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04.2014	04.2016	7	1(18)

Revision G This document supersedes previous revisions.
 Addition of a new operation to be performed. The AFSS extinguisher bottle support must be removed and replaced with new reinforced support #406708.

AFSS UPDATE - LTD REPLACEMENT AND RELOCATION OF IR SENSOR Prevost vehicles

DESCRIPTION

On the vehicles affected by this bulletin, replace and relocate the LTD. Remove the existing IR sensor and install an updated IR sensor. Finally, remove and replace the extinguisher bottle support.

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 : 2012	From 2PCG33495CC73 <u>5053</u> up to 2PCG33495CC73 <u>5232</u> incl.
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 "SP14-21" which includes the following parts:

Part No.	Description	Qty
069020	HARNESS, INTERFACE	1
069041	LTD (Linear Thermal Detector)	1
406701	SUPPORT, IR SENSOR	1
563457	SENSOR, INFRARED	1
500321	WASHER, BEL SPR .331x.827x.098 ZG603	1
502851	NUT, HEX M8-1.25 ZG603	1
5001742	SCREW, CAP HEXF M8-1.25x30 G8.8 ZG603	1
561565	SEAL 20-18 g	2
561578	TERMINAL, SOCKET 16-14 g	1
561689	TERMINAL, SOCKET 20-18 g	2
561782	CONNECTOR, SOCKET HOUSING PED WEATHER PACK	1
561786	SEAL 16-14 g	1

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563588	TERMINAL, PIN	2
563589	CONNECTOR, SOCKET HOUSING DTM 06-2S	1
563590	CONNECTOR, PIN HOUSING DTM 04-2P PH 2C	1
563604	LOCK, SECONDARY	1
563606	PLUG, SEALING	2
5001017	SCREW, THREAD CUTTING HEXW #10-24x1/2	6
504013	TIE MOUNT, 1/4 x 1/4	6
507664	CABLE TIE, NYLON 3/16" x 11" DOUBLE LOOP HEAD	18
504637	CABLE TIE, NYLON 3/16" x 13"	20
502841	NUT, HEX NYRT M5-0.8 ZG603	2
5001146	SCREW, CAP HEX M5-0.8x20 SS EMN	2

Additional parts required:

Part No.	Description	Qty
406708	SUPPORT, AFSS EXTINGUISHER BOTTLE	1
509491	NYLON TIE, CABLE	1

NOTE

Material can be obtained through regular channels.

NOTE

The Linear Thermal Detector (LTD) is a twin conductor cable with temperature-sensitive insulation protected by a **red outer sheath**. It operates by short-circuiting in a fire or overheat condition. The cable cannot be reset; if the wire alarms to a fire, the wire must be replaced or the damaged section cut out and a new section added prior to returning the system to service.

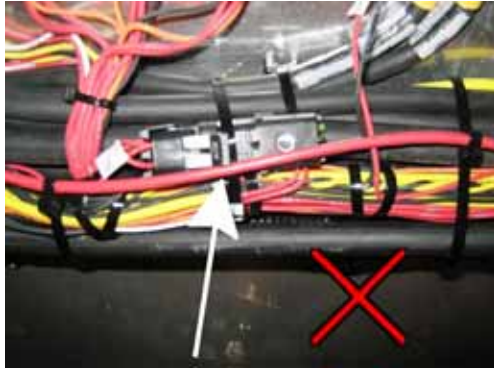
LTD INSTALLATION GUIDELINES

IMPORTANT: WHEN INSTALLING THE "LTD", THE FOLLOWING GUIDELINES MUST BE FOLLOWED.

NOTE

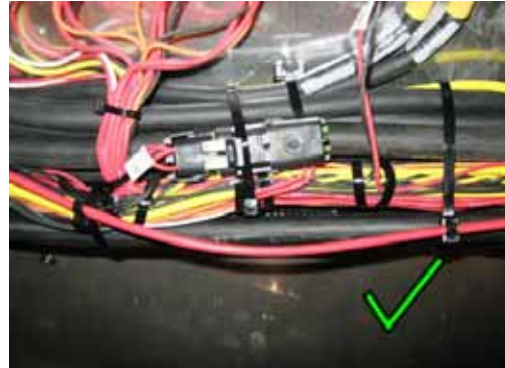
Always use double loop cable ties to secure LTD. LTD must be tied alone, with no other cables in the loop.

NOT ALLOWED



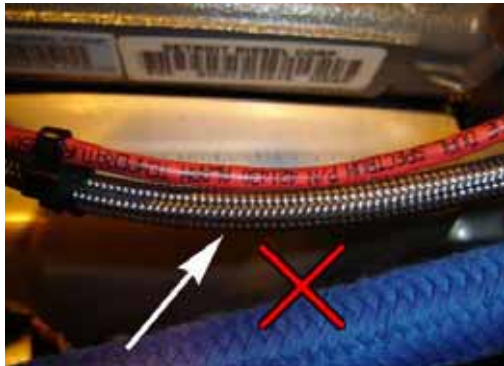
Possible contact or rubbing against screws, edges, etc.

CORRECT



LTD must be routed clear of screws, sharp edges, etc.

NOT ALLOWED



Rubbing or possible rubbing against abrasive surfaces

CORRECT



LTD must be secured with double loop cable ties. Distance between cable ties must not exceed 4 inches (100mm) max

NOT ALLOWED



LTD touching cut cable tie

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NOT ALLOWED



LTD extending slantingly from the cable tie

CORRECT



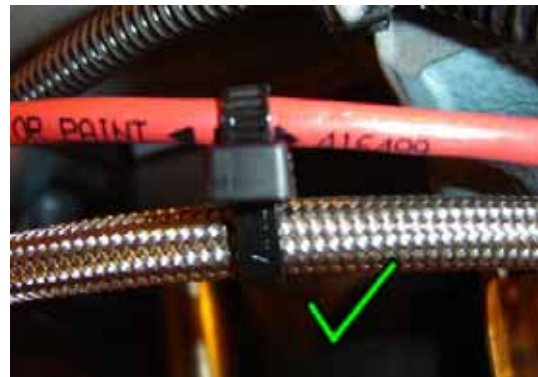
LTD is not a flexible harness. Avoid tight bends and kinks which could short circuit the LTD. Loops must have a minimum radii of 4 inches (100 mm)

NOT ALLOWED

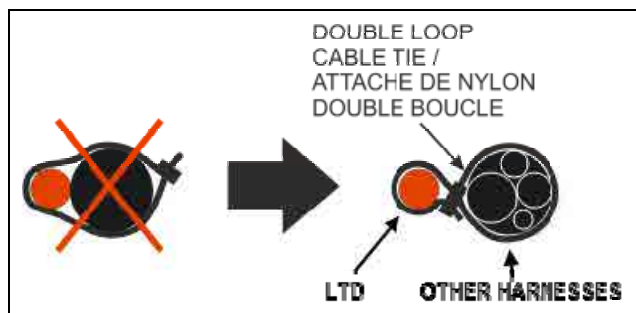


Cable tie tighten in excess on the LTD. Tighten cable tie on LTD by hand only. Tighten just enough to prevent LTD from slipping from once side to the other inside the cable tie loop

CORRECT



Proper tightening of the cable tie on the LTD



PROCEDURE



DANGER

Park vehicle safely, apply parking brake, stop engine. In the battery box, set the battery cut-off switch to the OFF position prior to working on the vehicle.

- 1) With the battery master switch to the ON position and the ignition switch to the ON position, check that there are no trouble conditions on the AFSS system. Check that the driver's area AFSS protection panel SYSTEM OK green lamp is illuminating. If it is not illuminating, then the TROUBLE lamp should blink or illuminate steady. You must troubleshoot and correct that situation prior proceeding to this bulletin.
- 2) Disconnect the extinguisher bottle connector. Plug the "Kidde Valve Simulator" p/n 420871-98 (Prevost #685128).

The Valve Simulator is used to simulate the squib and discharging of an extinguisher. It plugs into the wiring harness of the extinguishing circuit and provides an audible warning (chirp) when a signal is received from the control panel to discharge the extinguisher.

Failure to do so may result in extinguisher discharge at time of resetting the system if the LTD is short circuited due to improper manipulations and/or faulty installation.



FIGURE 1

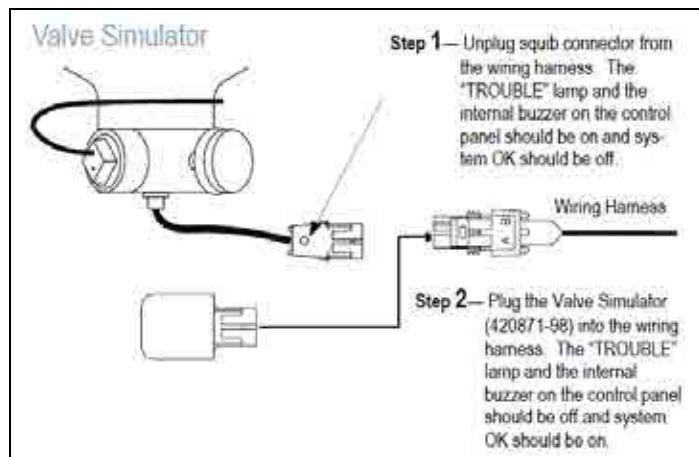


FIGURE 2

- 3) Turn the ignition switch to the OFF position. Set the battery master switch to the OFF position.
- 4) Inside the front electrical compartment, pull fuse F45 to cut electrical supply to the AFSS protection panel. You will find F45 in an inline blade-type fuse holder among nearby harnesses (see figure 3).

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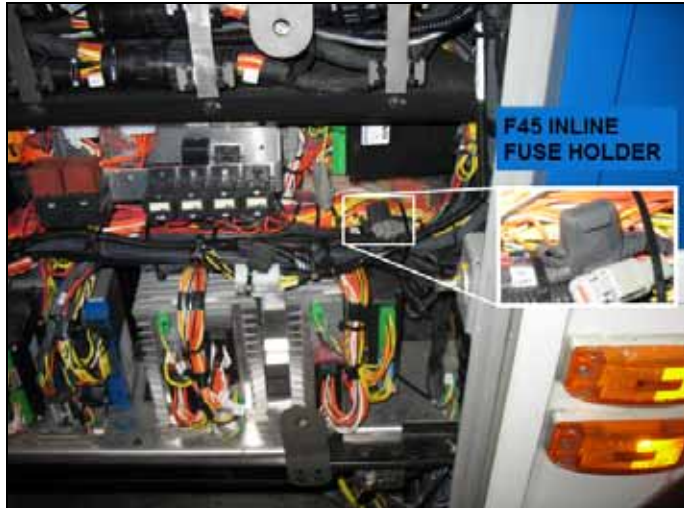


FIGURE 3: FUSE F45 INSIDE FRONT ELECTRICAL COMPARTMENT

- 5) To ease access to the engine, remove the rectangular access hatch located under the rear cross seats (figure 4).
- 6) Remove the trapezoidal access hatch located at the rear of the passengers' area (figure 5).



FIGURE 4



FIGURE 5



FIGURE 6: REMOVE SPLASH GUARD SHOWN



FIGURE 7: REMOVE SPLASH GUARD SHOWN

- 7) Remove the splash guard shown on figure 6. To do so, unscrew one nut (use 10mm socket).
- 8) Remove the other splash guard (figure 7). To do so, remove 4 screws (use 10mm socket).

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REMOVAL OF EXISTING IR SENSOR SUPPORT, POWER CABLES AND LTD

- 9) Locate the IR sensor and support above the turbo (figure 8).

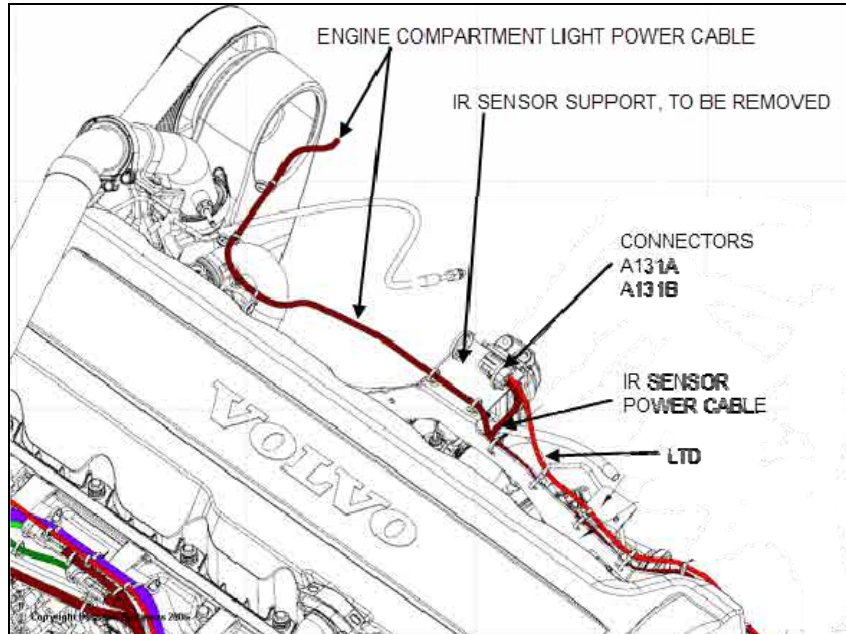


FIGURE 8: IDENTIFICATION OF COMPONENTS AND HARNESSSES

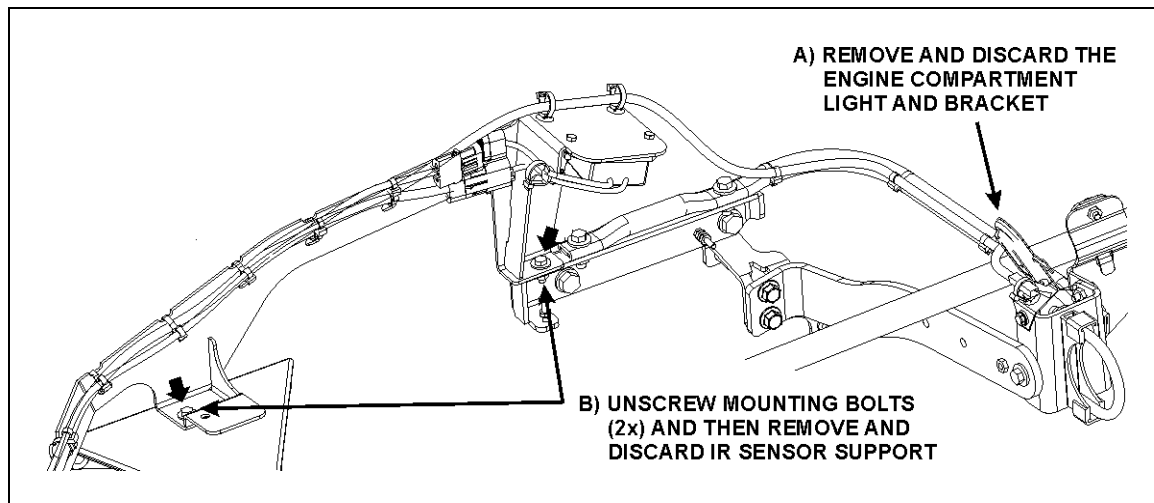


FIGURE 9

- 10) Remove the bolts from the engine compartment light and bracket (see figure 9, step A).
- 11) Remove the bolts from the IR sensor support (see figure 9, step B).
- 12) Starting from the IR sensor support, cut all nylon cable ties securing the LTD (cable with red sheath). On the engine **hot side**, the LTD is routed under the starter and forms a loop and then comes back and runs to the cold side of the engine (figure 10). On the **cold side**, the LTD is routed as shown on figure 11. Keep the end of line device (EOL) found at the end of the LTD for reused.

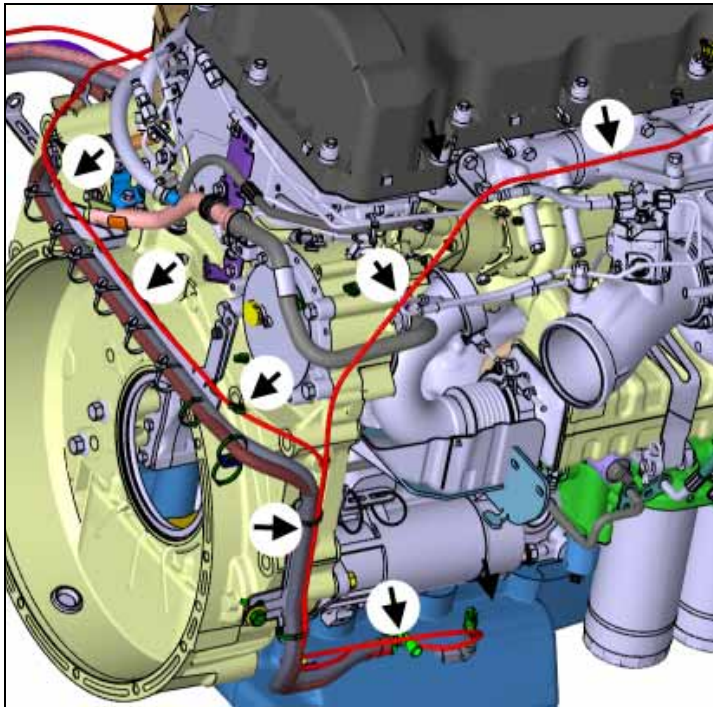


FIGURE 10: ENGINE HOT SIDE - REMOVE LTD

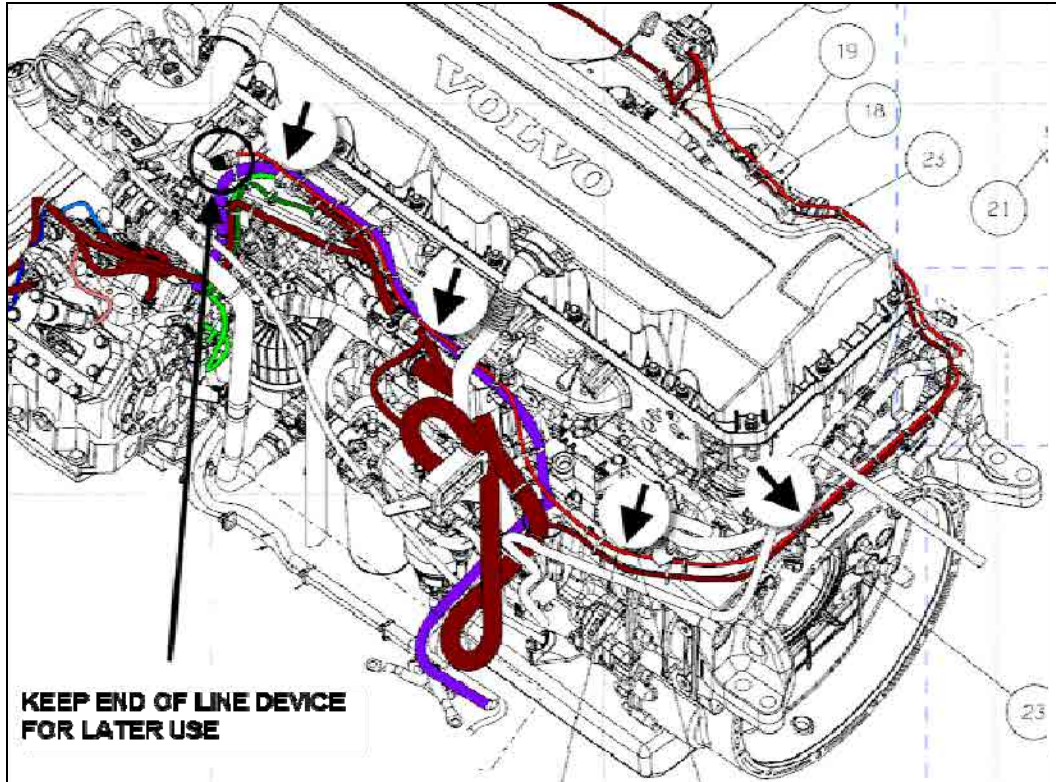


FIGURE 11: ENGINE COLD SIDE - REMOVE LTD, KEEP THE END OF LINE DEVICE (EOL) FOR REUSE

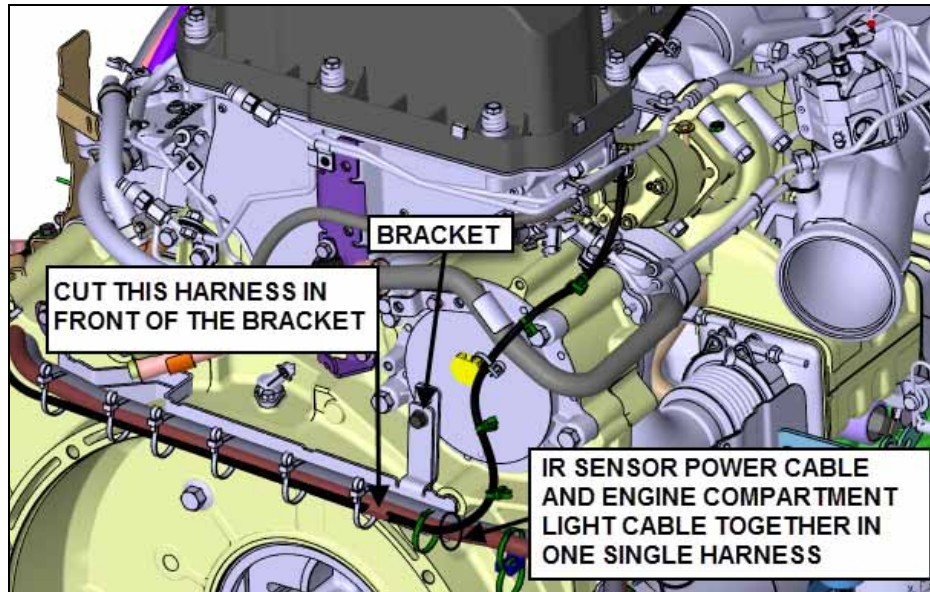


FIGURE 12: CUT THE HARNESS CLOSE TO THE BRACKET

- 13) The engine compartment light power cable and the existing IR sensor power cable are joined together in one single harness. Locate this harness and cut it close to the bracket shown on figure 12. The section of this harness that is tied to the IR sensor support (routed on the turbo side) is to be discarded.
- 14) Remove and discard the IR sensor support complete with all the cables tied to it:
 - The existing LTD
 - The compartment light power cable
 - The IR sensor power cable

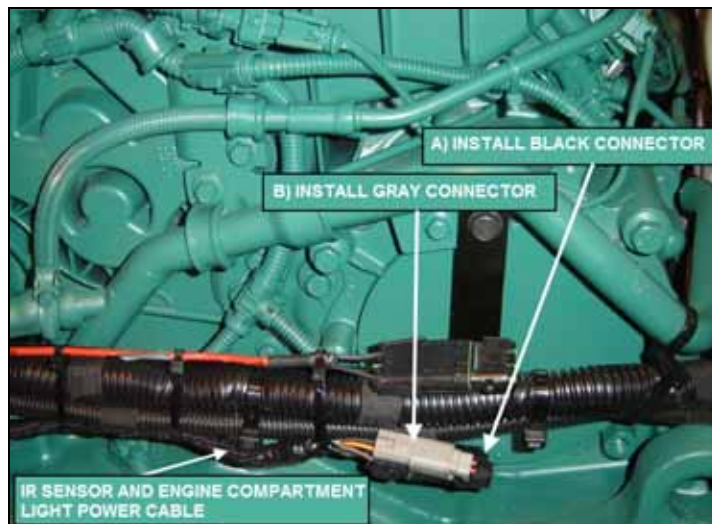


FIGURE 13

ADDITION OF CONNECTORS ON SAVED HARNESS

- 15) Installation of "black connector" (see figure 13, step A). Inside the remaining section of the harness that was kept (identified IR SENSOR AND ENGINE COMPARTMENT LIGHT POWER CABLE on figure 13), identify and separate circuits 346, OFE (ground) and 347. Install a PED Weather Pack connector.

Use:

- 1x TERMINAL, SOCKET 16-14 g #561578 (for ground wire OFE)
- 2x TERMINAL, SOCKET 20-18 g #561689
- 1x CONNECTOR, SOCKET HOUSING #561782
- 1x SEAL 16-14 g #561786 (for ground wire OFE)
- 2x SEAL 20-18 g #561565

circuit	cavity
346	A
OFE	B
347	C

- 16) Installation of gray connector (figure 13, step B and figure 14). Inside the remaining section of the harness, identify and separate circuits 9B and 0RA2. Install a Deutsch DTM connector. This connector is installed as provision for further use if needed.



FIGURE 14: DEUTSCH CONNECTOR

Use:

- 2x #563588 TERMINAL, PIN
- 1X #563589 CONNECTOR, SOCKET HOUSING DTM 06-2S
- 1X #563590 CONNECTOR, PIN HOUSING DTM 04-2P PH 2C
- 1X #563604 LOCK, SECONDARY
- 2X #563606 PLUG, SEALING

circuit	cavity
9B	2
0RA2	1

INSTALLATION OF NEW IR SENSOR BEFORE ELECTRICAL HOOKUP

- 17) Unscrew the bolt at the turbo inlet pipe support bracket (figure 15).
- 18) Mount the new IR sensor #563457 onto the new support #406701 (figure 16). Install IR sensor and support assembly onto turbo inlet pipe support bracket as per figure 16.



FIGURE 15

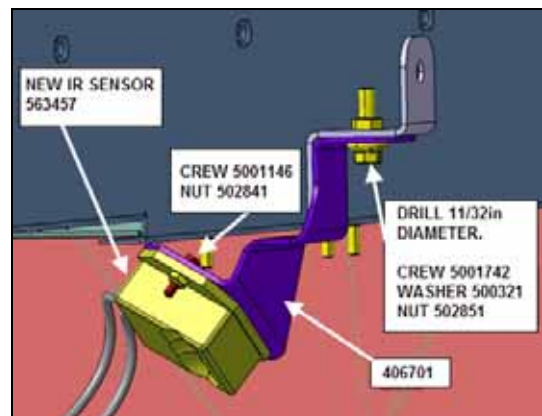


FIGURE 16

INSTALLATION OF NEW LTD, INTERFACE HARNESS AND ELECTRICAL HOOKUP

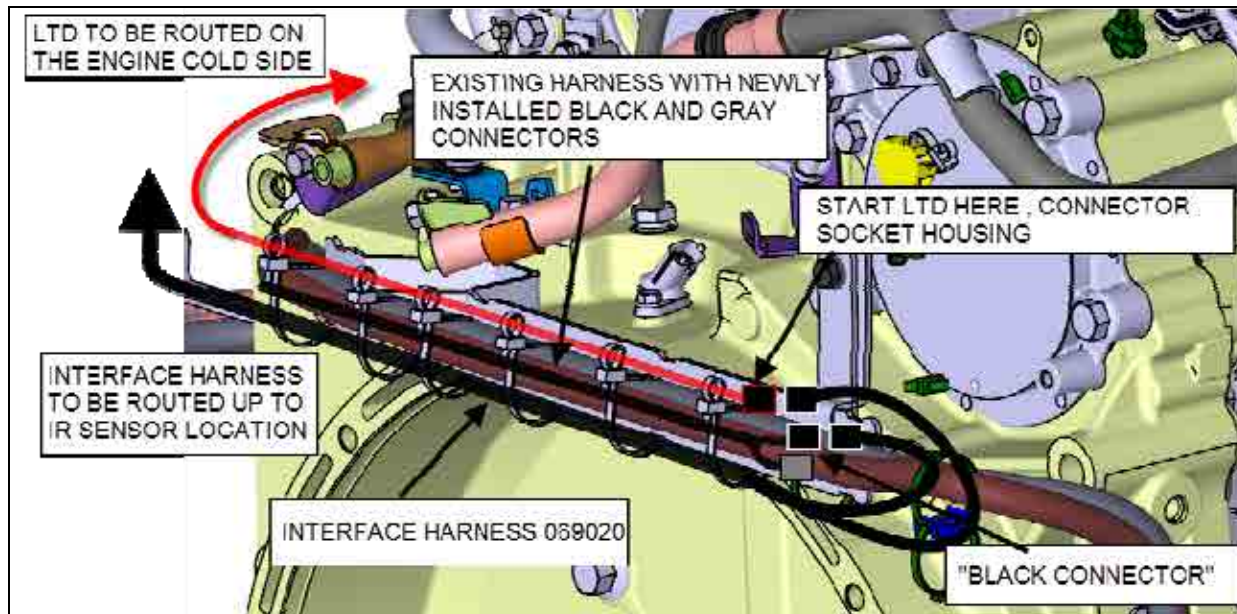


FIGURE 17



FIGURE 18

- 19) Secure the interface harness to the surrounding harnesses (see figure 17 for proper installation) using 6 double loop head nylon cable ties 507664. Use the second loop to attach the LTD (figure 17 and 18). Tighten the loop fixing the LTD by hand only. Follow the general recommendations.
- 20) Connect the interface harness as shown on figure 19 and 20.

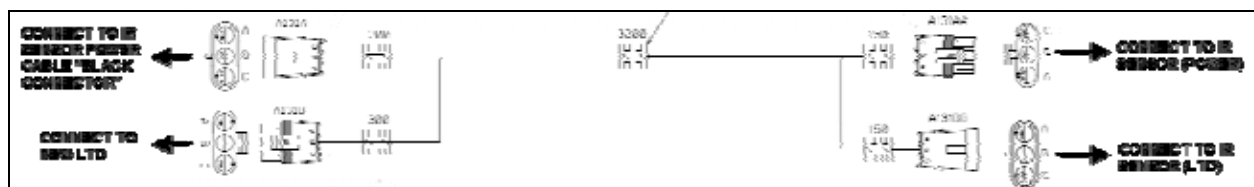


FIGURE 19: INTERFACE HARNESS #069020

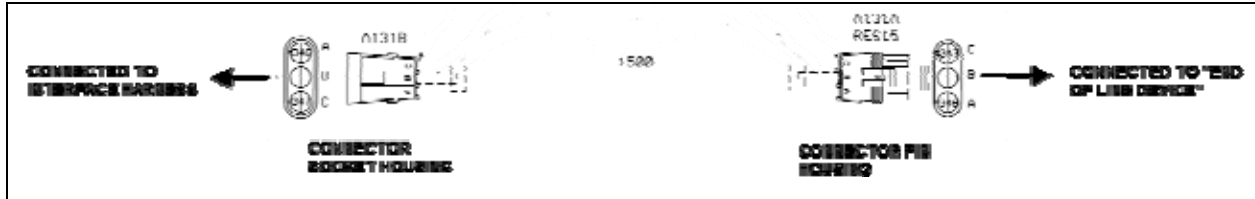


FIGURE 20: NEW LTD #069041

- 21) Route the LTD using double loop nylon cable ties. For each attachment point of the LTD, fix one loop of the cable tie around the close harnesses corrugated sleeve. Use the second loop to attach the LTD. Tighten the loop fixing the LTD by hand only. Follow the general recommendations.
- 22) Refer to the following pictures for proper attachment point location and installation method (consult the PDF color version of this document).



STEP 22-A



STEP 22-B



STEP 22-C



STEP 22-D

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STEP 22-E



STEP 22-F



STEP 22-G



STEP 22-H: END OF LINE DEVICE (EOL)

- 23) Route the interface harness up to the IR sensor new location. Unlike the LTD, the interface harness is routed on the vehicle structure, curbside.



STEP 23-A



STEP 23-B

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STEP 23-C



STEP 23-D



STEP 23-E

- 24) At this point, the end of the interface harness should be connected to the IR sensor in order to avoid having the interface harness extra length tied up close to the IR sensor. The extra-length will be looped and tied to close harnesses later on as shown on figure 21.

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FIGURE 21



FIGURE 22



FIGURE 23

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FIGURE 24 ROUTING BEHIND POWER STEERING RESERVOIR

- 25) Connect the interface harness to the IR sensor. Secure IR sensor connectors as shown on figure 22 and 23 using 6 screws 5001017, 6 tie mounts 504013 and 6 nylon cable ties 504637 (pre-drilling diameter= **11/64 in**).
- 26) Route harness behind the power steering reservoir as shown on figure 24. Secure the extra-length of interface harness to close harnesses as shown on figure 21, using nylon cable ties 504637.

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EXTINGUISHER BOTTLE SUPPORT REPLACEMENT

- 27) Open the last L.H. side baggage compartment.
- 28) Place two appropriate jack stands under the extinguisher bottle at about 12 inches from the bottle.
- 29) Cut the nylon tie that fixes the extinguisher bottle hose to the support. **Use caution, the extinguisher bottle weighs 46 lbs.** Undo the two t-bolt band clamps (see figure 25). Rest the extinguisher bottle on the jack stands.

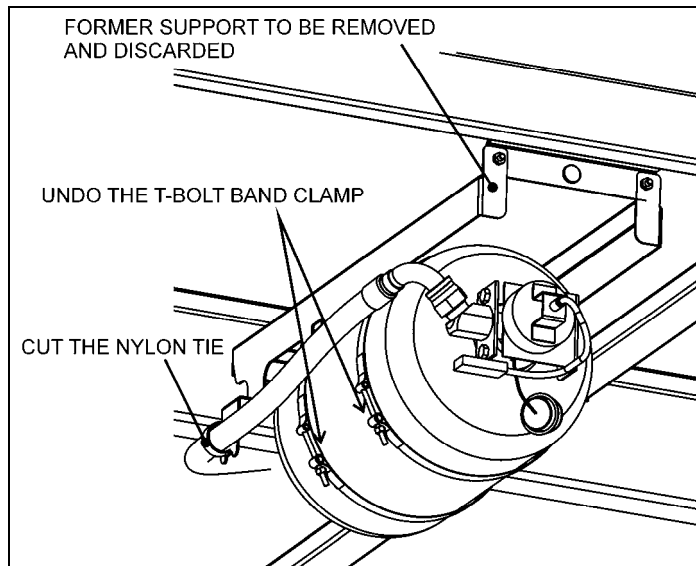


FIGURE 25

- 30) Remove and discard the existing support.
- 31) Mount the new support #406708 using existing M6 cap screws. Tighten cap screws to **84 lbf-in.**
- 32) Properly install the previously removed t-band clamps to the new support.
- 33) Reinstall the extinguisher bottle to the new support. Tighten t-bolt band clamps nuts to **50 lbf-in.**
- 34) Fix the extinguisher bottle hose to the support using nylon tie #509491.

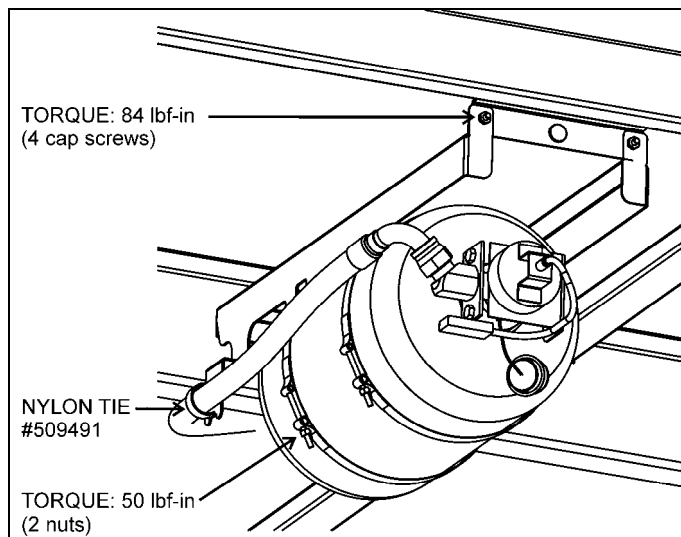


FIGURE 26: NEW INSTALLATION

FINAL STEPS

- 35) Put fuse F45 back in place. Set the battery master switch to the ON position.
- 36) Set the ignition switch to the ON position and check that the driver's area AFSS protection panel SYSTEM OK green lamp is illuminating and that no fire detected/extinguisher discharge condition has been triggered. If no Kidde valve simulator is installed, the TROUBLE lamp should illuminate steady, indicating there is a fault in the extinguishing circuit, which is normal if the extinguisher circuit is not connected to the extinguisher bottle. The TROUBLE lamp will blink if there is a fault in the detection circuit.
- If the ALARM lamp illuminates steady, a fire detected and extinguisher discharge conditions exist. Do not connect the extinguisher bottle to the extinguisher circuit.
- 37) If no fire detected/discharge condition exists, you can disconnect the valve simulator and plug the extinguisher bottle to the wiring harness of the extinguishing circuit.

PARTS / WASTE DISPOSAL

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

ESTIMATED TIME

The time required to perform this special bulletin is approximately 5 hours.

OTHER

VBC Bulletin	NA
Fail Code	23.08
Defect Code	09
System Condition	B
Causal Part	068552

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.