the “basket side” of the light housing while pulling the light out. (Figure 11)

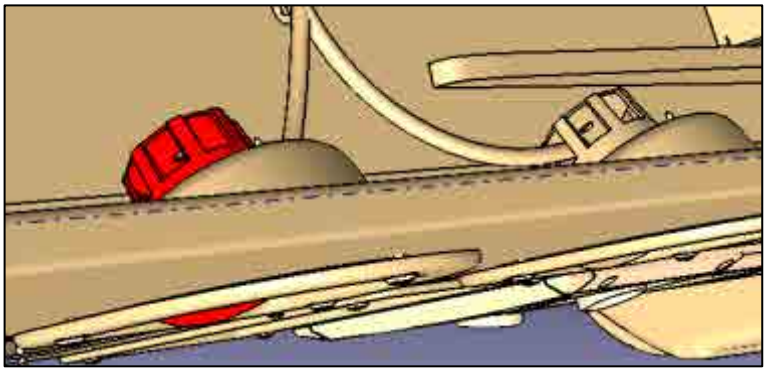

Figure 11

9. Remove all screws holding the wheelchair area roof. Reserve hardware. Move the roof assembly forward on the seats and remove the cable ties securing the threshold warning module harness to allow additional harness length.

10. Place masking tape on the threshold warning module sensors.

11. Remove “Next Stop” and “Reading Light” buttons (Figure 12)

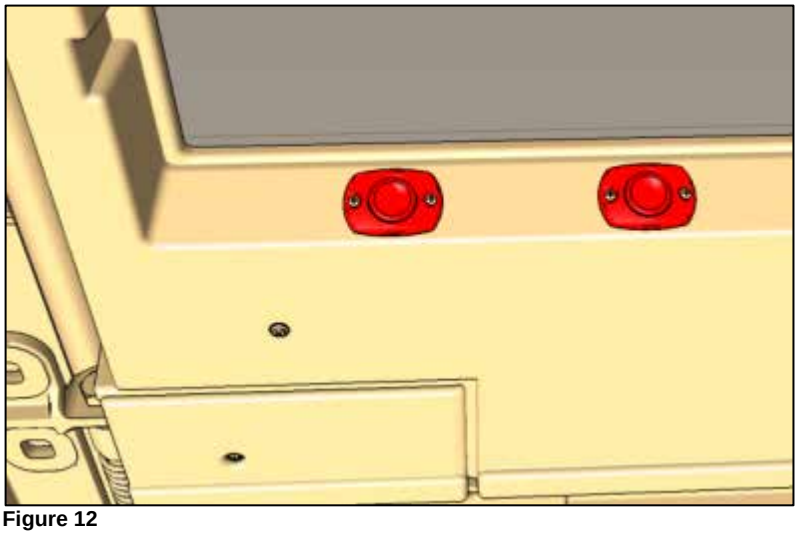

Figure 12

12. Remove door trim. (Figure 13)

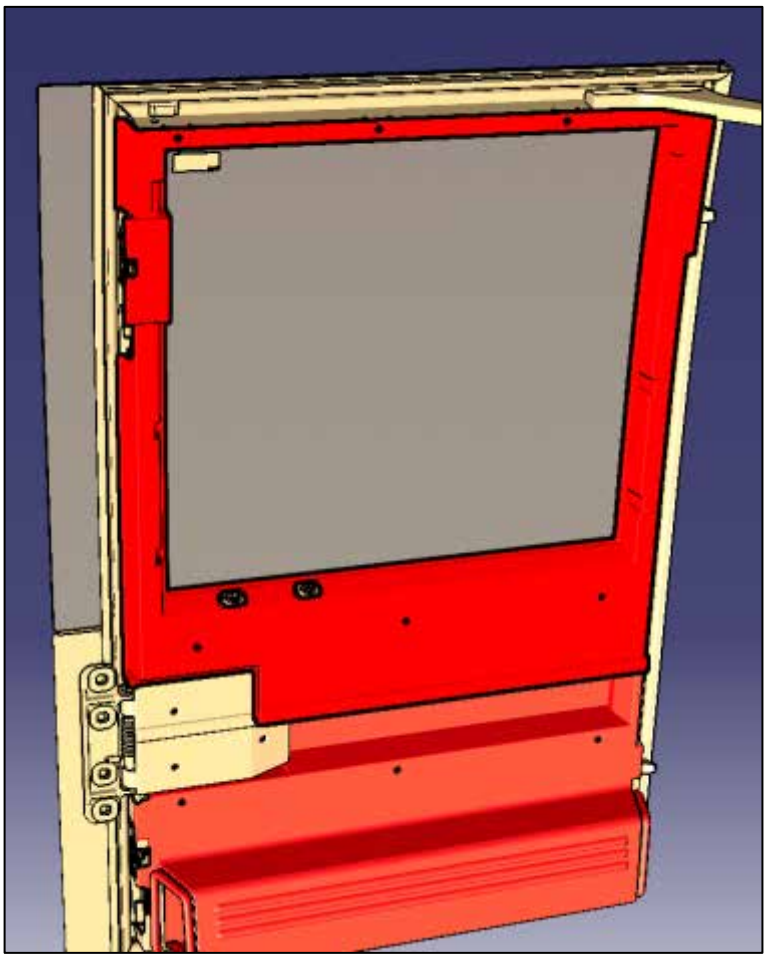

Figure 13

13. Remove the small duct section forward of the door.(Figure 14, Figure 15)

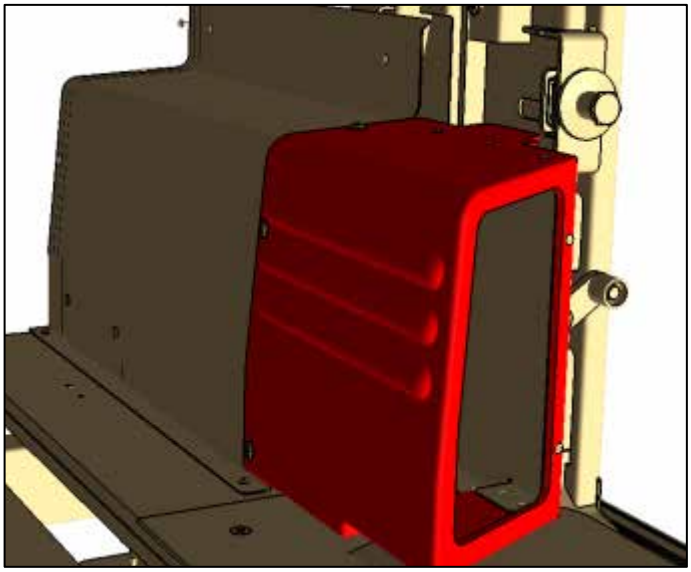

Figure 14

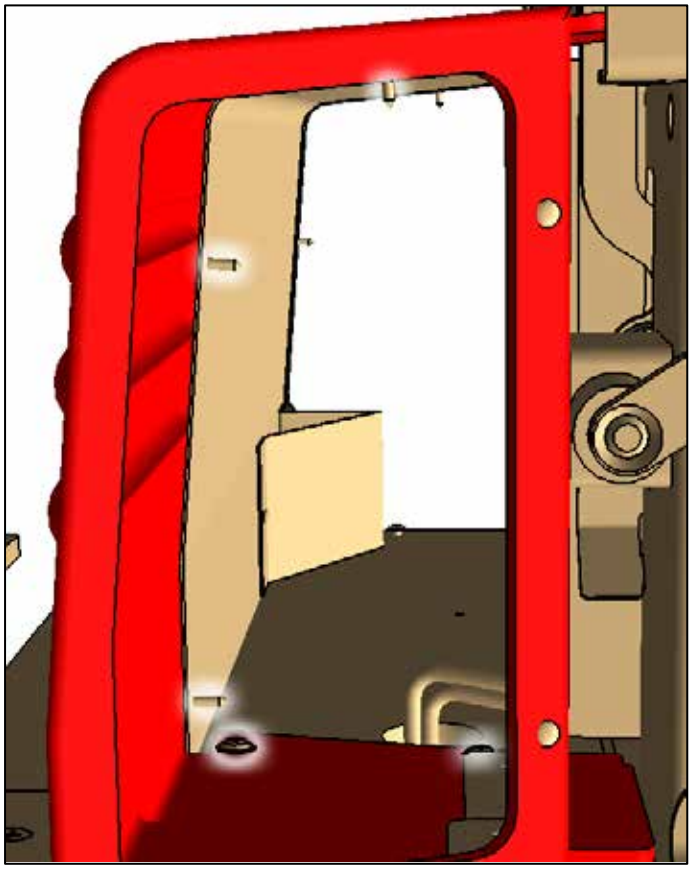

Figure 15

14. On the right side of the door, remove the capping trim and the parcel rack partition from the overhead parcel rack. Reserve hardware. (Figure 16)

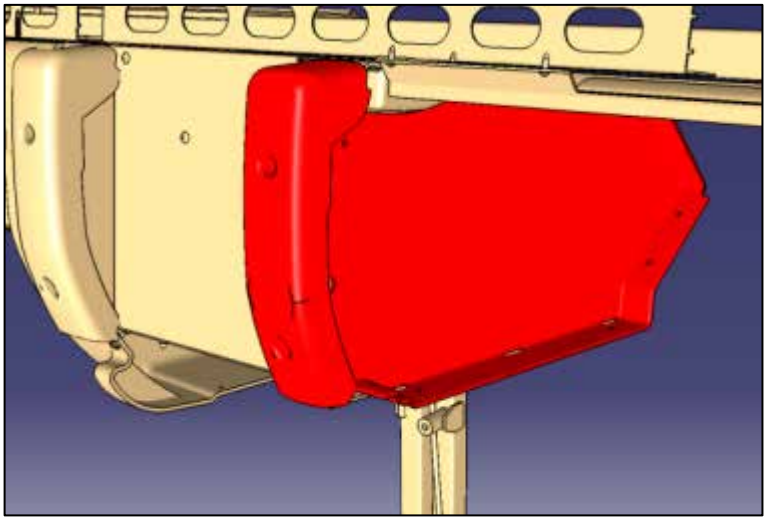

Figure 16

15. Locate the proximity switch on the left hand hinge jamb.

    (Figure 17)

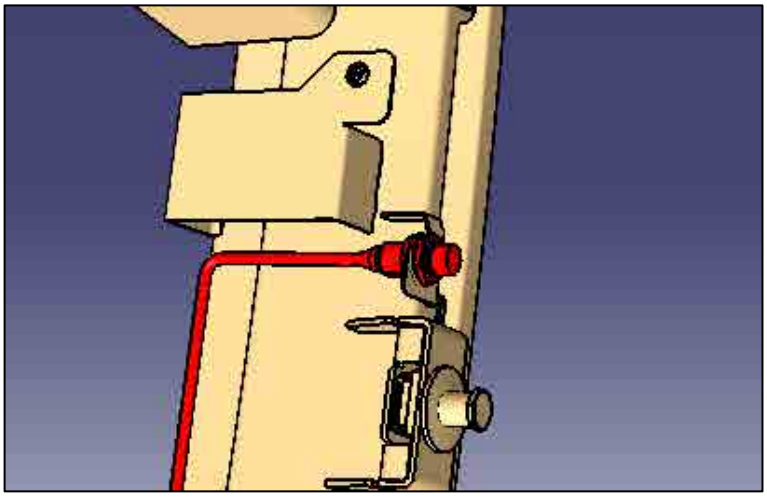

Figure 17

16. On the proximity sensor, sensor, remove the 24mm nut. Clean threads to remove any traces of Loctite. Install two washers, one on each side of the support bracket.

    Washer #500126 (2x)

17. Place proximity switch in support opening as shown below, pushing it down and curbside in the opening.

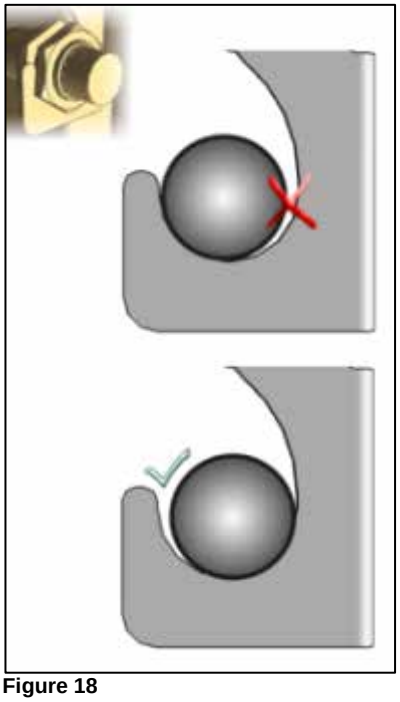

Figure 18

18. Apply Blue Loctite 243 #680038.
19. Adjust to **3/4±1/16”** (19 ± 2mm) (Figure 19**)**
20. Firmly tighten with wrench.

Figure 19

21. Remove existing target bolt.
(Figure 20)

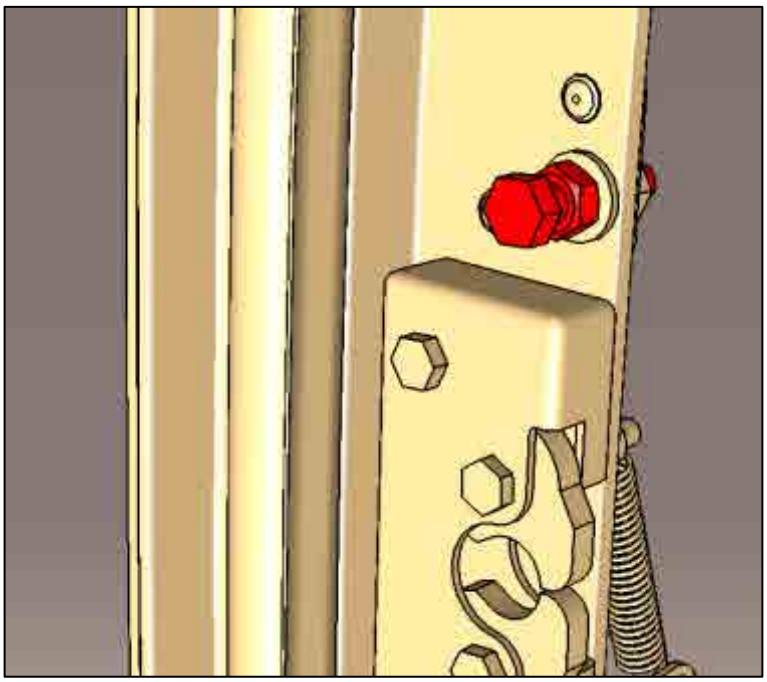

Figure 20

22. Replace screw by flat socket head cap screw and replace washer.

    Screw #500117 (1x).

    Bel Washer: #5001868 (1x)

    Hand tighten and adjust to **13/16" ± 1/16"** (21 ± 2mm) **(A)**
    (Figure 21)

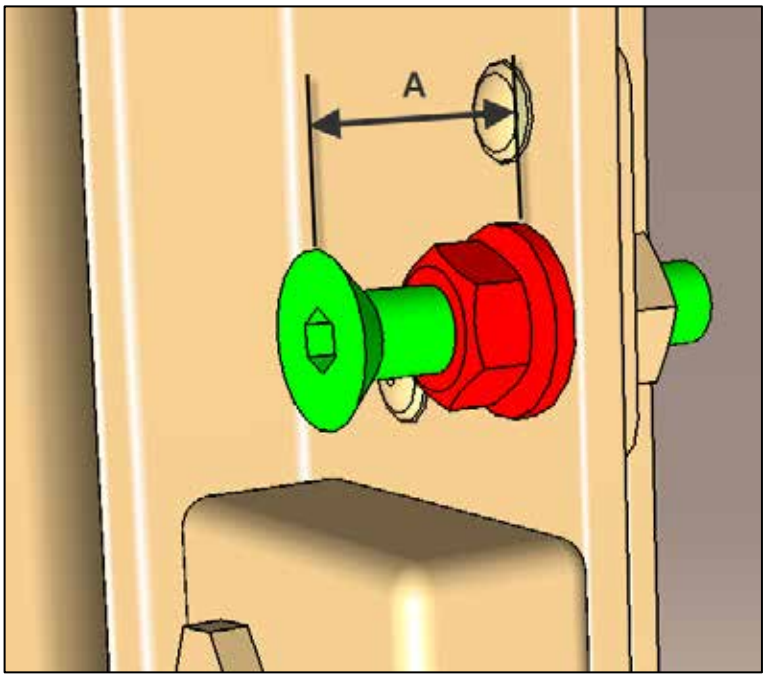

Figure 21

23. Adjust gap between proximity switch and cap screw to **5/16" ± 1/32"** (8mm ± 1mm) **(B)** (Figure 22)
24. Door side, hold cap screw and tighten nut to **16 lb-ft** using a crowfoot adapter for the torque wrench.
25. Apply torque seal mark.

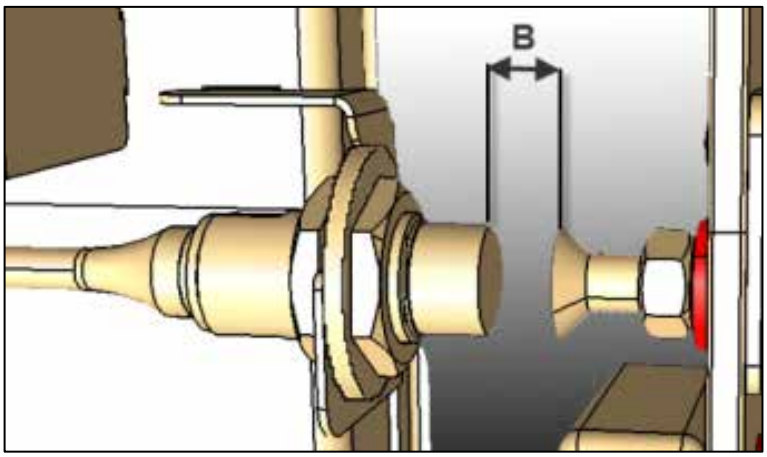

Figure 22

26. Remove screws <u>one at a time</u> on the door switch support.

    Apply Blue Loctite 243 #680038

    Tighten to **7lb-ft**

    Apply torque seal mark.

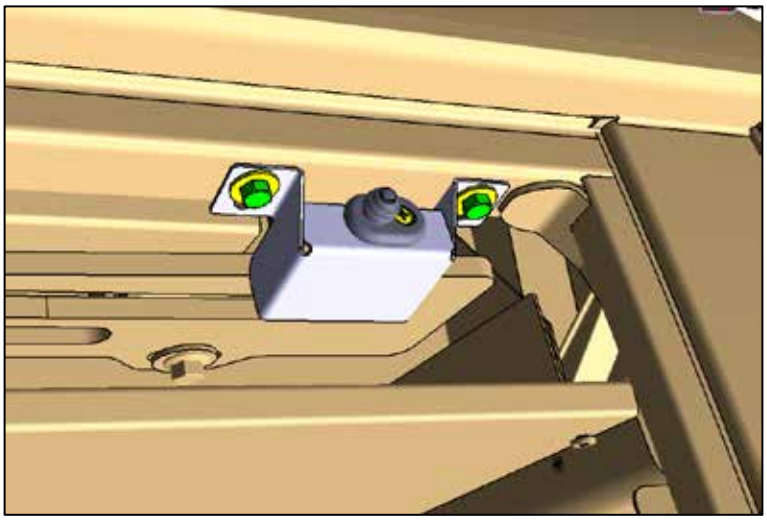

Figure 23

27. Close the door**.**

    Looking at the fingers from the top. Use feeler gages to assess the gap between the small boss on the finger and the receptacle face

    (Figure 24, Figure 25)

    Use a feeller gage to confirm gap

    Min **1/64”** (0.5mm)

    Max **3/64”** (1.1mm)

    If gap is not within the above values, add or remove shims as required.

    #288588 18GA

    #2800296 24GA

    If gap is OK, skip to next step.

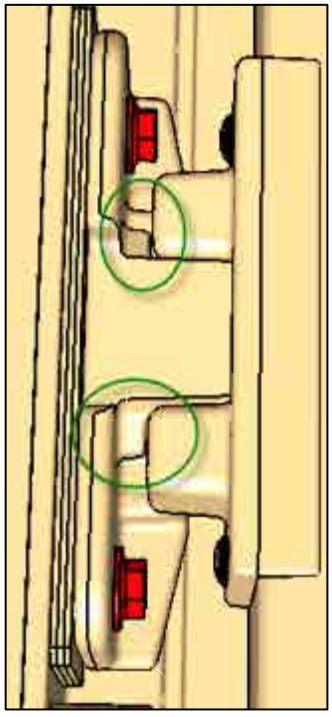

Figure 24

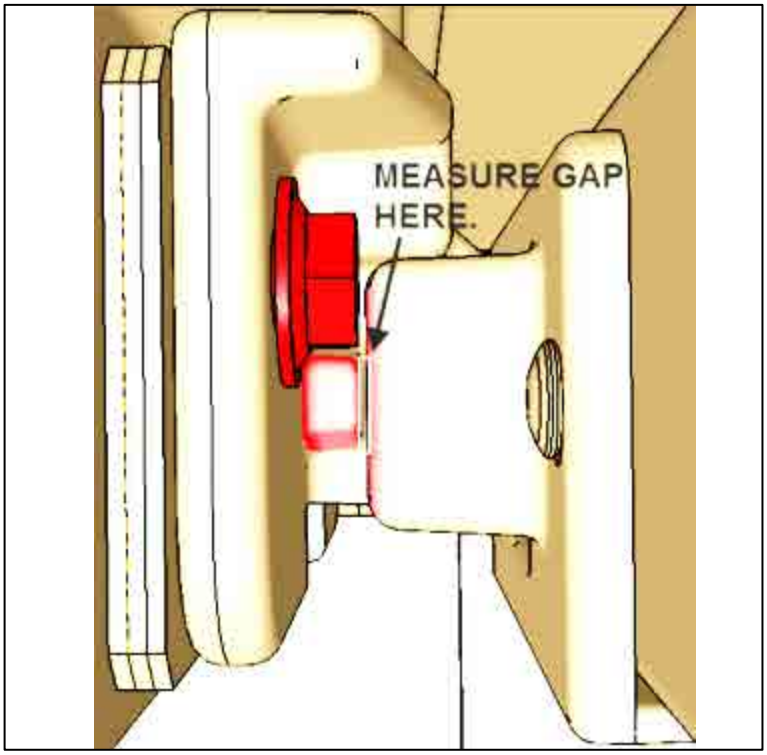

Figure 25: top view

28. Open the door.
29. On the upper and lower fingers, remove one screw at a time. Replace washers and screw (Figure 26, Figure 27, Figure 28)

    Screw #5001815 (4x)

    Bel. Washer #5001833 (4x)

    Flat washer #500142 (4x)

    Refer to Figure 6 for proper washer arrangement.
30. Tighten to **7 lb-ft**

Apply torque seal mark.

Figure 26

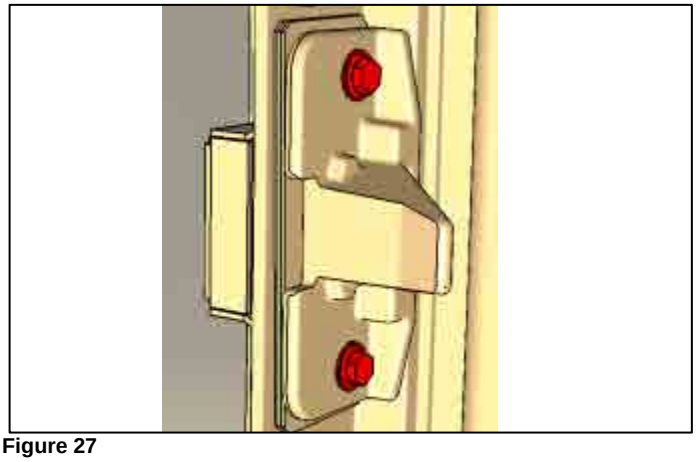

Figure 27

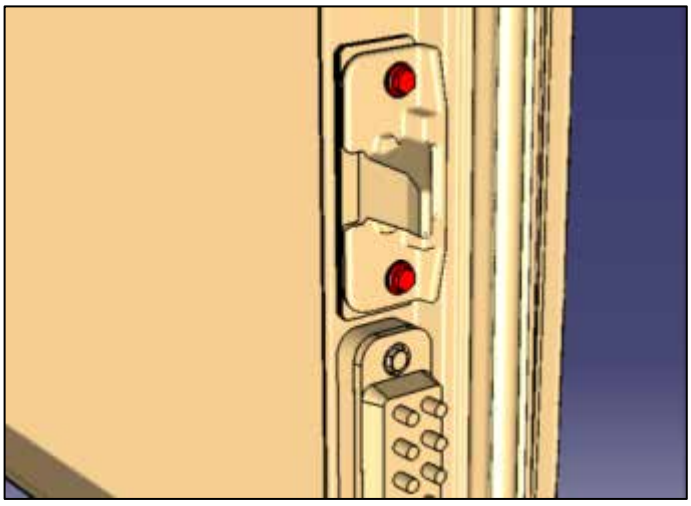

Figure 28

31. Go to the driver's area on the left hand portion of the dashboard.
32. Switch OFF the WCL power switch.

    (Figure 29)

Figure 29

33. On the upper and lower lock, replace striker pin washer.

    #500494 Bel. washer (1x)

34. Center striker pin in the door jaws. Adjust vertically & horizontally if required.

    (Figure 30, Figure 31)

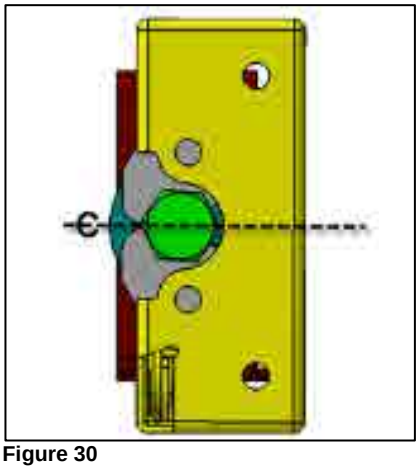

Figure 30

35. Tighten to **60 lb-ft**
36. Apply torque seal.
37. Control gaps as shown on Figure 31. Min **1/64”** (0.5mm)

    No washers should be installed on the striker plate housing screw heads

    If gaps are smaller, inform your Prevost Regional Service Manager (RSM).

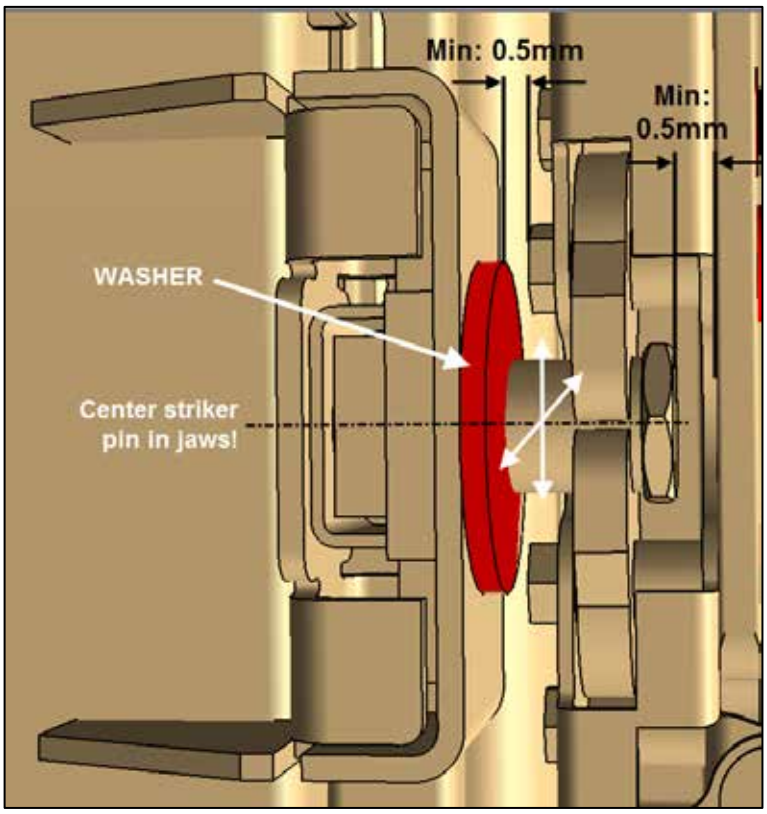

Figure 31

38. On the **upper and lower catch plates** remove <u>one screw at a time</u> and replace the existing washer by one flat and one Belleville. (Figure 33, Figure 34)

    Flat washer #500142 (4x)

    Bel. Washer #5001833 (4x)

Refer to Figure 6 for proper washer arrangement.

(Figure 32 below)

Figure 32

39. Temporarily tighten in position.

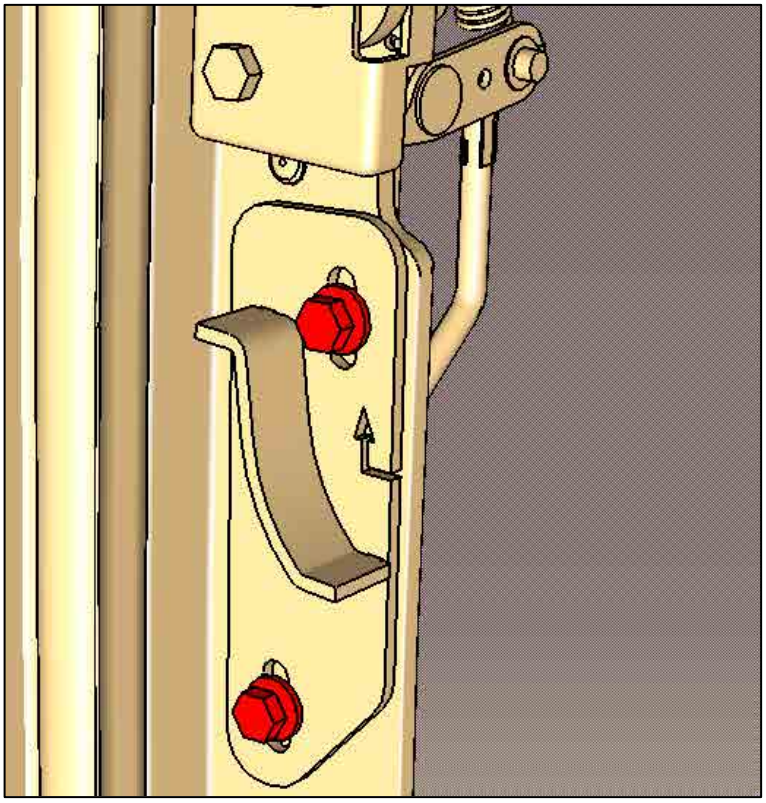

Figure 33

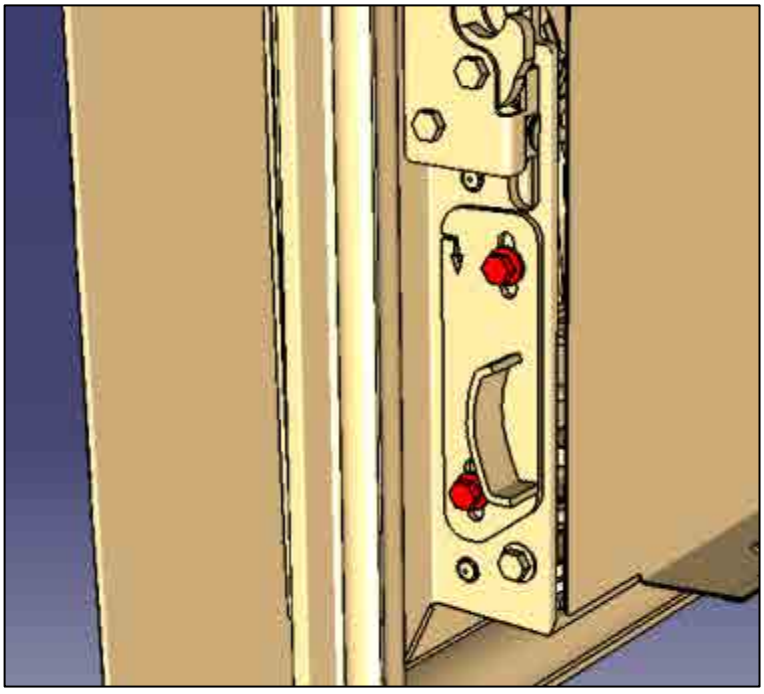

Figure 34

40. Inspect roller condition.

    Rollers should be free of flats, and have a smooth surface finish.

    Replace the roller as required.

    (Figure 35)

    #504318 Retainer Ring

    #2800270 Roller

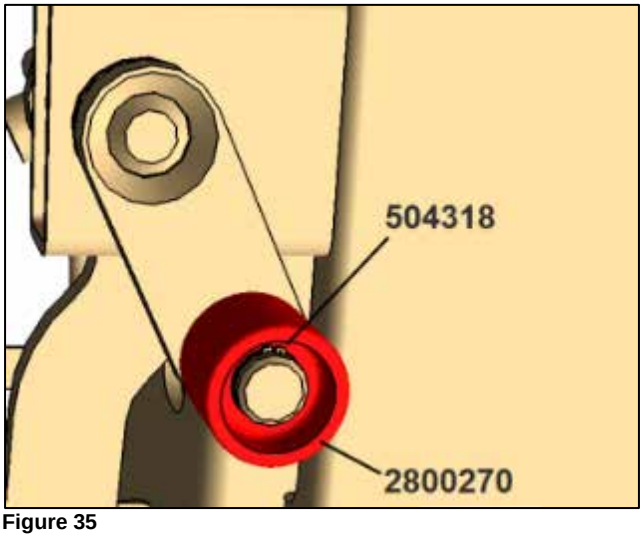

Figure 35

41. Distance between *roller and plate* with door closed should be **1/8”** (3mm).

    Adjust as required on upper and lower catch plate.

    (Figure 37, Figure 36)

42. Gap between *roller end and door* should be minimum **1/16”** (2mm).

    Trim roller end as required to get closer the target value.

    (Figure 37, Figure 36)

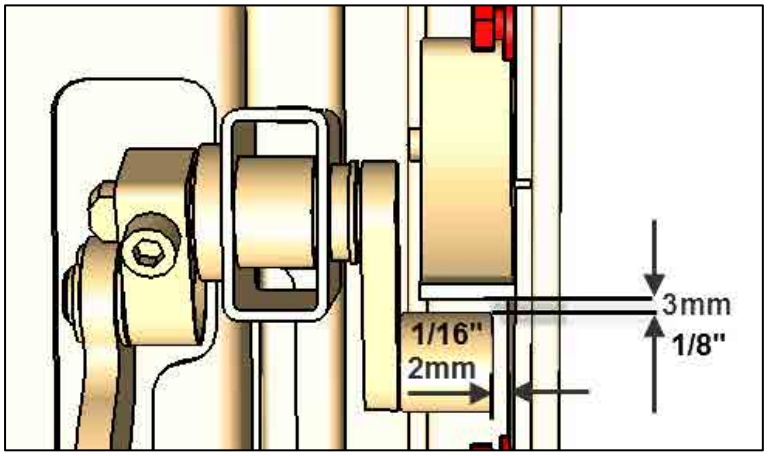

Figure 36 Upper plate

43. Complete by tightening the catch plate screws to **7 lb-ft**

44. Apply torque seal mark.

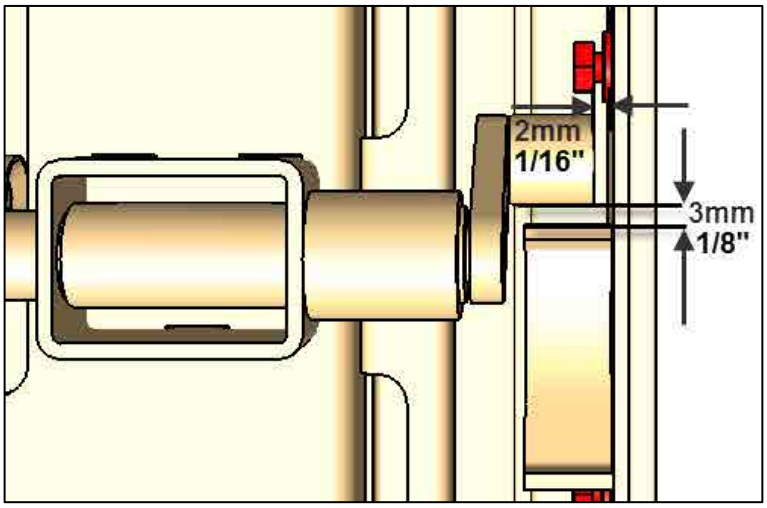

Figure 37 Lower plate

45. Verify minimum air pressure is 120psi or correct before starting checks.
46. Switch ON the WCL power switch.

    (Figure 38)

Figure 38

47. Open and close the door a few times to confirm proper operation of the lock assist sequence
48. The second latch state (Figure 39) should be applied by the lock assist mechanism alone, *without any operator intervention each time the door is closed.* If door fails this test, return to step 34.

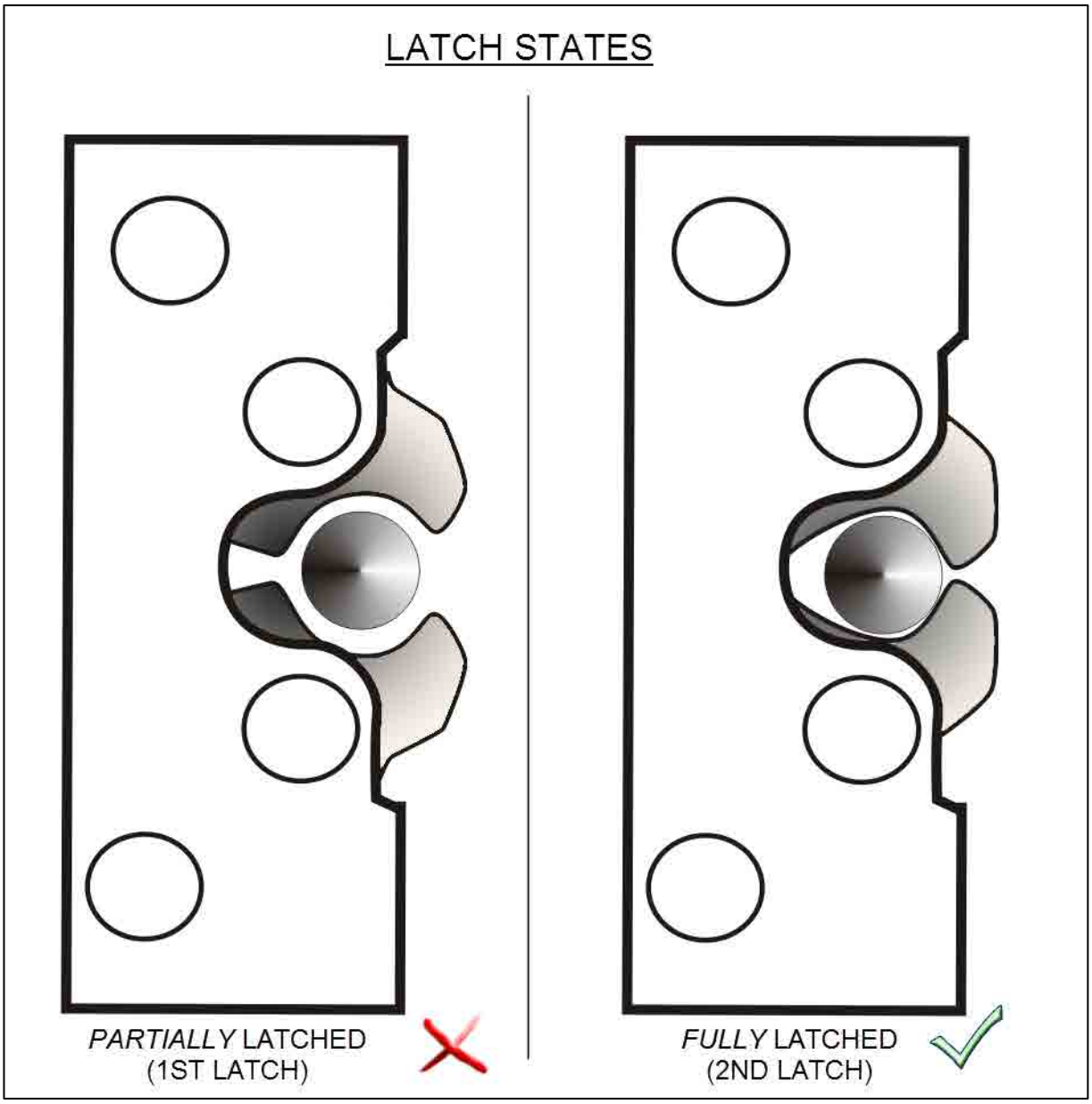

Figure 39

49. Open the door.
50. On the door upper arm, vertical face, remove one screw at a time and replace washer.

    Bel. Washer #5001848 (2x).

    (Figure 40)

Refer to Figure 6 for proper washer arrangement.

51. Tighten to **16lb-ft**
52. Apply torque seal mark

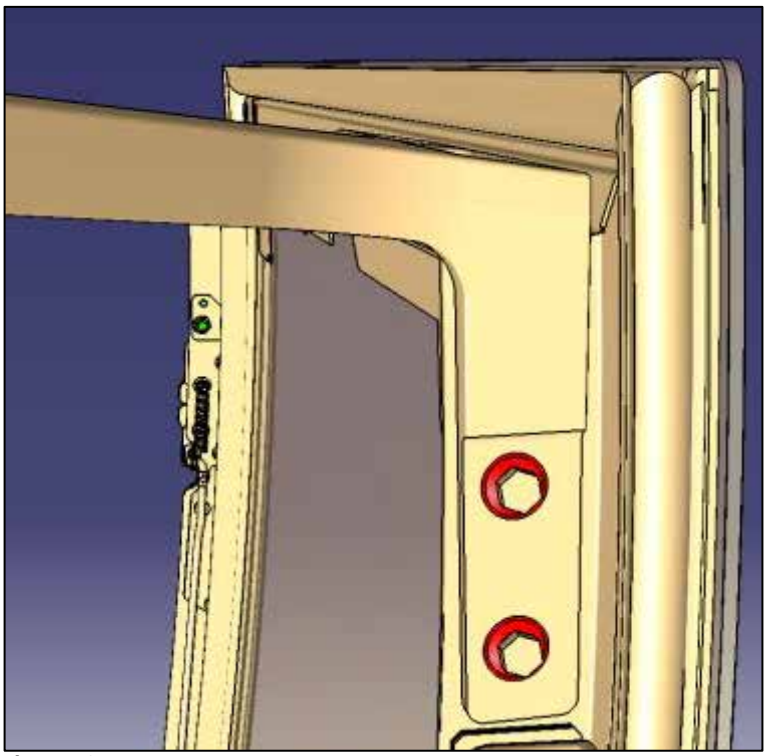

Figure 40

53. On the door upper arm top, remove mounting screws one at a time and replace washers

    Bel. washer #5001833 (3x)

    (Figure 41)

Refer to Figure 6 for proper washer arrangement.

54. Tighten to **7 lb-ft**
55. Apply torque seal mark

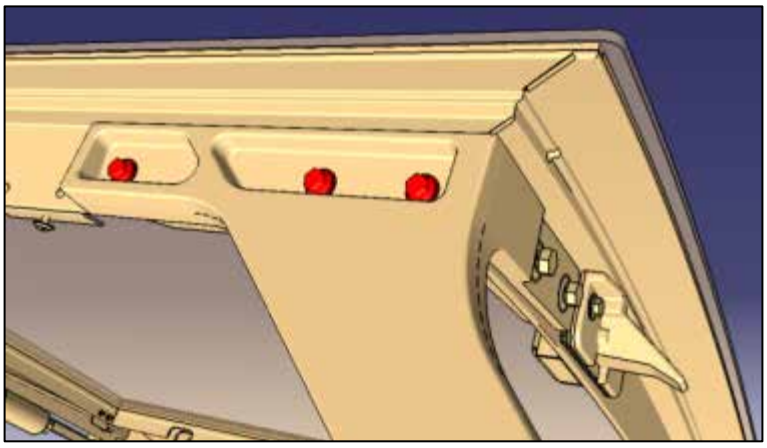

Figure 41

56. Behind the striker plates, upper and lower.

57. At lever spring anchor location, replace the washer by one flat and one Belleville.
(Figure 42, Figure 43)

    Flat washer #500142 (2x total)

    Bel. Washer #5001833 (2x total)

Refer to Figure 6 for proper washer arrangement.

Figure 42

58. Tighten to **7 lb-ft**

59. Apply torque seal mark.

60. At the remaining three locations remove one screw at a time and replace the washer by one Belleville, (Figure 43)

    Bel. Washer #5001833 (6x total)

Refer to Figure 6 for proper washer arrangement.

61. Tighten to **7 lb-ft***

    ***Note- Inner nuts need #10 crowfoot adapter to torque properly

62. Apply Torque seal mark

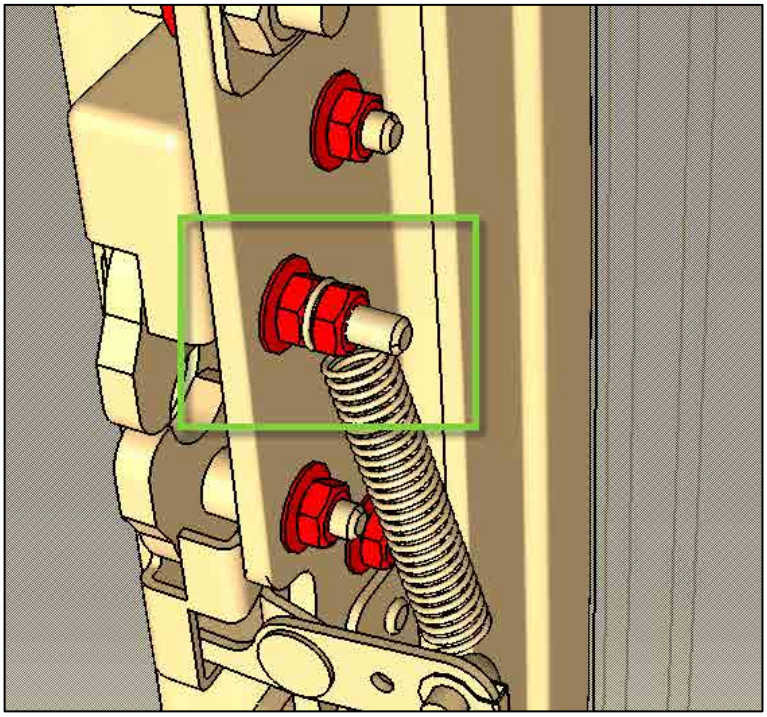

Figure 43

63. With door open, clean door switch contacts on door and frame with a clean cloth. Remove any trace of oxidation with fine Scotchbrite pad.
64. Clean with contact cleaner. (Figure 44)
65. Locate the door lower arm mounting screws. (Figure 44)

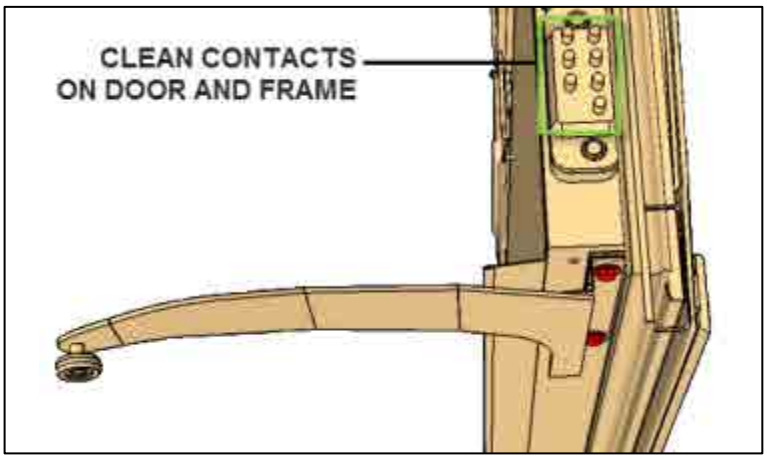

Figure 44

66. With a flashlight, visually inspect Full length of lower rail for foreign objects.
67. Blow clean lower rail.

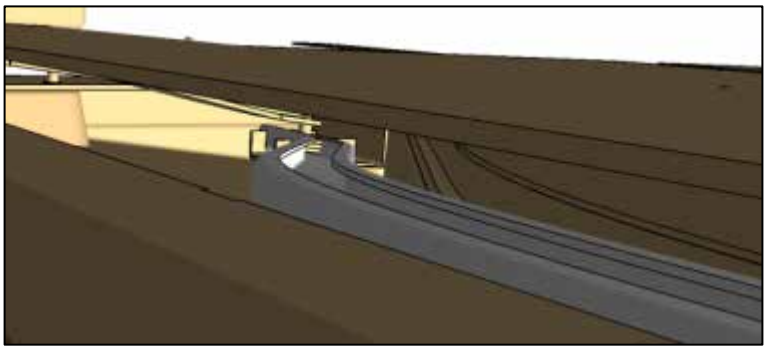

Figure 45

68. On the door lower arm, remove screws <u>one at a time</u> and replace the washers

    Bel. washer #5001833 (2x) (Figure 46)

Refer to Figure 6 for proper washer arrangement.

69. Tighten to **7 lb-ft**
70. Apply torque seal mark.

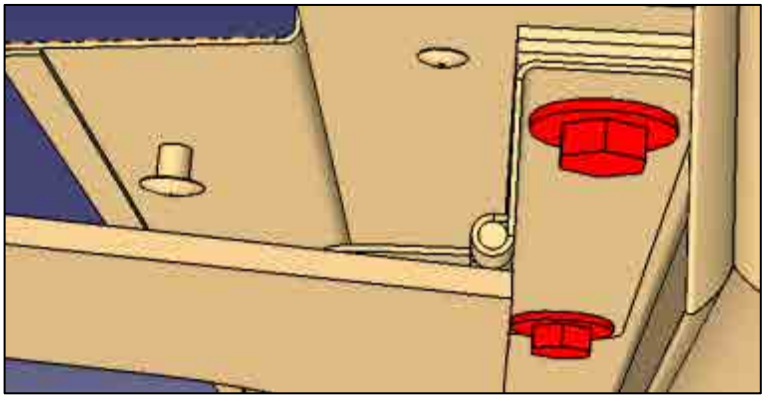

Figure 46

71. For next operation on the fork support, access to the fore screw head is difficult using a standard crowfoot adapter.

    Use a 15mm torque extension (See RECOMMENDED TOOLS) *and* a vertical socket extension (Figure 47).

    NOTE: Place the torque extension at 90deg from the wrench (Figure 48).

    Use the prescribed torque further below.

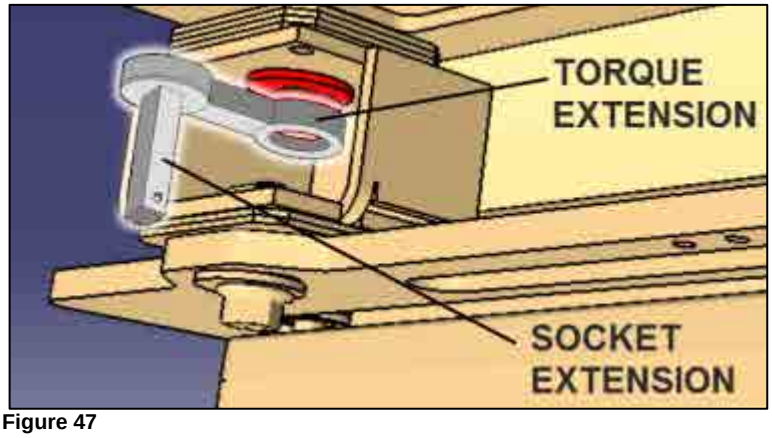

Figure 47

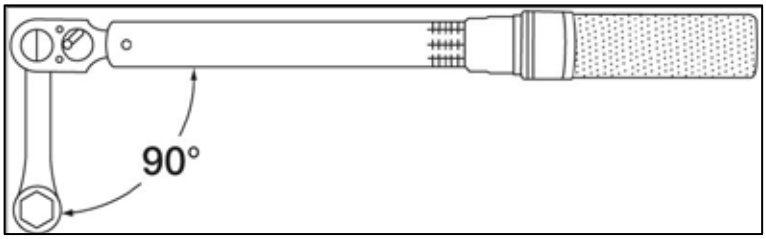

Figure 48

72. *Keep the original flat washers*, remove <u>one screw at a time</u> and replace with:

    Screw #N16891 (2x)

    Bel. washer #5001834 (2x). (Figure 49)

Refer to Figure 6 for proper washer arrangement.

73. Tighten to **34 lb-ft**

    (Specific torque+2lb-ft)

74. Apply torque seal mark.

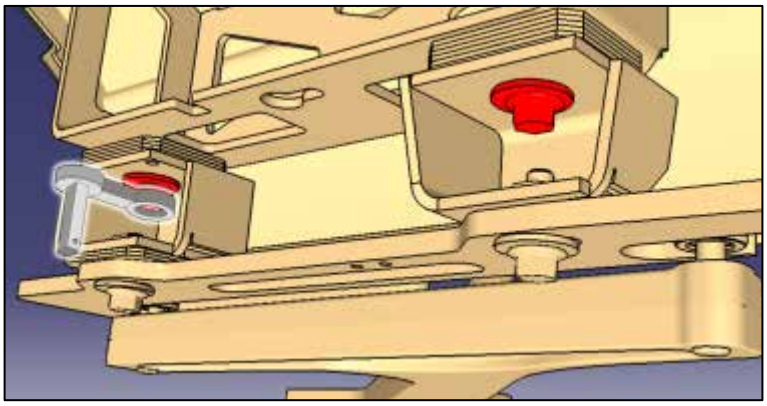

Figure 49

75. Have the door fully open.
76. *Keep original flat washer* remove one screw at a time, replace screw and washer with:

    Screw #N5001308 (2x).

    Bel washer #5001834 (2x), (Figure 50)

Refer to Figure 6 for proper washer arrangement.

Temporarily hand tighten

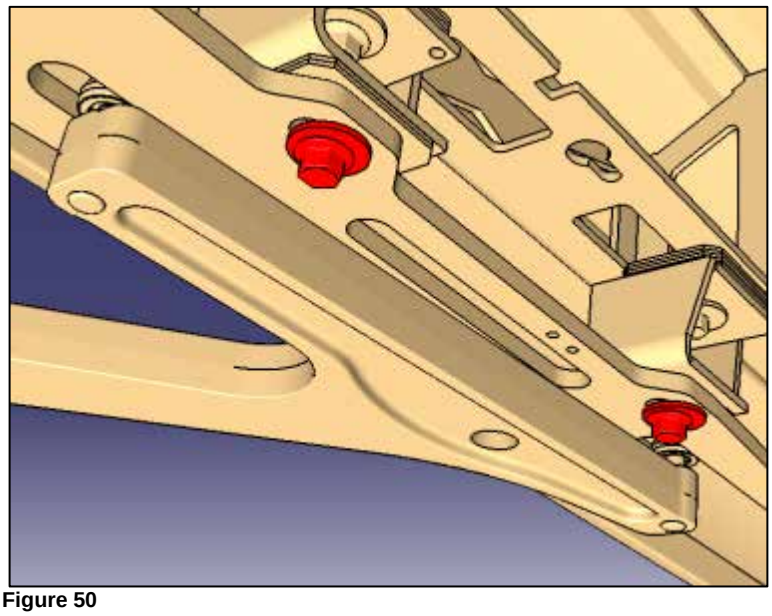

Figure 50

77. Assess roller position with regards to the fork vertically, back and forth and sideways according to instructions below. Once this is done, perform the adjustments and tighten as described further.
78. If required add spacer # **286421**
79. Distance between the end of both fork slots and roller should be:

    9/64 ± 1/16”

    3.5 ±1.5mm

    (Figure 51)

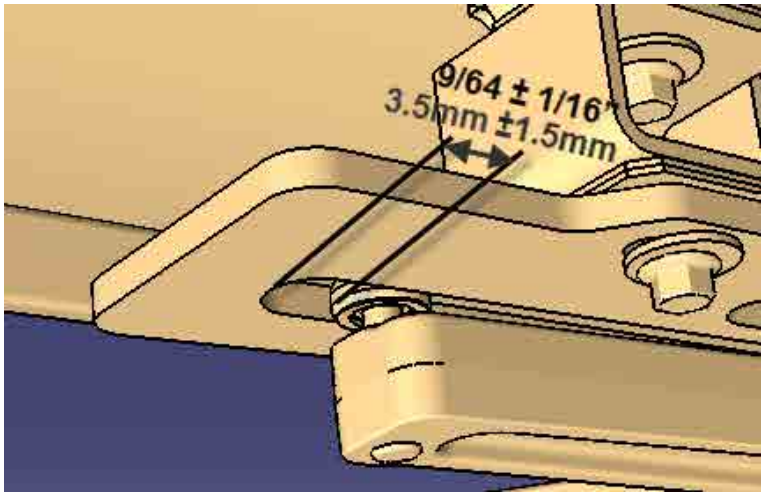

Figure 51

80. Move the door back and forth at the point of engagement of the roller in the fork. The roller should be properly centered in the slot opening without striking on either side of the fork. (Figure 52)

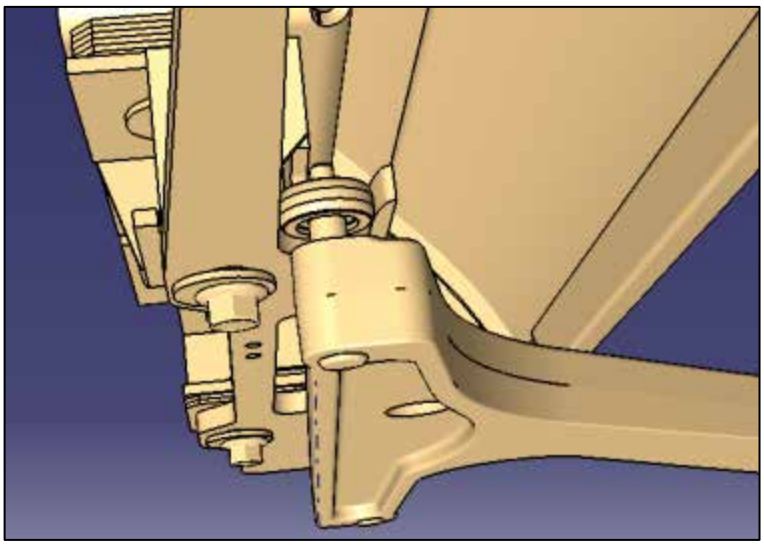

Figure 52

81. Minimum gap between the aft fork support and wheel carrier should be **1/32”** (1mm) (dimension **A**)

    Confirm with feeler gage. (Figure 53)

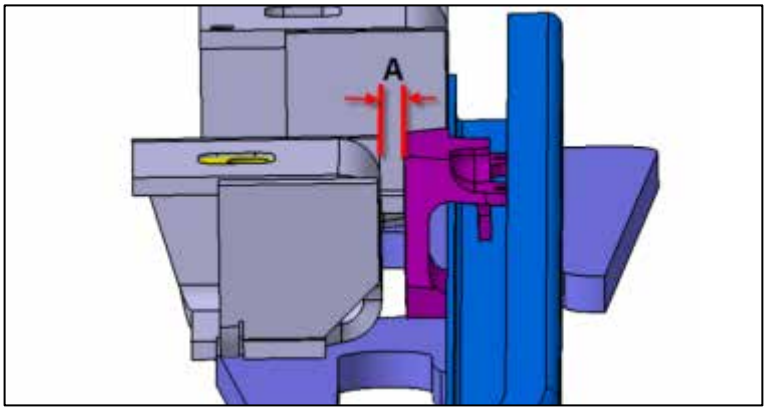

Figure 53

82. Vertically inspect the roller to make sure it is centered in the fork slot surface. (Figure 54)

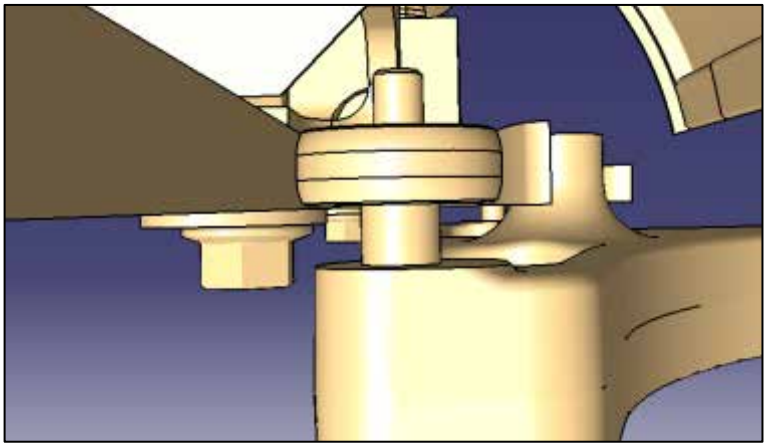

Figure 54

83. Once everything is inspected and centered, Tighten fork screws to **32 lb-ft.** (Figure 55)
84. Add torque seal mark.

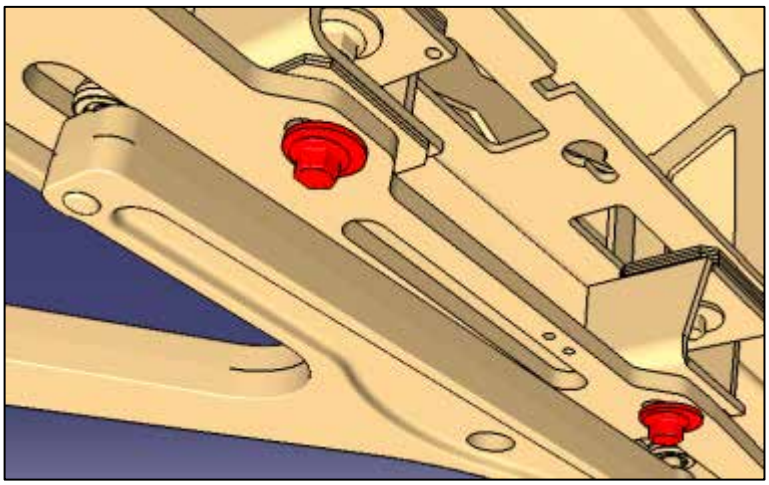

Figure 55

85. From the outside of the vehicle, close the door. Slow down as it approaches the point of contact between the fingers and the receptacles to properly feel the door behavior. Repeat a few times to properly feel the door.

    If the door is adjusted properly, you should feel a slight upward movement when closing.
    If there is no upward movement, “door fingers” will need to be adjusted vertically. Contact your RSM.

86. To see the movement, stare at the paint line. As the door approaches the point of contact between the fingers and the receptacles you can see the paint line on the door move up slightly. (Figure 56 & Figure 57)

Figure 56 Door slightly open, fingers released

Figure 57 Door closed

87. Close the door for next steps
88. Locate the rail end and frame support. (Figure 58)

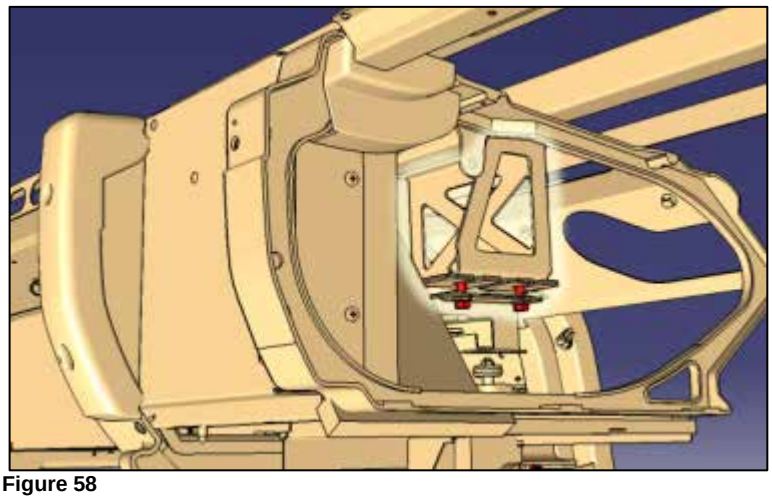

Figure 58

89. Inspect all three wheels on the carrier they should turn freely. If not change the carrier assembly. Part number 2800282.

90. With closed door, unscrew the bolts for the rail supports and remove all shims.
91. *Keep original flat washer* remove one screw at a time and replace washer with:

    Bel. washer 5001848 (2x aft) (1x fore).

    (Figure 59)

Refer to Figure 6 for proper washer arrangement.

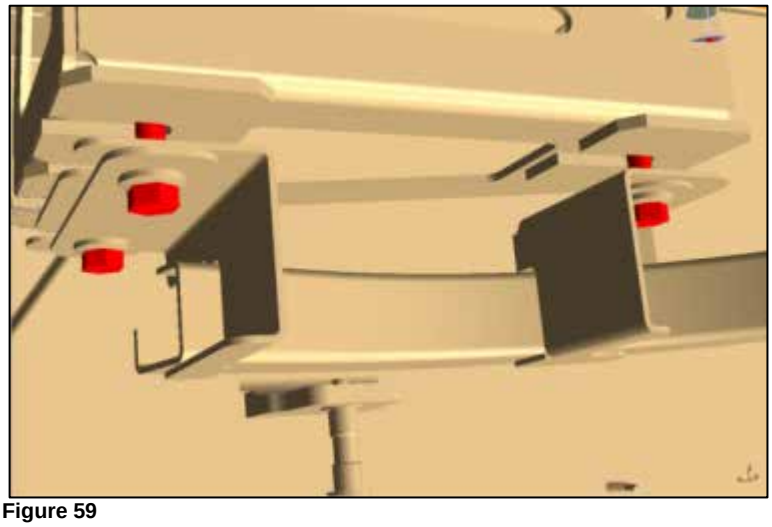

Figure 59

92. Two persons are required for next steps.

Lightly push the rail up to the point of contact with the vertical wheel without applying any additional force. (Figure 60)

Keep rail in this condition and proceed to next step.

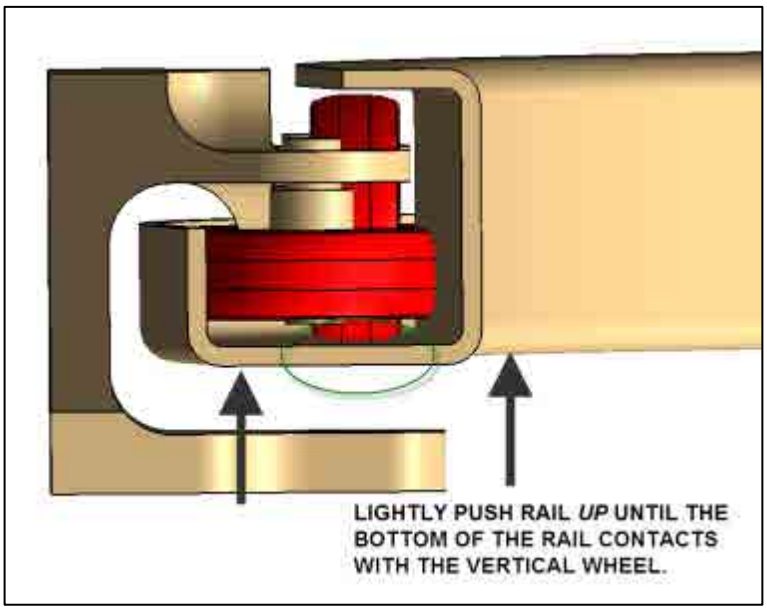

Figure 60

93. Measure the gap between the *rail support* and *frame*. (Figure 61)

Calculate the required number of #286421 shims equivalent to the *gap value* **minus 5/32"**. See calculation example below.

Example:

Measured gap: **7/16"**

Remove 5/32" to gap: 7/16" – **5/32"** = *9/32"*

Required Shim thickness: 9/32" (0.281)

Divide by individual shim thickness of **5/64" (0.078).**

0.281 ÷ **0.078** = 3.602

Result is rounded to the closest *whole* number. Round up for results with "0.5".

Closest whole number is: 4

Therefore, install 4 shims.

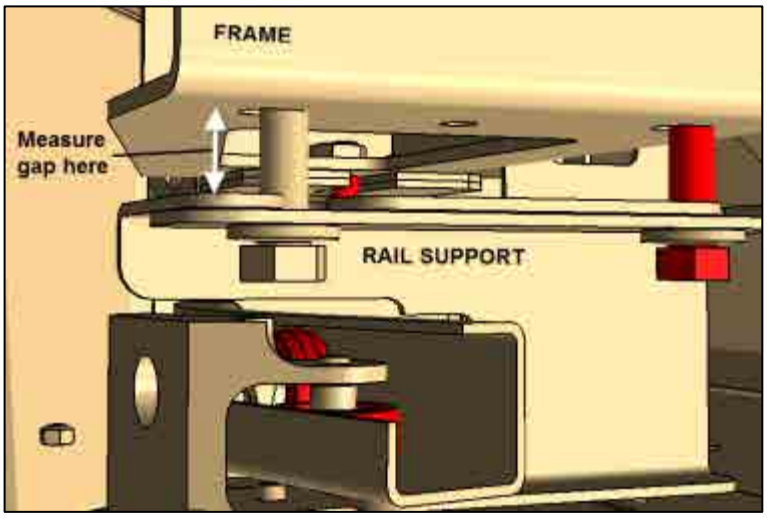

Figure 61

ACTUAL MEASURED GAP:_____in

GAP____ - 5/32" = _____in (REQUIRED SHIM THICKNESS)

____ ÷ 0.078" = _____ (RATIONAL NUMBER OF SHIMS)

ROUND TO THE CLOSEST WHOLE NUMBER, (*UP* IF "0.5") TO GET ACTUAL NUMBER OF SHIMS REQUIRED:

_____ **Shims #286421required on each screw**.

94. Insert the required number of shims for all <u>three screws on the front and rear</u> rail support. (Figure 62)

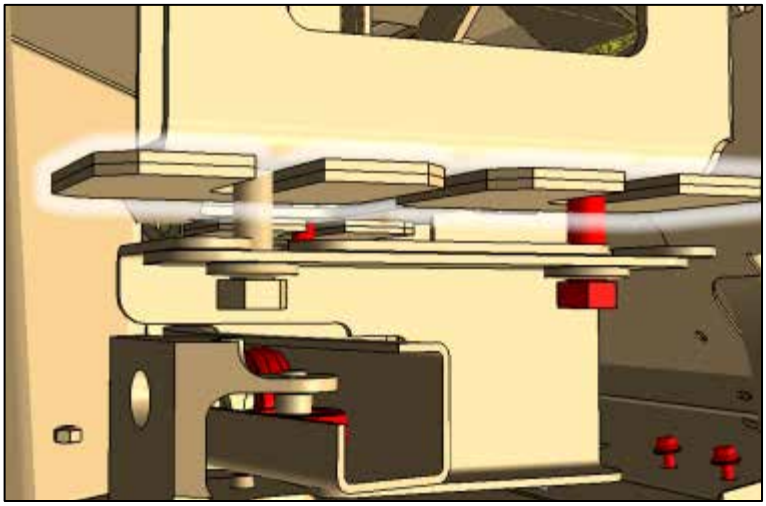

Figure 62

95. Lightly tighten the assembly.

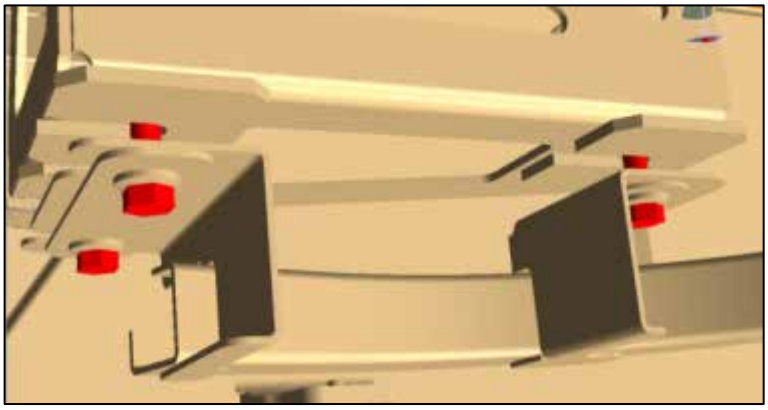

Figure 63

96. Next, apply the proper gap for the horizontal wheels. Insert a **5/64”** (2mm) feeler gage behind the vertical wheel. (Figure 64)

97. Pull on the rail support towards the inside of the bus to have the proper gap.

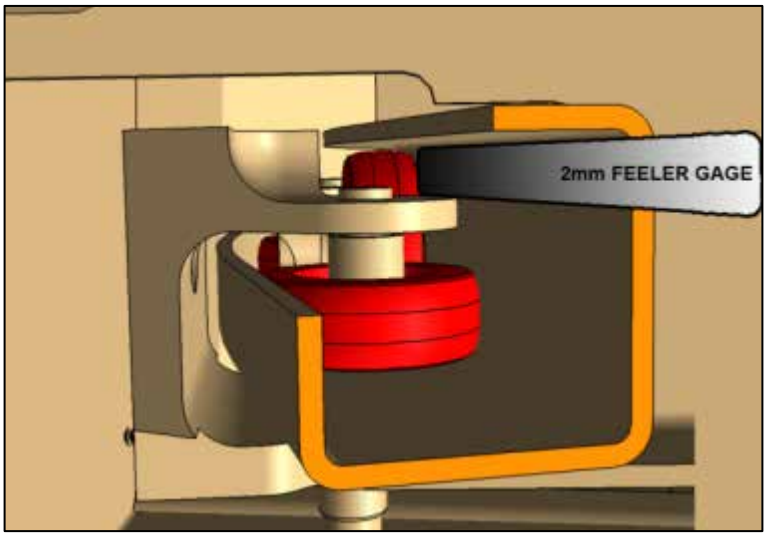

Figure 64

98. Tighten all three screws to **16 lb-ft**. (Figure 65)
99. Start with the rear screws and end with the front screw.
100. Apply torque seal mark.

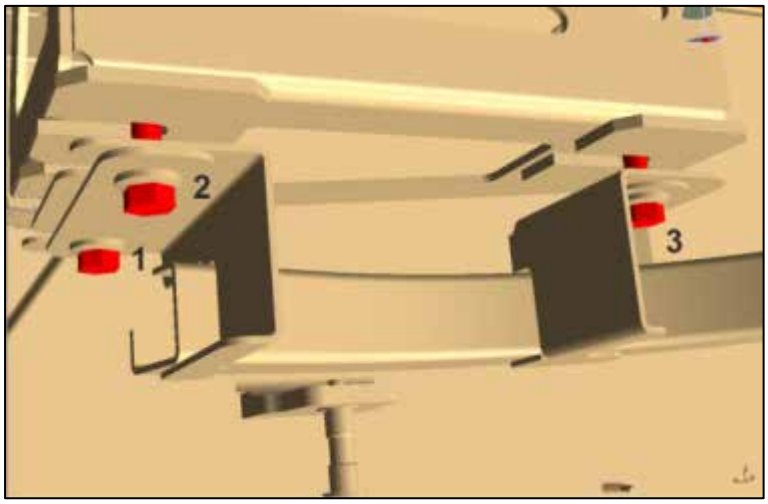

Figure 65

101. Locate the mid rail support (Figure 66)

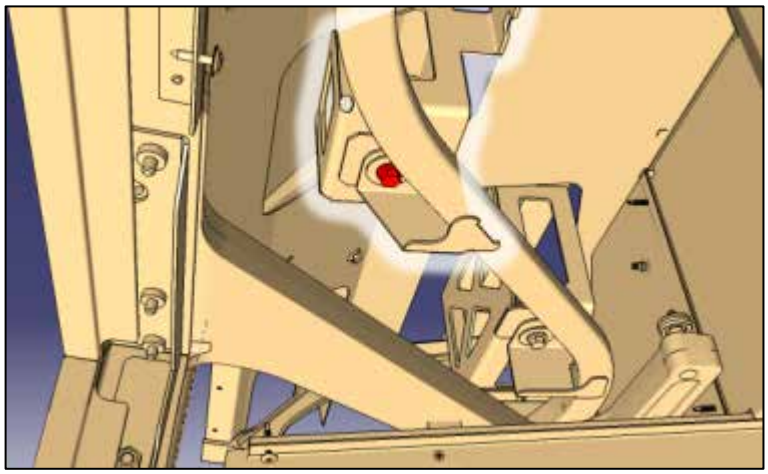

Figure 66: Looking aft

102. Keep the original flat washer but replace the Belleville washer by

     Bel. Washer # 5001848 (1x)
     (Figure 67)

Refer to Figure 6 for proper washer arrangement.

103. Tighten to **16 lb-ft**
104. Apply torque seal mark.

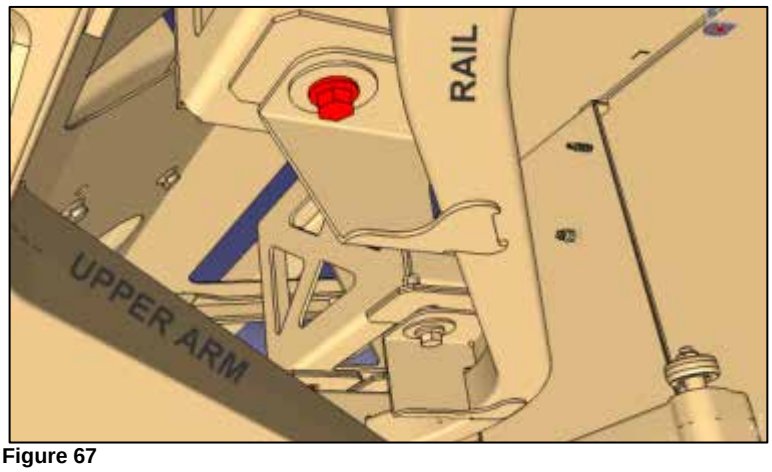

Figure 67

105. Verify proper operation of the door

- ü Double latch operates properly. *
- ü Lock assist applies 2nd latch without operator intervention upon engagement of 1st latch. *
- ü Slight upward movement on door closing.

**Note - Verify air pressure is minimum of 120psi before performing checks or correct.*

106. Move roof panel back. Secure the threshold warning harness with cable ties.
107. Removing masking tape on the module.
108. Re-assemble panels, switches and lights in the reverse order of removal. Re-use reserved hardware.
109. Verify proper operation of all related door functions after repairs: “stop request” button, light operation , dash indicators, sonic sensor and alarm, interlock, etc.

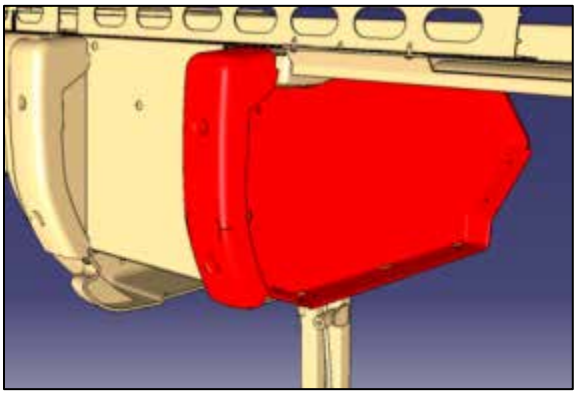

Figure 68

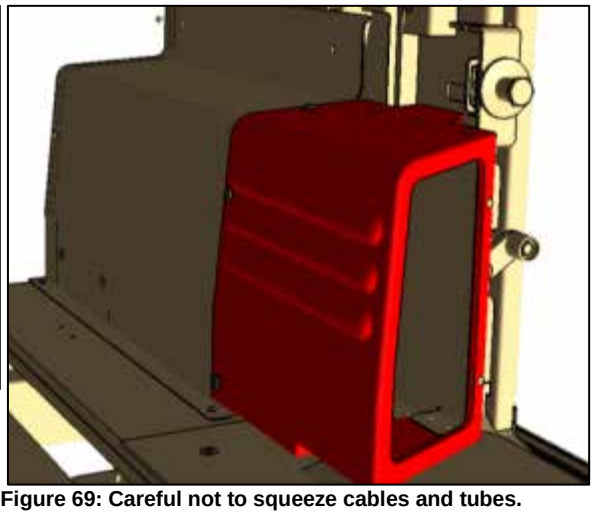

Figure 69: Careful not to squeeze cables and tubes.

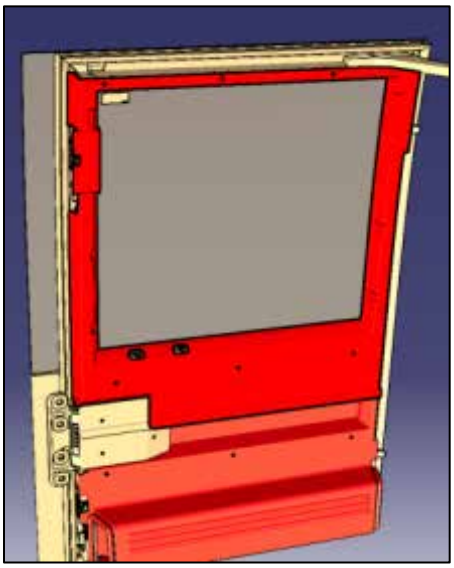

Figure 70

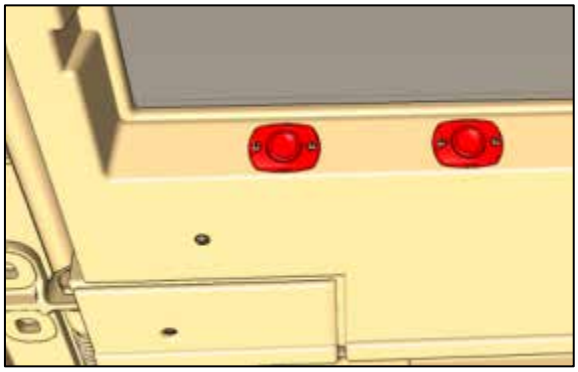

Figure 71

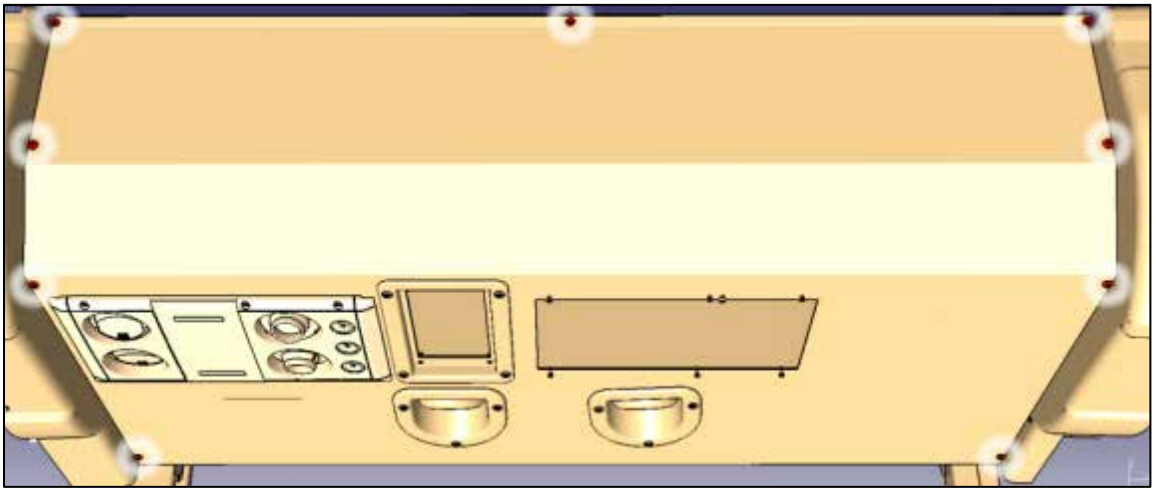

Figure 72

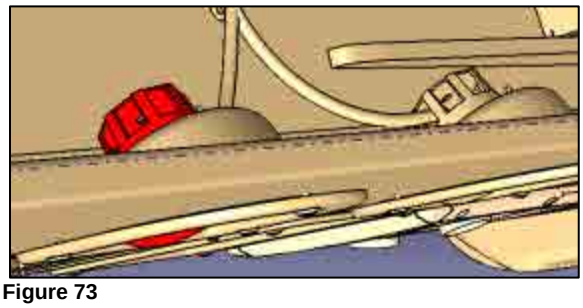

Figure 73

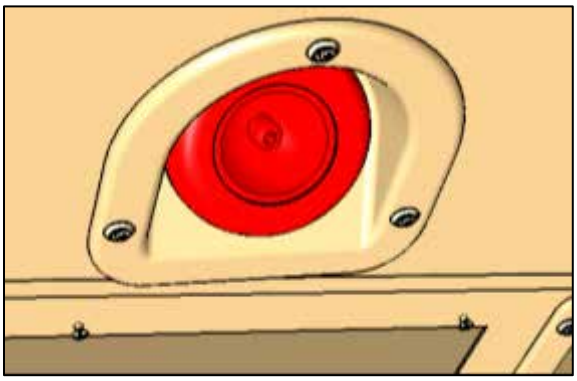

Figure 74

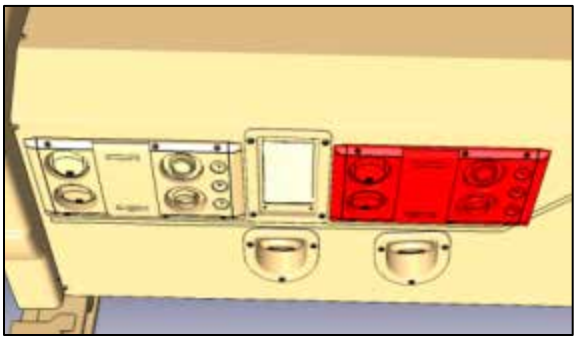

Figure 75

Figure 76

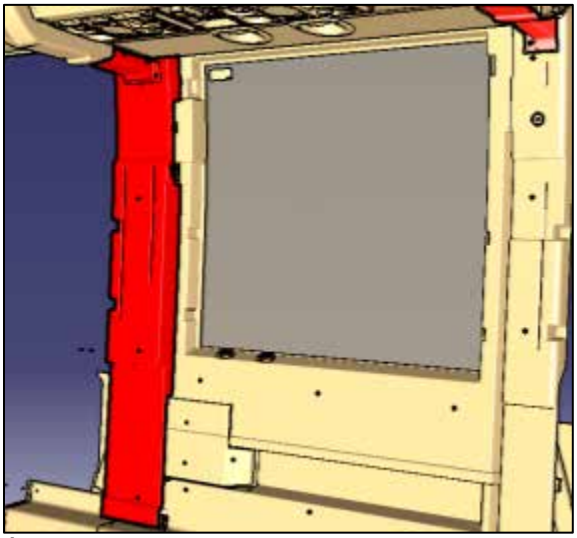

Figure 77

Discard waste according to applicable environmental regulations (Municipal/State[Prov.]/ Federal)

ESTIMATED TIME

The time required to perform this special bulletin is approximately 3.5 hours.

OTHER

VBC Bulletin	N/A
Fail Code	06.10
Defect Code	09
System Condition	B
Causal Part	067954

Prevost engages in a continuous program of testing and evaluating to provide the best possible product. Prevost, however, is not committed to, or liable for updating existing products.