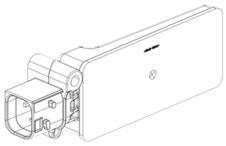
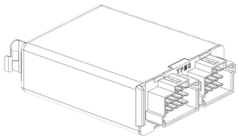
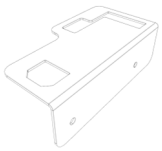
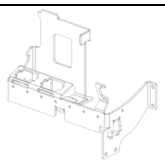
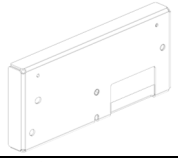
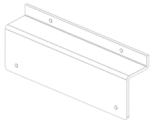
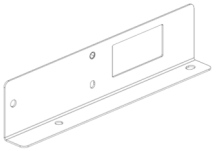
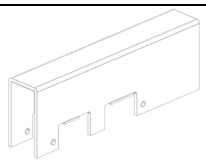
Instruction Sheet IS-21070A

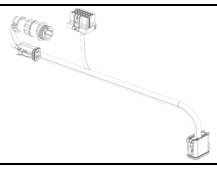
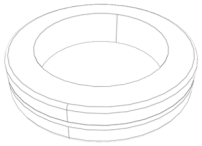
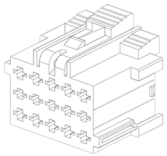
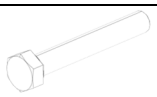
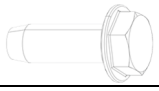
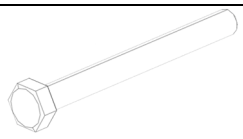
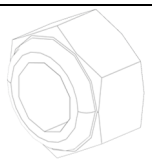
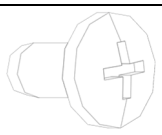
OBSOLETE TPMS ANTENNAS REPLACEMENT

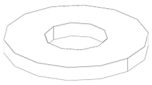
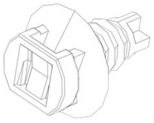
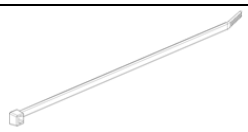
Revision: A ADD BEFORE ELECTRIC FAN DRIVE 05-21-2023

MATERIAL

Kit # **IS21070** includes the following parts:

Part No	Description	Qty
564305	TPMS, ANTENNA SENSATA 	3
564413	ECU, TPMS SENSATA 	1
381044	SUPPORT ECU (BEFORE ELECTRIC FANS) 	1
380252	SUPPORT ECU (AFTER ELECTRIC FANS) 	1
406762	SUPPORT, FRONT ANTENNA 	1
406119	PROTECTOR, FRONT ANTENNA 	1
401333	SUPPORT, REAR ANTENNA 	2
406764	PROTECTOR, REAR ANTENNA 	2

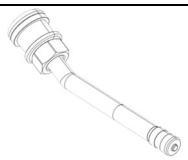
0610632	FRONT JUNCTION BOX TPMS HARNESS 	1
504622	GROMMET 1.500X1.750X.0625X.4375X2.125 	1
0610631	ANTENNA HARNESS	1
562795	CONNECTOR / JUNIOR POWER TIMER / SH 15C 	1
5001182	NUT HEX NYRT SS M6-1	2
502708	SCREW CAP HEX SS M5X35 	3
5001137	WASHER FLAT SS .203 X. 438X. 06	3
502848	SCREW TC HEX F N500 1/4-20X3/4 	4
5001608	WASHER BEL SPRING G500 6.2X15X0.7	4
5001681	SCREW CAP HEX SS M6-1 X 60 LG. PT 	4
500411	WASHER FLAT SS .260 X. 697X. 05	8
502681	NUT HEX NYRT NX500 M6-1.0 G8 	4
502868	SCREW TC BDG PH SS410 Z050 10–24 X3/8 	2

500804	WASHER FLAT N500 .219X. 500X.049 	2
509815	FIR TREE MOUNTING (FT7 TYPE) 	17
504637	CABLE TIE, NYLON BLACK (STD) 	20
8631155	CABLE TIE WITH TREE MOUNT	2
504013	CABLE TIE MOUNT, BLACK 1/4	2
504347	RIVET POP 3/16 x1/4 AL	2
IS-18149	INSTRUCTION SHEET	1
FI-18149	FEUILLE D'INSTRUCTION	1

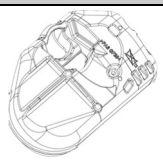
You need to order the valve and the sensor separately one kit per wheel.

Kit # **150006 (steel wheel 9")** includes the following parts:

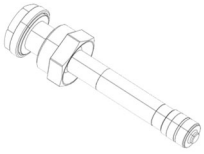
Part No	Description	Qty
564307	TPMS WHEEL SENSOR SENSATA	1
651200	SCREW MA TO AD M6X10 SENSATA	1

651198	VALVE, STEEL WHEEL 9″ 	1

Kit # **150201 (aluminum wheel 9″)** includes the following parts:

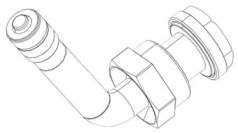
Part No	Description	Qty
564307	TPMS WHEEL SENSOR SENSATA 	1
651200	SCREW MA TO AD M6X10 SENSATA	1
651196	VALVE, ALUMINUM WHEEL 9″	1

Kit # **150149 (aluminum wheel 10.5”)** includes the following parts:

Part No	Description	Qty
564307	TPMS WHEEL SENSOR SENSATA	1
651200	SCREW MA TO AD M6X10 SENSATA	1
651195	VALVE, ALUMINUM WHEEL 10.5″ 	1

Kit # **150177 (aluminum wheel 14″)** includes the following parts:

Part No	Description	Qty
564307	TPMS WHEEL SENSOR SENSATA	1
651200	SCREW MA TO AD M6X10 SENSATA	1

651194	VALVE, ALUMINUM WHEEL 14” 	1

Other parts that may be required:

Part No.	Description	Qty
684517	GLUE SIMSON ISR 70-03 GREY, CART 290ML	1
680038	LOCTITE 243 50 ML.	1
685324	DIELECTRIC GREASE 3 OZ TUBE	1

NOTE
Material can be obtained through regular channels.

SAFETY PRECAUTIONS

- Eye protection should always be worn when working in a shop.
- Rules for Personal Protection Equipment should always be respected. Wear your PPE including but not limited to the following:

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.

Lock out & Tag out (LOTO) must be performed during set-up, maintenance or repair activities. Refer to your local procedure for detailed information regarding the control of hazardous energy.

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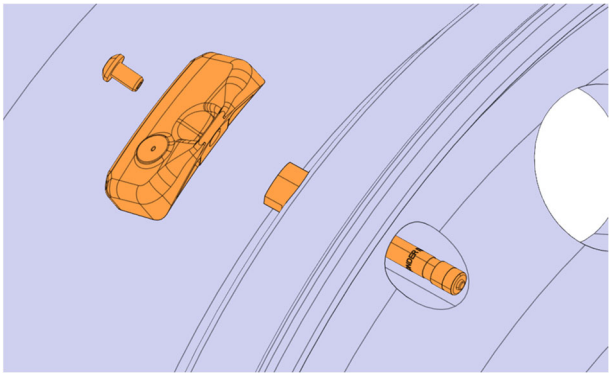
TPMS WHEEL SENSOR REPLACEMENT

1. Remove the old TPMS sensor and valve and discard.



2. Apply dielectric grease to the O-ring and valve threads.

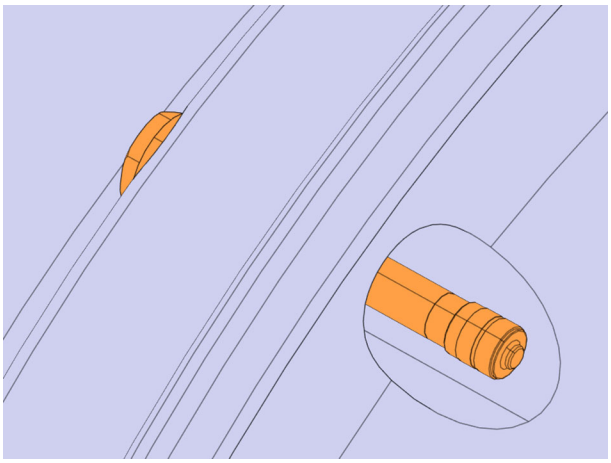
   With 9″ steel wheel: 651198

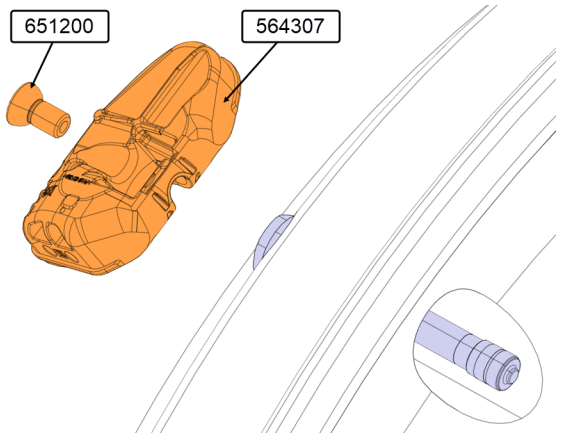
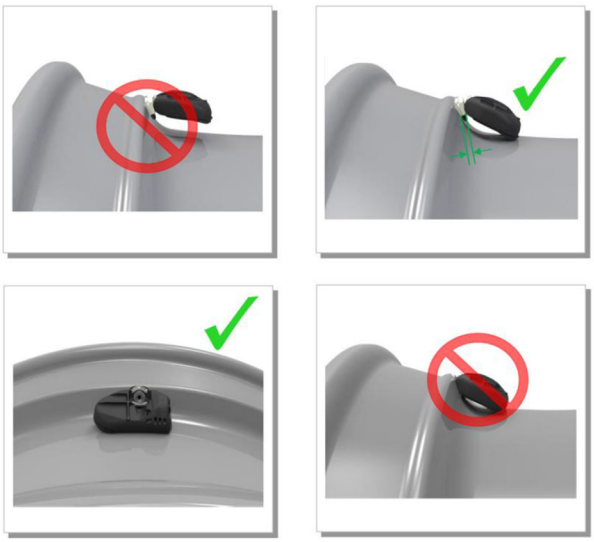
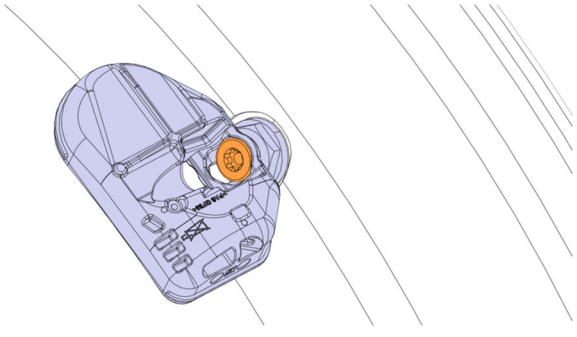
   With 9″ aluminum: 651196

   With 10.5″ aluminum: 651195

   With 14″ aluminum: 651194

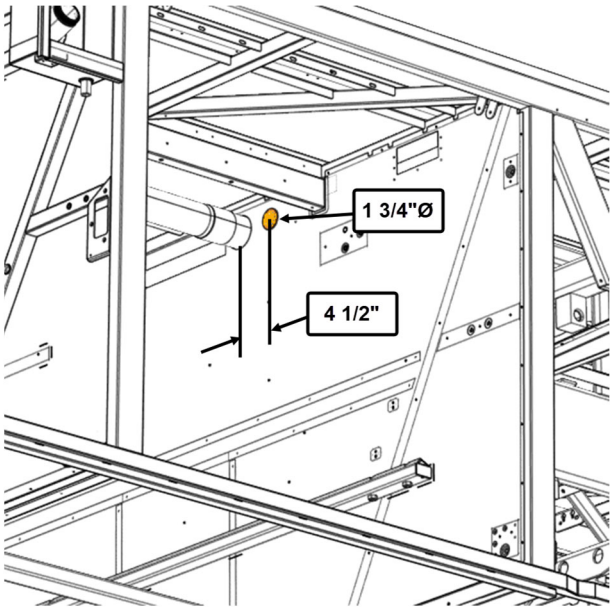
3. Install the new valve.
4. Apply torque 119.5lb-in +/- 4



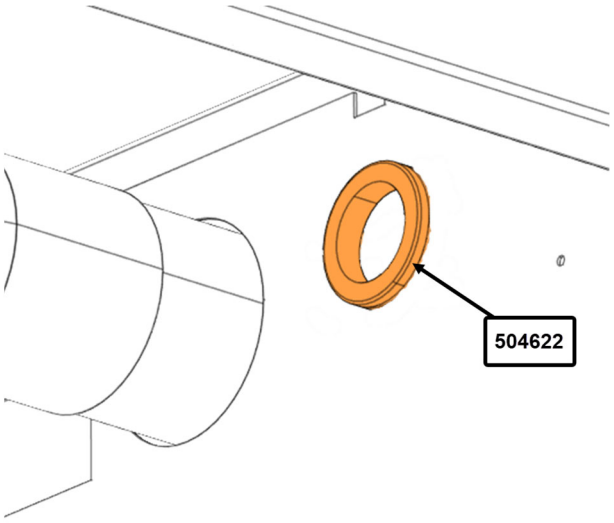
5. Apply Loctite 243 on screw 651200 thread. 6. Install the sensor 564307 with screw 651200 on the valve.	
7. Position the sensor on the wheel: - Make sure the sensor is centered and supported on the wheel. Once tightened, it must remain firmly in position. - Make sure the sensor is resting on the valve, not the wheel, at the point where it is secured with the screw. There must be clearance as shown in the illustration.	
8. Apply torque 53 lb-in +/- 0.5.	

TPMS ANTENNA HARNESS REPLACEMENT

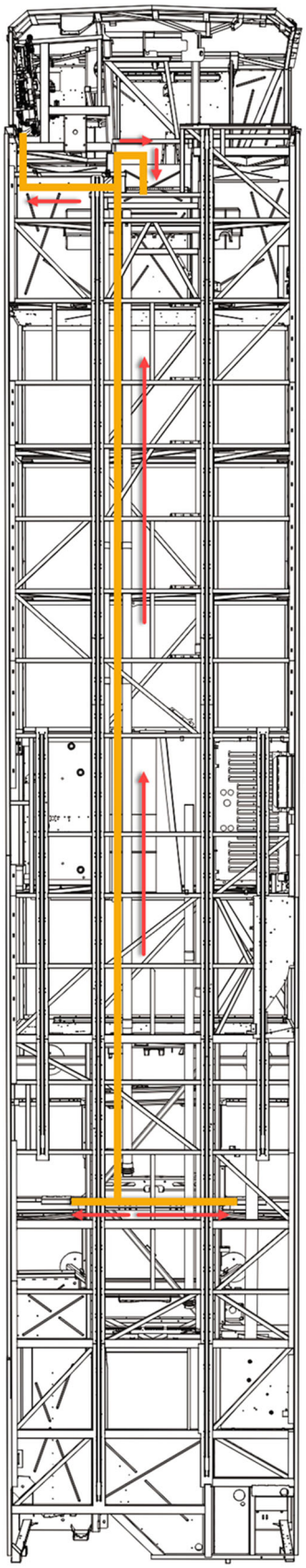
1. Drill a 1 3/4" Ø hole in the panel of the last luggage compartment.

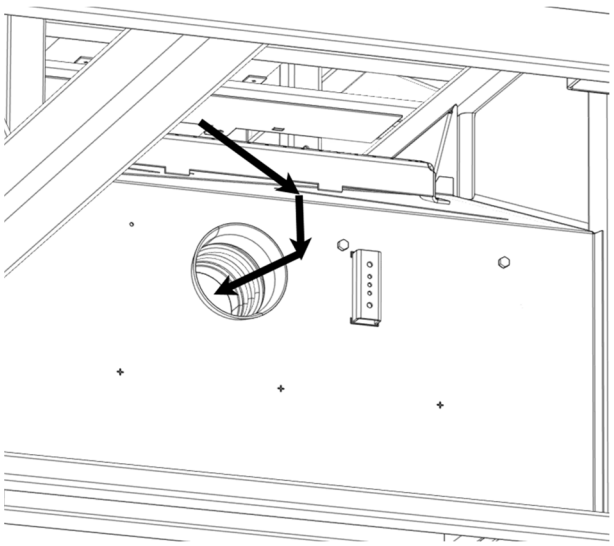
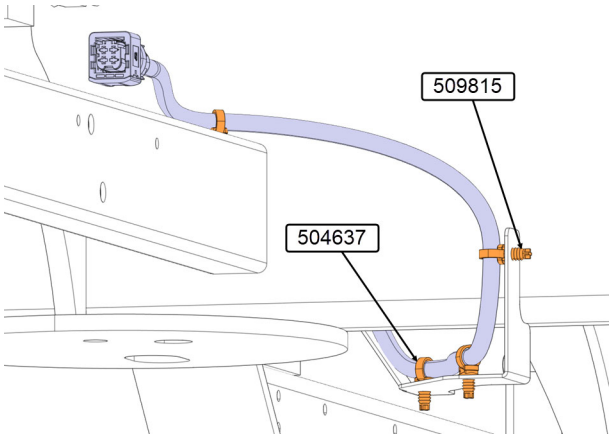


2. Install grommet 504622.

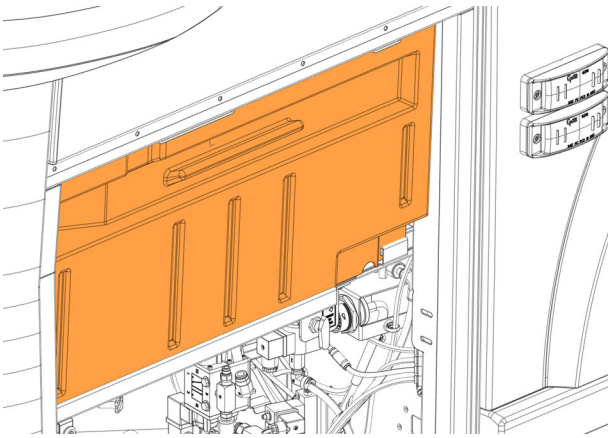
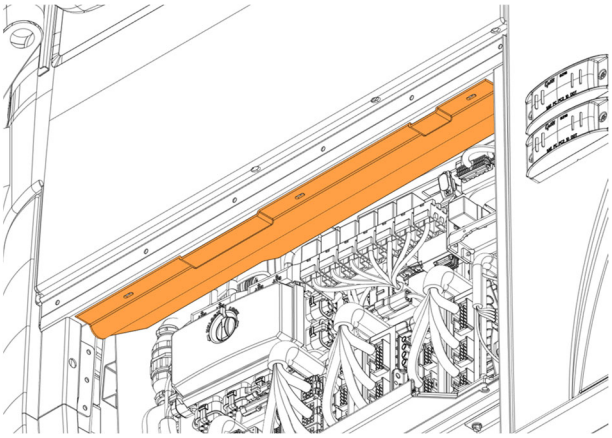
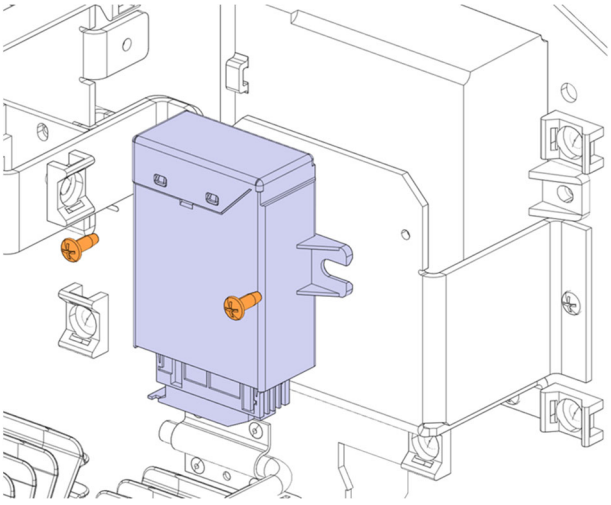


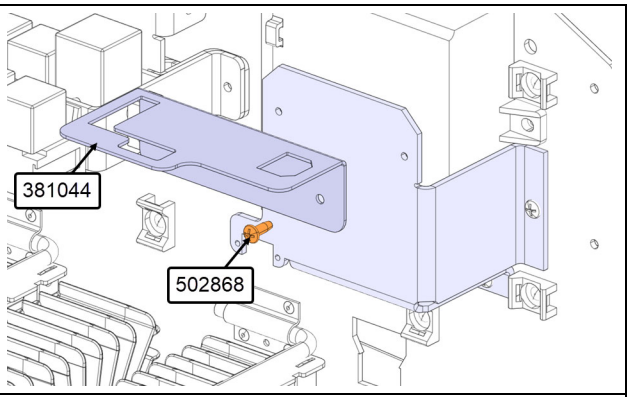
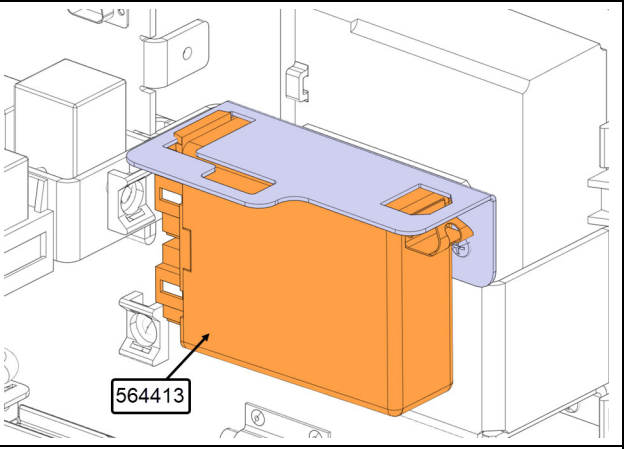
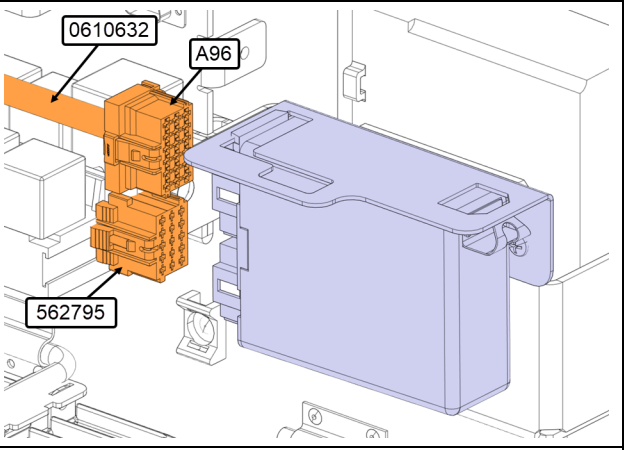
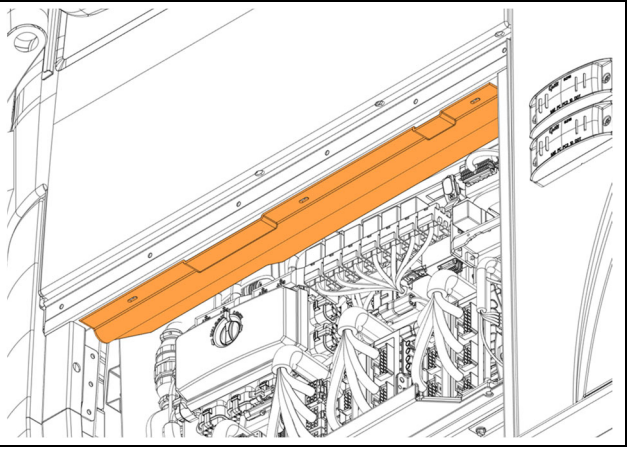
3. Install the new antenna harness 0610631 following the routing. You must start from the back of the vehicle to the front. Only the connector for the front antenna and front junction box pass into the grommet.
4. Use a fish tool to reach the front junction box and front spare compartment.

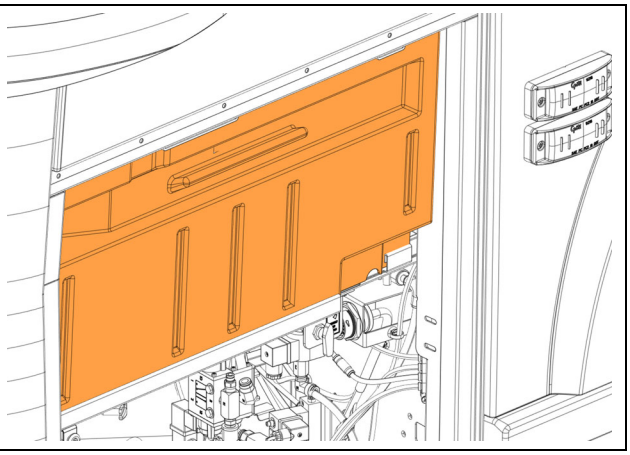


5. For the front antenna use the same routing as the harness section of the older antenna.	
6. Secure the rear cable section for both side with mounting 509815 (8x) and cable tie 504637 (8x).	

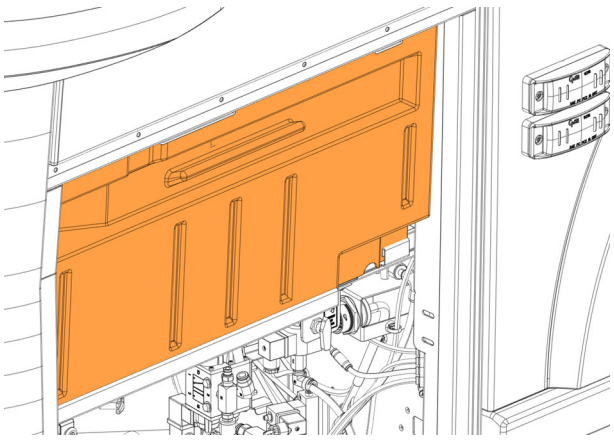
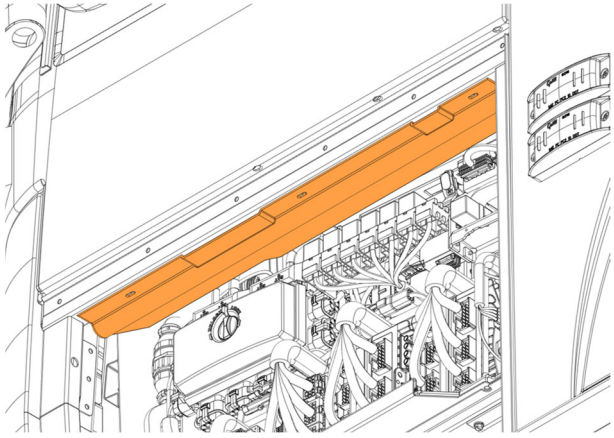
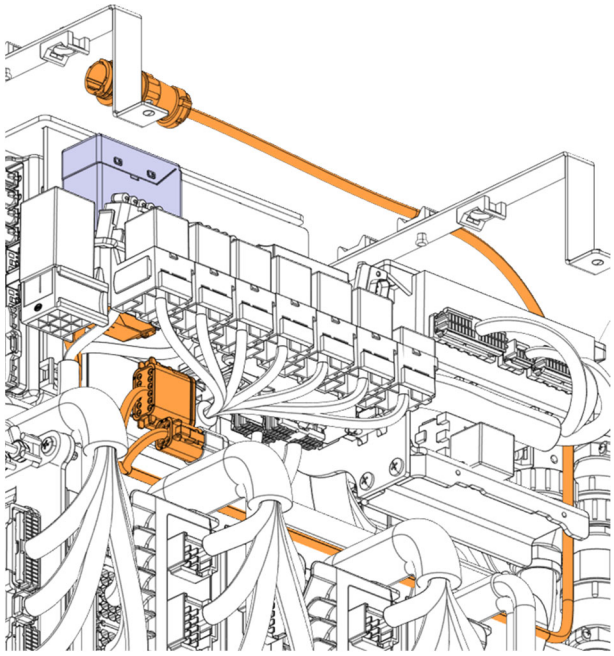
ECU INSTALLATION FRONT JUNCTION BOX BEFORE ELECTRIC FAN

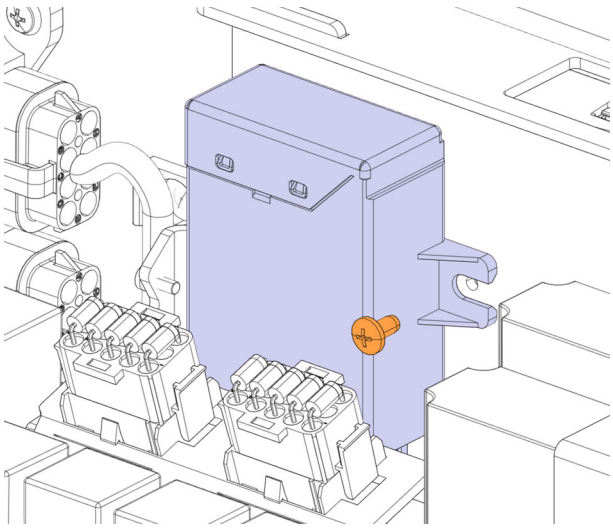
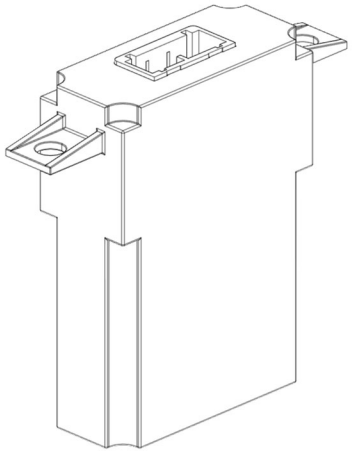
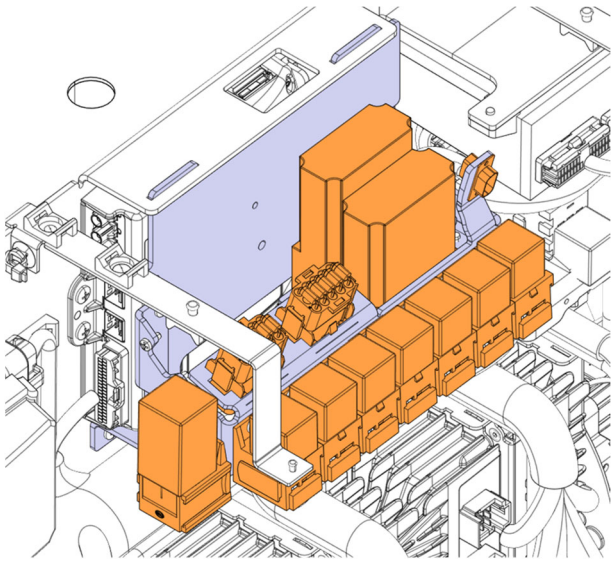
1. Open front service compartment door. 2. Remove the front junction box protector panel.	
3. Remove the top panel.	
4. Remove the old TPMS front junction harness. 5. Remove the older TPMS ECU.	

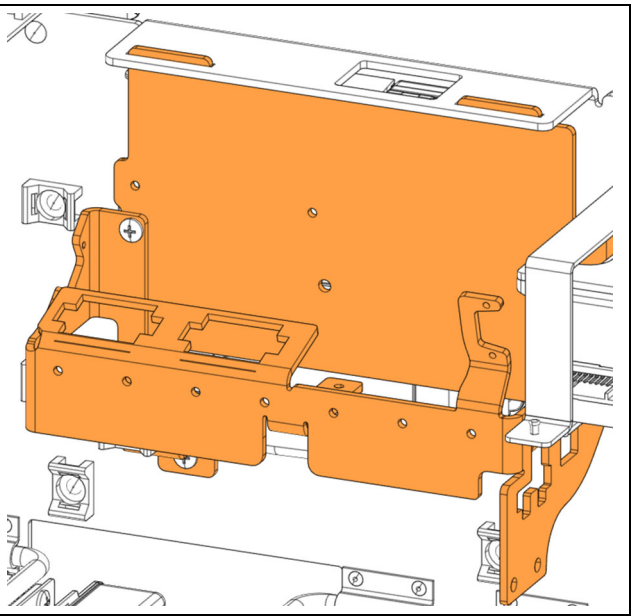
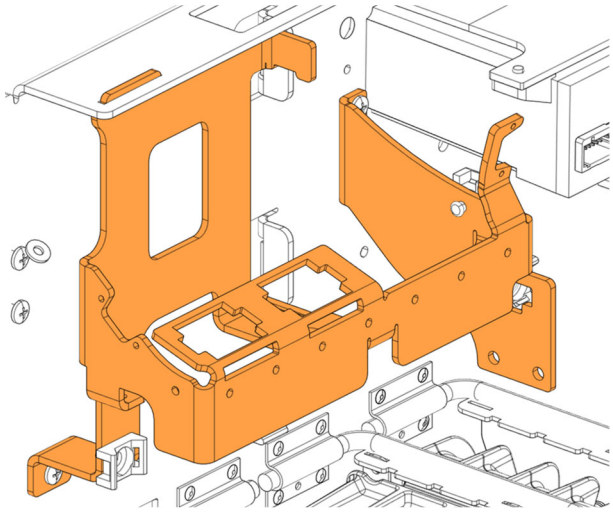
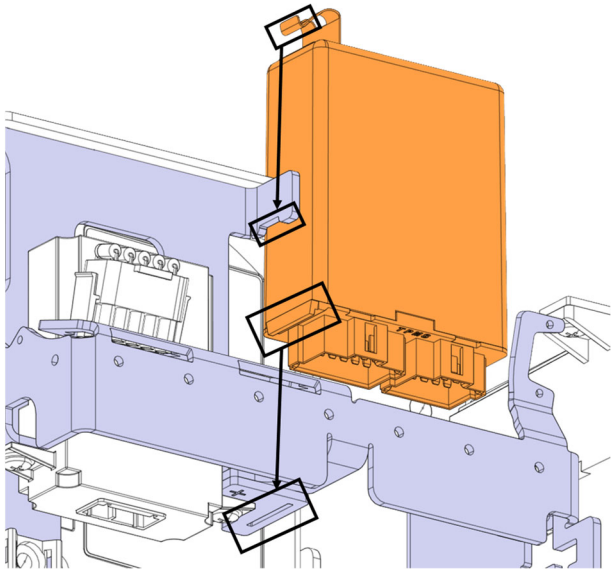
6. Install the new support 381044 with screw 502868(2x).	
7. Install the new TPMS ECU 564413.	
8. Install connector 562795. 9. Install the new harness 0610632 plug A96 to ECU, plug C223 to antenna cable 0610631, plug C222 to front junction box harness and plug C224 to dashboard harness. 10. Secure with cable ties 504637.	
11. Reinstall the top panel.	

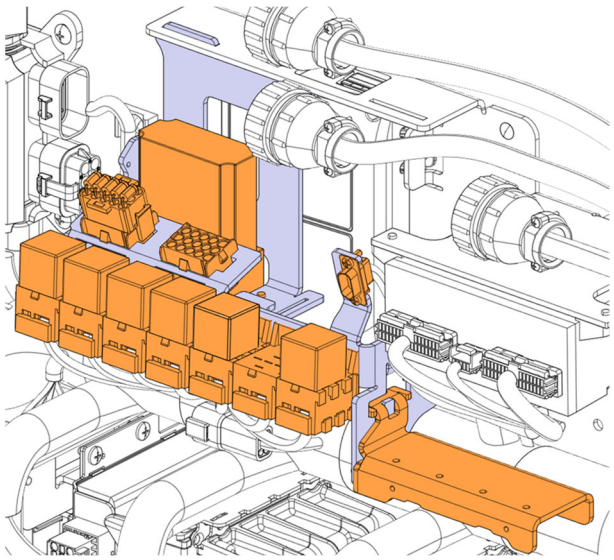
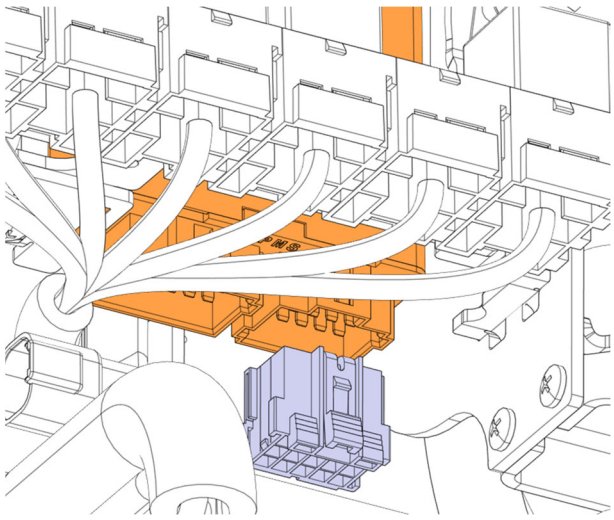
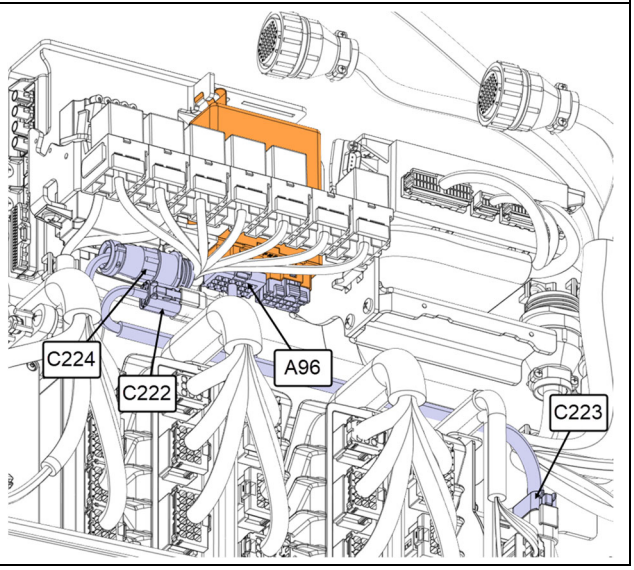
12. Reinstall the front junction box protector panel.	

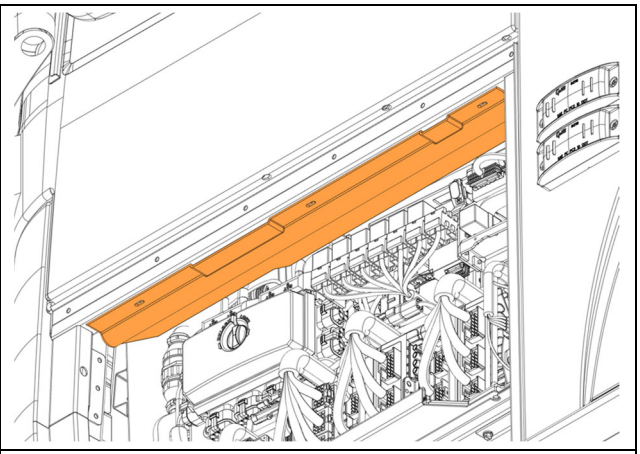
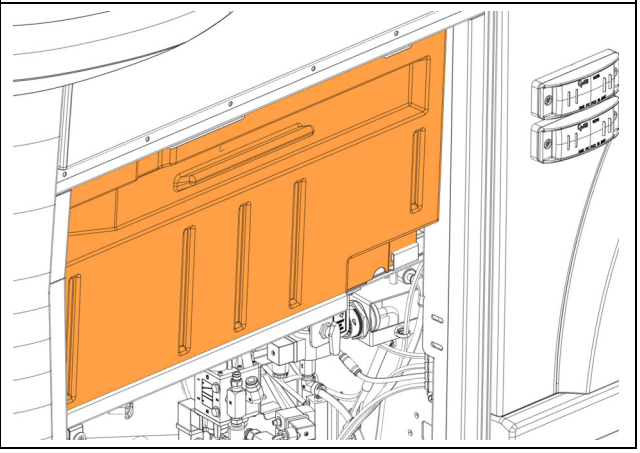
ECU INSTALLATION FRONT JUNCTION BOX / AFTER ELECTRIC FAN

1. Open front service compartment door. 2. Remove the front junction box protector panel.	
3. Remove the top panel.	
4. Unplug the old TPMS front junction harness and discard.	

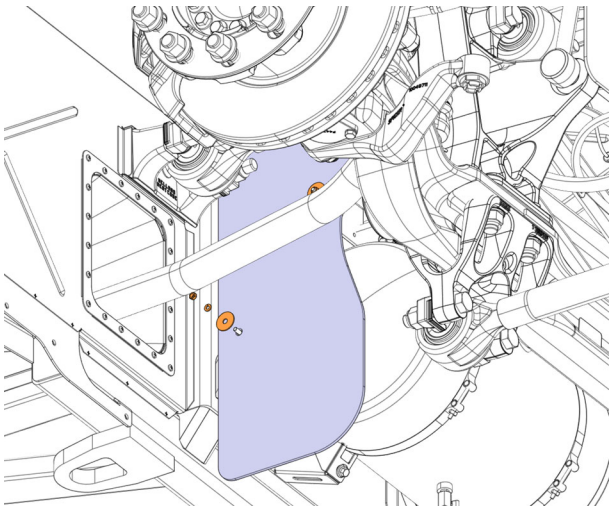
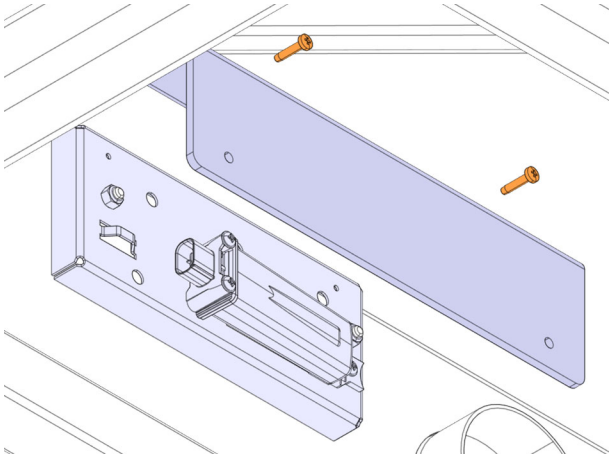
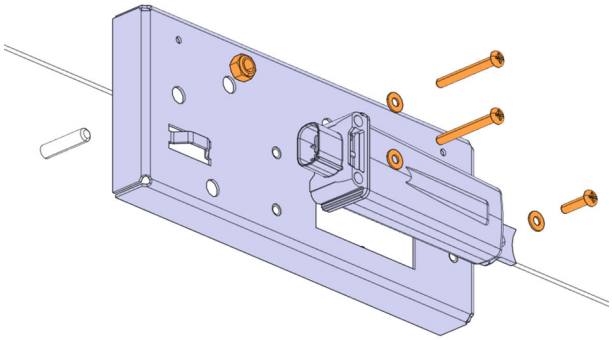
5. Remove the older TPMS ECU. 6. If you have two FMS GATEWAY see the next step to identify it.	
7. If you have two FMS GATEWAY remove the one with the parts number on it 563631 or 564326.	
8. Uninstall all components from the support.	

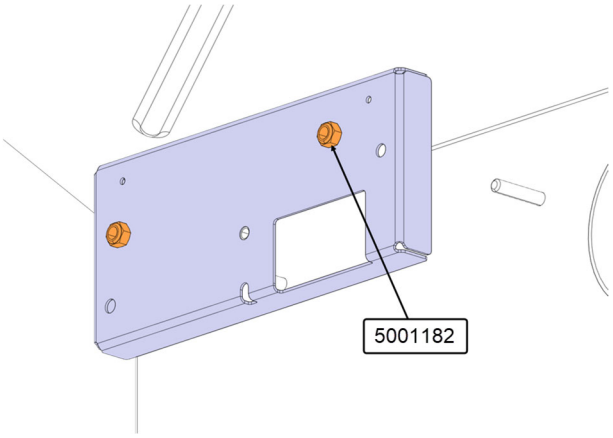
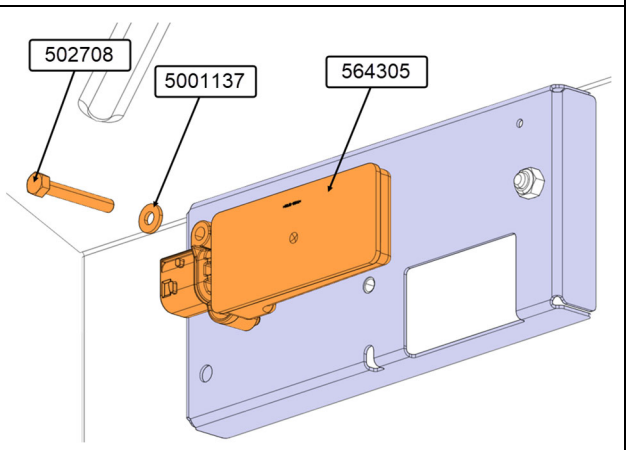
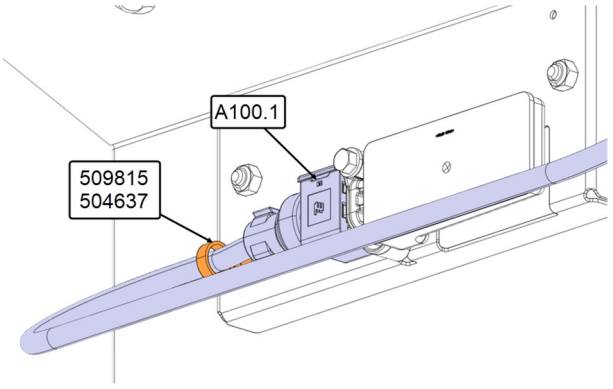
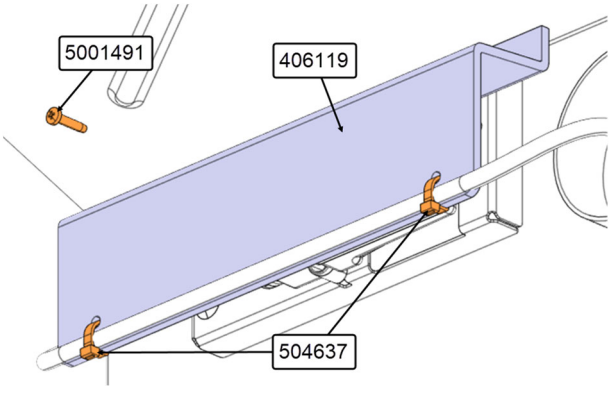
9. Remove old supports.	
10. Install new support 380252.	
11. Install the new TPMS ECU 564413.	

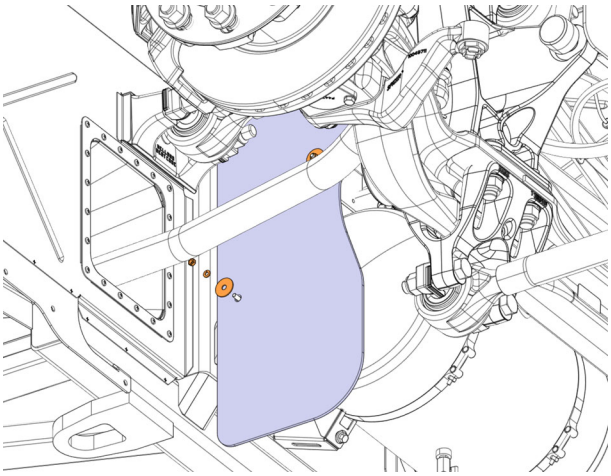
12. Reinstall all components and cable tie mount 504013 (2x) with rivet 504347 (2x) at the same position on the new support.	
13. Install connector 562795.	
14. Install the new harness 0610632 plug **A96** to ECU, plug **C223** to antenna cable 0610631, plug **C222** to front junction box harness and plug **C224** to dashboard harness. 15. Secure with cable ties 504637.	

16. Reinstall the top panel.	
17. Reinstall the front junction box protector panel.	

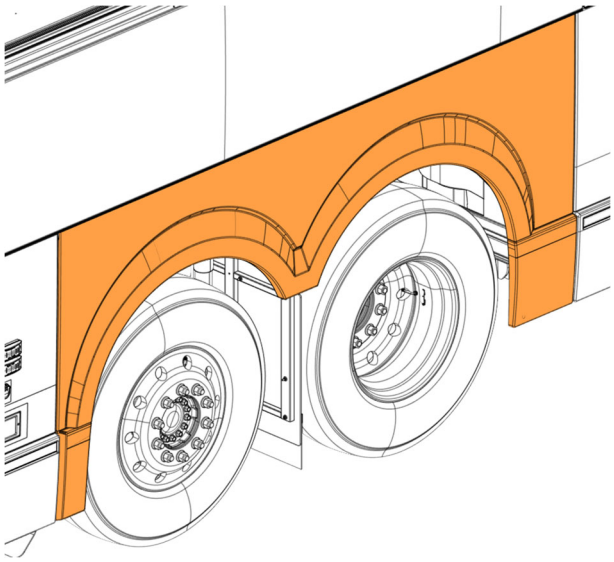
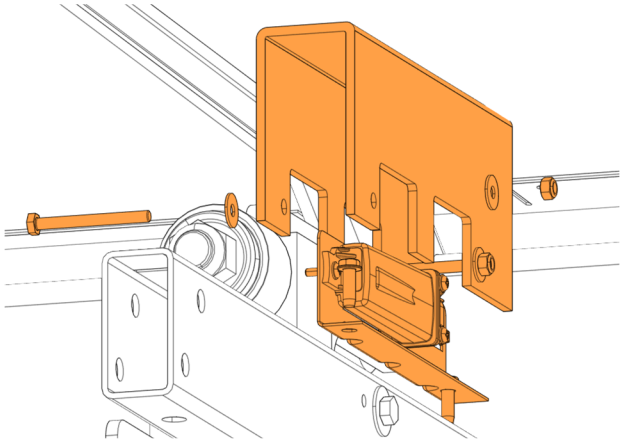
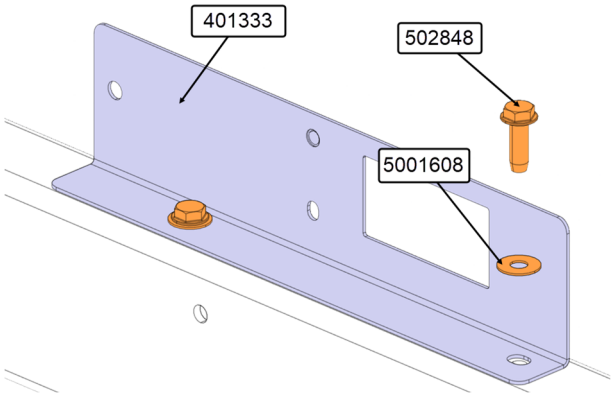
FRONT ANTENNA INSTALLATION

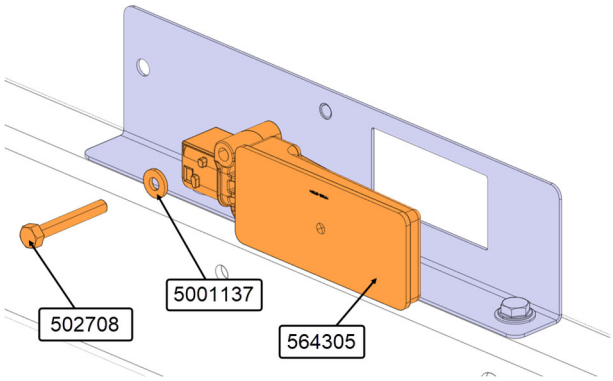
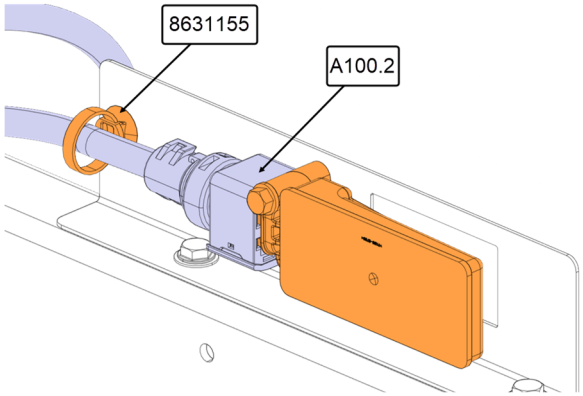
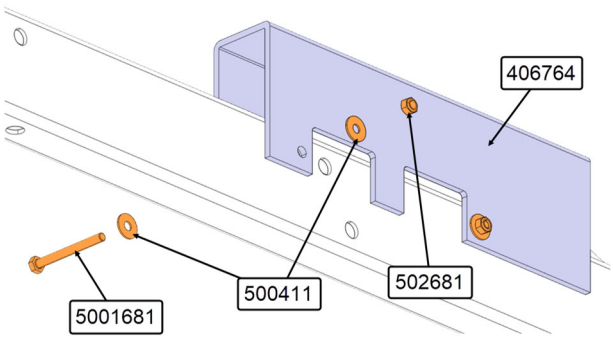
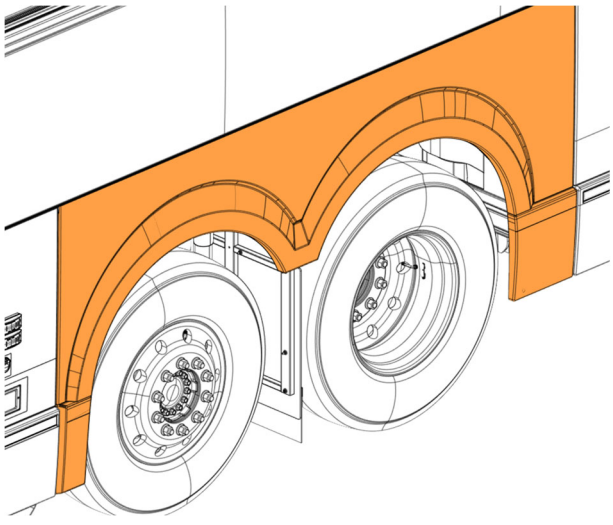
1. Remove the mud guard to access to the front antenna.	
2. Remove the antenna protector and discard.	
3. Remove the old antenna, support and hardware and discard.	

4. Install new antenna support 406762 with nuts 5001182 (2x),	
5. Install antenna 564305 with the screw 502708 and the washer 5001137 on the support.	
6. Plug connector **A100.1** to front antenna. 7. Secure the cable with fir tree 509815 and cable tie 504637.	
8. Install antenna protector 406119 with screw 5001491 (2x). 9. Secure cable with cable tie 504637 (2x).	

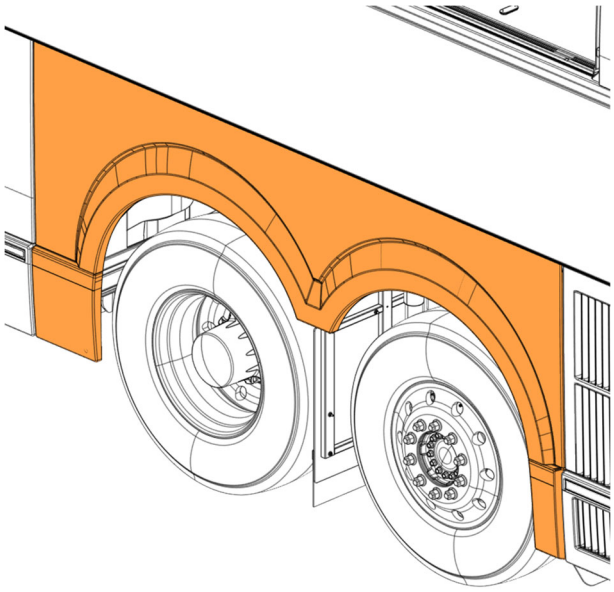
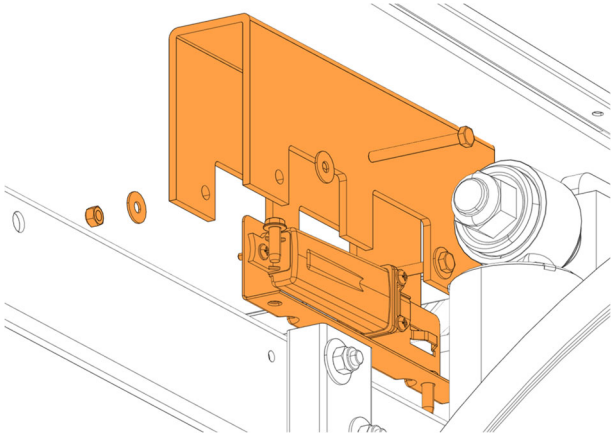
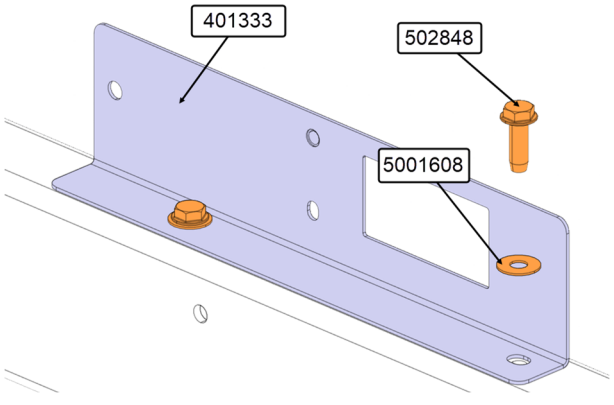
10. Reinstall the mud guard.	

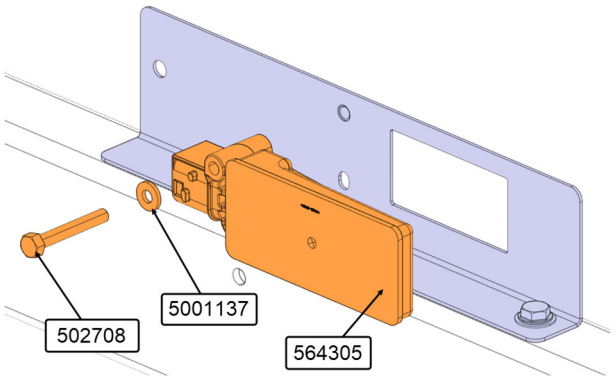
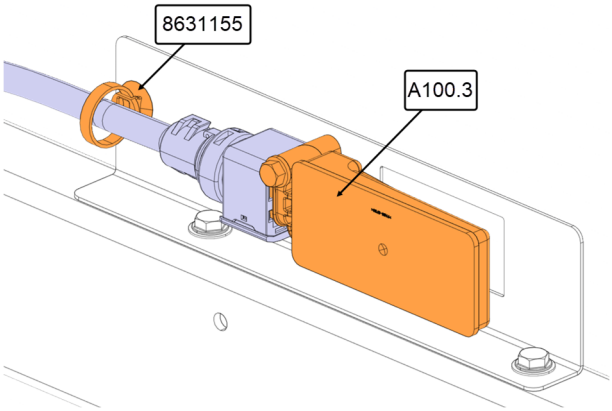
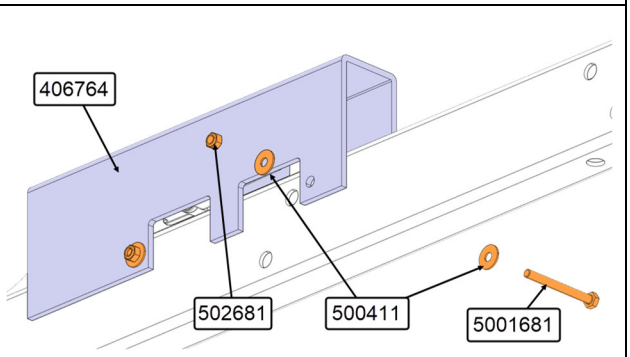
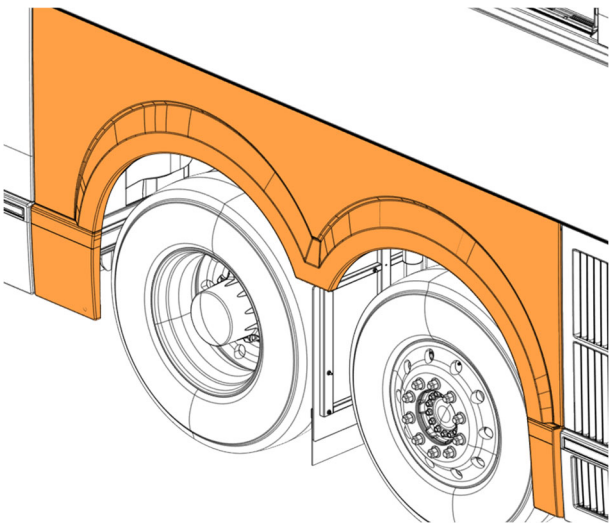
REAR RIGHT ANTENNA INSTALLATION

1. Remove the right rear fender.	
2. Remove the old antenna, support, protector hardware and discard.	
3. Install new support 401333 with bolt 502848 (2x) and washer 5001608 (2x).	

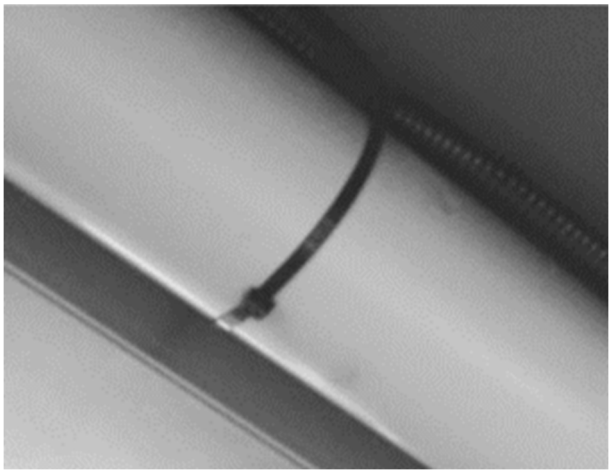
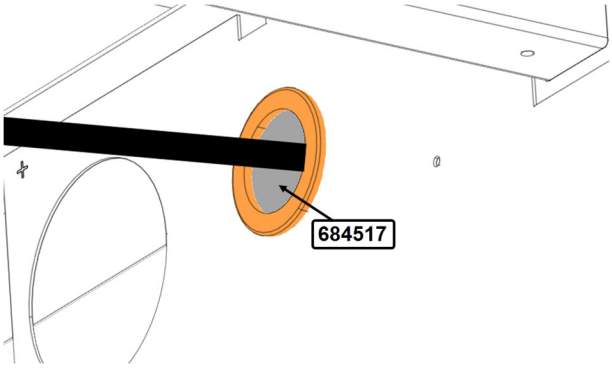
4. Install the antenna 564305 on support 401333 with bolt 502708 and washer 5001137.	
5. Plug harness 0610631 connector A100.2 to antenna, 6. Secure with cable ties 8631155.	
7. Install antenna protector 406764 with bolts 5001681 (2x), washers 500411 (4x) and nuts 502681 (2x).	
8. Reinstall the right rear fender.	

REAR LEFT ANTENNA INSTALLATION

1. Remove the rear left fender.	
2. Remove the old antenna, support, protector, hardware and discard.	
3. Install new support 401333 with bolts 502848 (2x) and washers 5001608 (2x).	

4. Install the antenna 564305 on support 401333 with bolt 502708 and washer 5001137.	
5. Plug harness 0610631 connector A100.3 to the antenna, 6. Secure with cable ties 8631155.	
7. Install the antenna protector 406764 with bolts 5001681 (2x), washers 500411 (4x) and nuts 502681 (2x).	
8. Reinstall the rear left fender.	

SECURE ANTENNA HARNESS

1. Secure main antenna harness to the plastic tube with cable ties 504637 (20x) at each foot.	
2. Secure excess harness in the center of the rear axle compartment with cable ties 504637 (6x).	
3. Seal the hole between baggage compartment and rear axle compartment with 684517.	

SETTING TPMS SENSORS

Setting The On-Screen TPMS

- Learn Wheel ID

This menu allows learning new wheel sensors ID. The user can learn only one wheel, several wheels or all wheels of the vehicle. The sequence automatically jumps to the next wheel such that a user can initiate all wheels without having to come back to the display between each wheel.

The display uses a pressure change as the criteria to recognize which wheel sensor the operator wants to get assigned to a given location. The amount of pressure change required is established at 2 PSI.

A pressure change of about 3 PSI is needed to wake up a sensor and then an extra amount of pressure change of 2 PSI is needed to trigger the display. The operator has to create a pressure change by at least 6 PSI and then wait for the display to recognize the pressure change. The wait time corresponds to the sensor sampling rate.

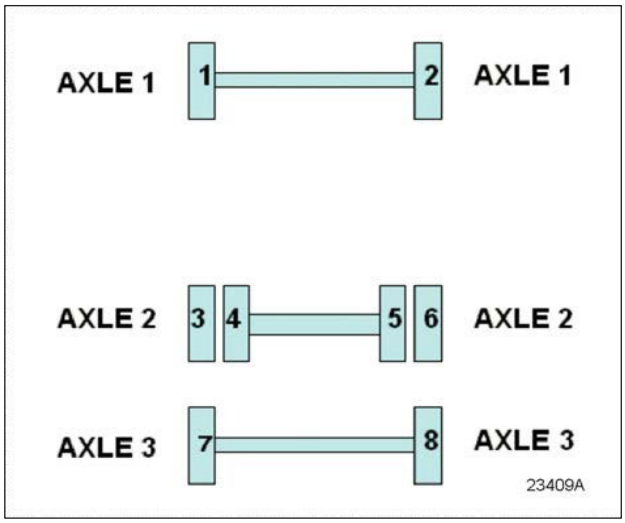
When entering the menu, the axle 1, wheel 1 is selected by default as a starting point for the learning. The user can select another axle with +/-

, move the cursor to the wheel number with the right arrow and select another wheel with the +/- or move the cursor down to the start learning button.

After the start learning button is selected, the display stores the first transmission it gets from each sensor ID into the “initial pressure” for that sensor ID. Then it compares each subsequent pressure received for that sensor ID with the initial one and when the comparison shows a delta pressure exceeding the defined level required, this sensor ID is assigned to the selected tire location.

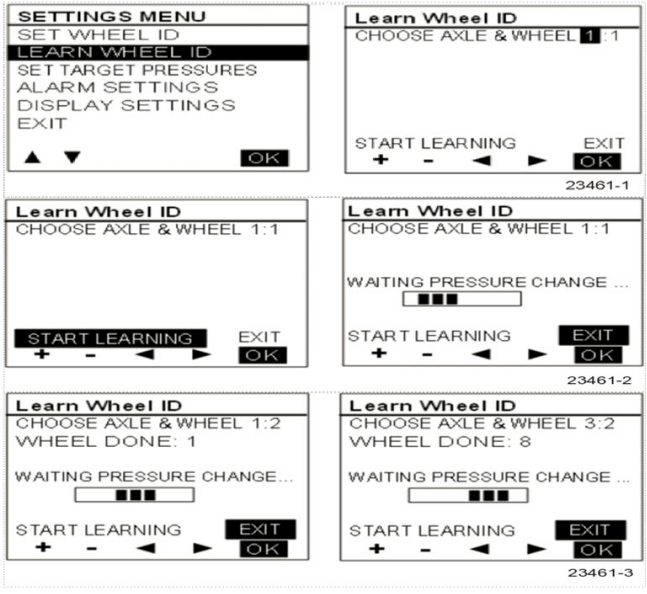
Once a wheel ID has been assigned, the display increments the number of wheels done and it moves to the next axle/wheel in the sequence, waiting for another sensor to come up with a pressure change. Within one learning session, the display remembers which sensor has been assigned and it will not assign it twice.

The sequence increments the display of the next wheel on the same axle, counting wheels from left to right, and then moves to the next axle, counting axles from front to rear.



It activates the next wheel parameter each time a wheel is done. This setting is integrated with the vehicle electronic, activating an audible signal on the vehicle, thus providing feedback to the user that he can move on to the next wheel.

The spare tire can be done by selecting the axle/wheel “spare” which is internally encoded to 15:1.



PARTS / WASTE DISPOSAL

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