

REFERENCE:	Nova Bus Manuals
SECTION:	19 Kidde fire suppression system
RS N°:	MQR 7621-472
EFFECTIVE IN PROD.:	2013 FE

APPLICATION DEADLINE: 2015OC30
CLAIM REFERENCE NUMBER: WB-3148

SUBJECT:	Fire suppression system and engine compartment ventilation
JUSTIFICATION:	Ventilate the engine compartment

LEVEL	DESCRIPTION	DIRECT CHARGES		TIME
		LABOUR	MATERIAL	
1	Install a ventilation fan and change the LTD wire in the engine compartment.	Nova Bus	Nova Bus	4 h
2	—	—	—	—

MATERIAL

QTY	PART N°	REV.	DESCRIPTION	REPLACES PART N°
LEVEL 1				
—1	N78291	—	Grill louver	—
1	N68846		Electric fan	
1	N78105		Fan grill protection	
4	N43254		Bolt	
4	N11183		Washer	
4	N78294		Spacer	
5	N38593		Nut	
1	N78280		Sensor support	
1	N78869		Sensor	
1	2394308		Harness bracket	
1	N44881-02		Bolt	
1	N57040		Tie cable mount hi-heat	
20	N56339		Tie wrap	
1	N76776		Electrical harness	
1	N76810		Electrical harness	
1	N67133		LTD wire	
LEVEL 2				
—	—	—	—	—

DISPOSAL OF PARTS

REMOVED PARTS ARE:	DISCARDED	RETAINED	
	—	—	

REVISION HISTORY

REV.	DATE	CHANGE DESCRIPTION	WRITTEN BY
NR	2014JL15	Initial release	Wilder Galiano

APPROVED BY: Daniel Theriault

Digitally signed by Daniel Theriault
DN: cn=Daniel Theriault, o=Nova Bus, ou=Publication, email=daniel.theriault@volvo.com, c=CA
Date: 2014.07.16 08:59:04 -0400

CLIENT	ORDER	ROAD NUMBER		VIN (2NVY/4RKY...)		QTY
		FROM	TO	FROM	TO	
New York City Transit - New York	L608	8000	8014	L82U6B4000047	L82U0B4000061	15
New York City Transit - New York	L620	8015	8074	L82U2B4000062	L82U7B4000123	60
New York City Transit - New York	L621	8075	8089	L82U9B4000124	L82U9B4000138	15
New York City Transit - New York	L643	5895	5895	S92U1B4000143	S92U1B4000143	1
New York City Transit - New York	L670	5770	5894	S92U4C4500024	S92U3B4000242	125
New York City Transit - New York	L681	5896	5283	S92U2C4500023	S92U9C4500195	122
New York City Transit - New York	L692	5284	5363	S92U3C4500158	S92U3D4500274	80

**WARNING**

Follow your internal safety procedures.

PROCEDURE

ENGINE FAN INSTALLATION

- 1.1. Remove the rear engine door. Retain all hardware.
- 1.2. Mark a circle and four holes. See Figure 1. The grill louver can be used as a template.

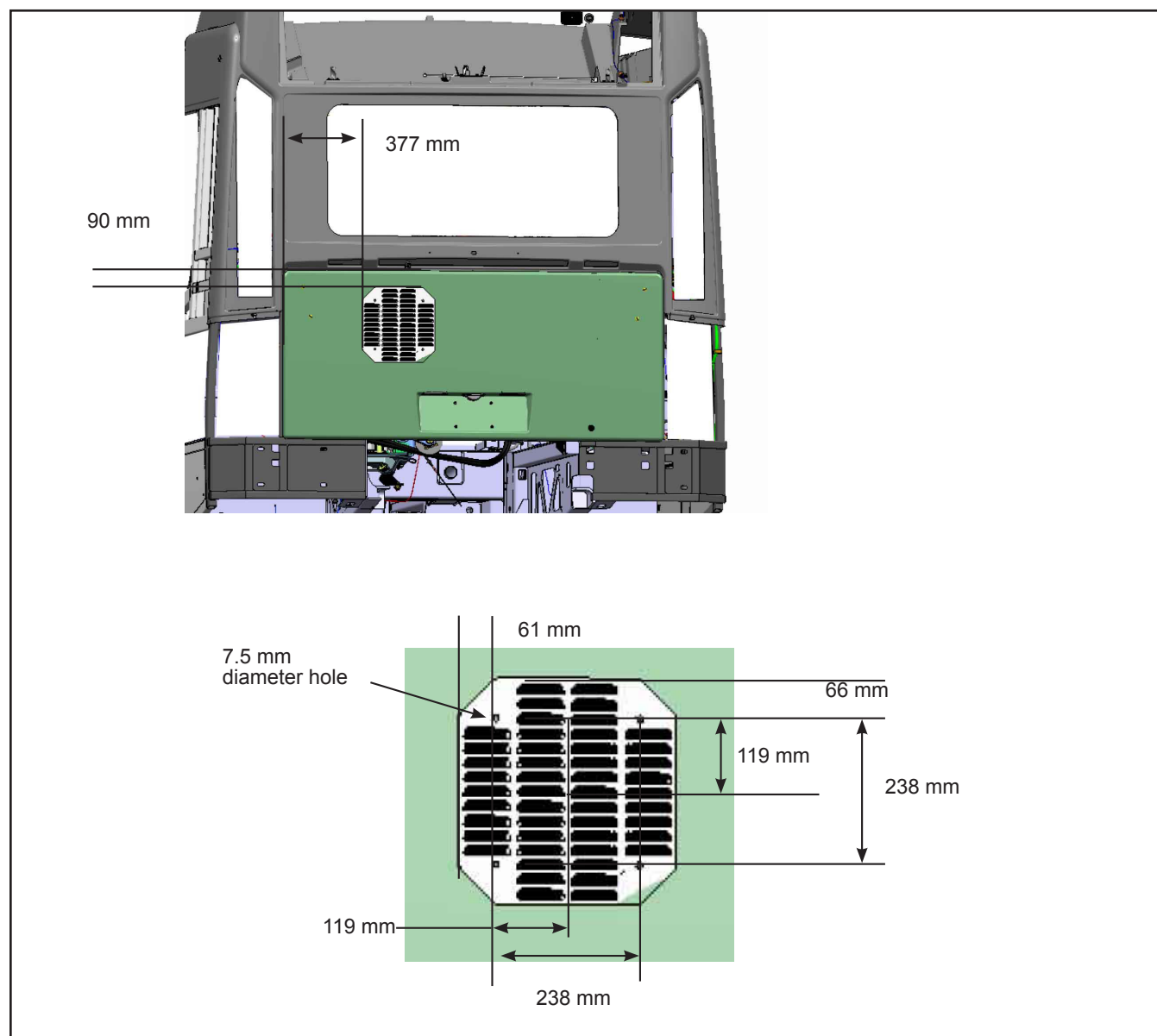


Figure 1 - Locate the Engine Compartment Door

- 1.3. Drill the four holes 7.5 mm in diameter.
- 1.4. Cut the opening. See Figure 2. The use of a jig saw is recommended.

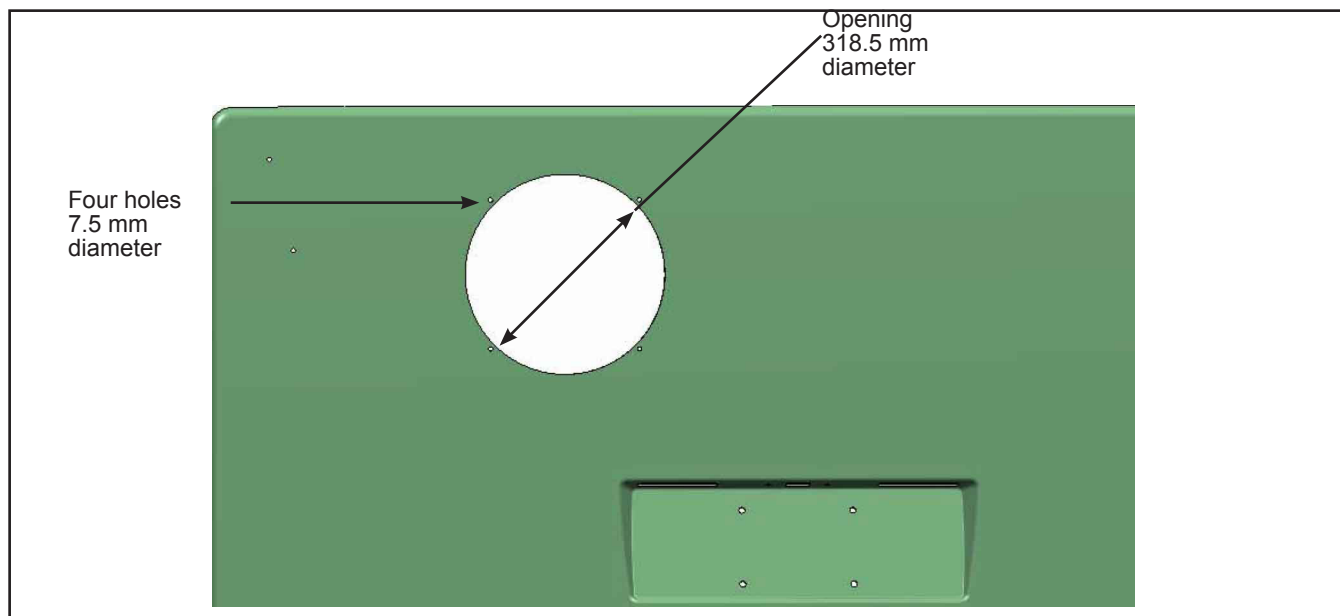


Figure 2 - Mark and Cut Openings

- 1.5. Install onto the engine door, the N78291 grill louver on the outside, with the N68846 electric fan, the N78105 grill protection with four N43254 bolts, four N11183 washers, four N78294 spacers and four N38593 nuts. On the inside.

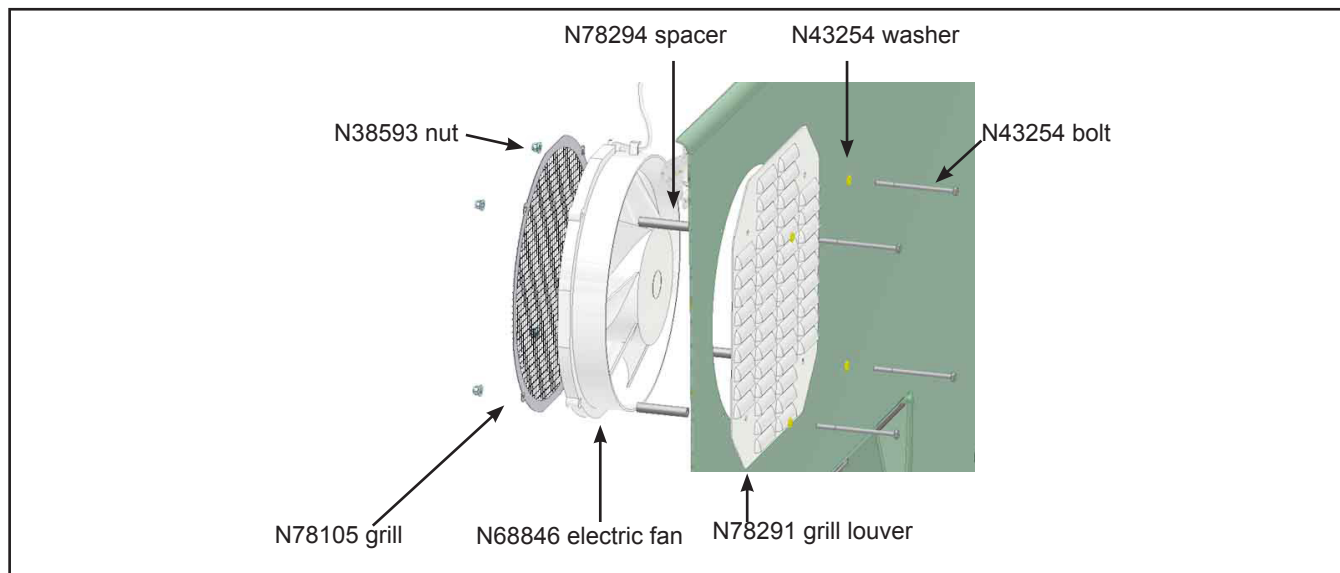


Figure 3 - Engine Fan Assembly

- 1.6. Reinstall the rear engine door with the retained hardware.

- 1.7. Locate the two threaded studs to fasten the sensor support.
- 1.8. Fasten the N78280 sensor support to the vehicle using two of the three existing threaded studs and hardware.

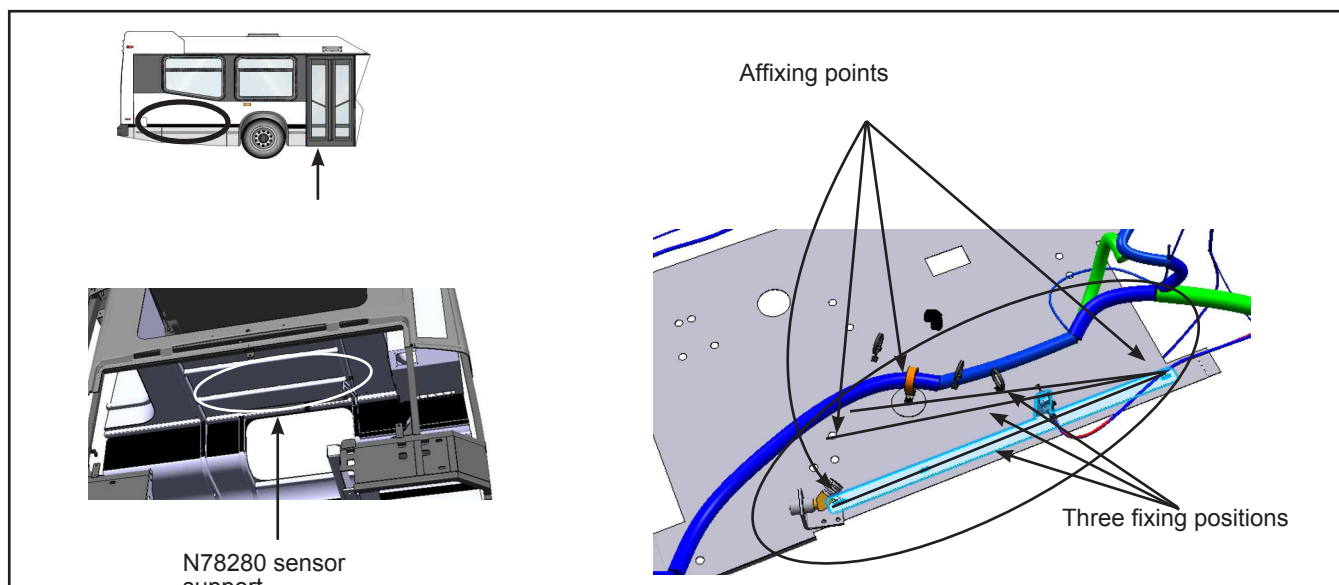


Figure 4 - Locate the Engine Compartment Ceiling

- 1.9. Install the N78869 heat sensor on the sensor support.
- 1.10. Connect the electric fan to the N76776 electric harness.

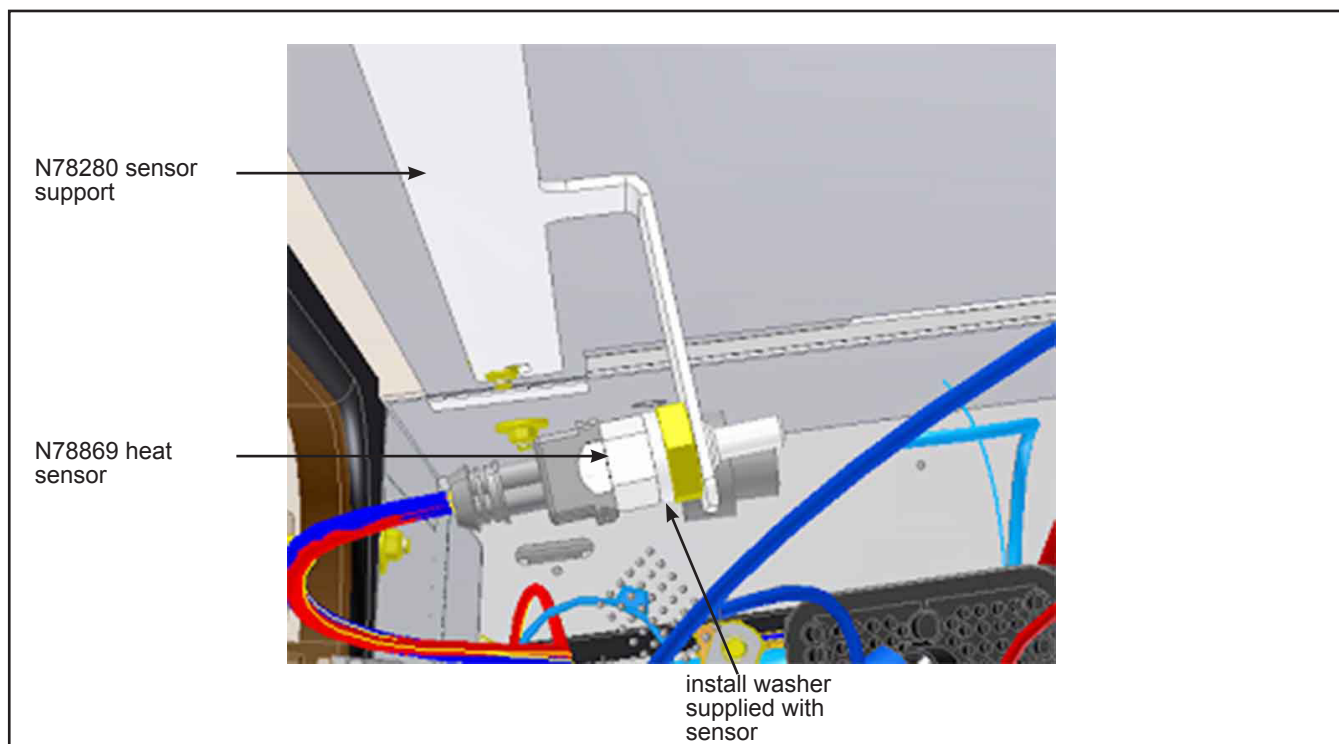
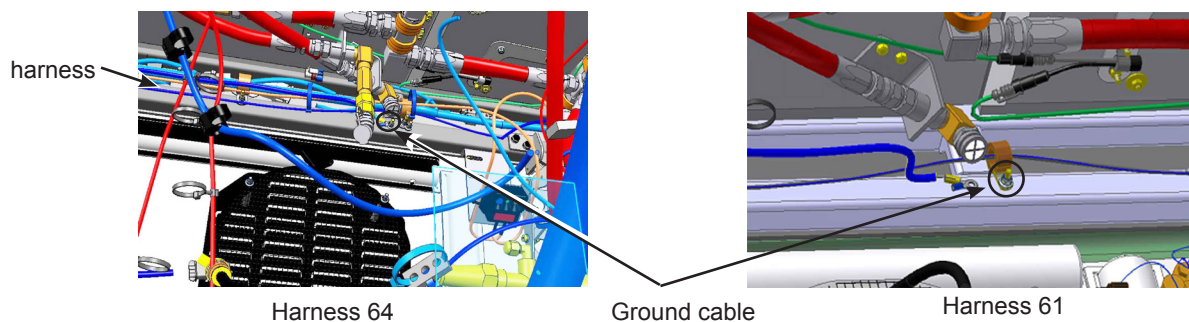


Figure 5 - N78869 Heat Sensor Installation

1.11. Route the electric harness following main harness #64 (61 on some vehicles).

N76776 harness



N76776 harness

Connection to
engine fan

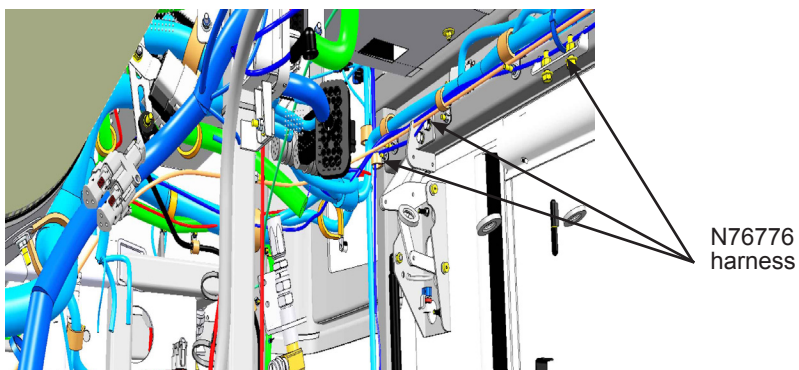
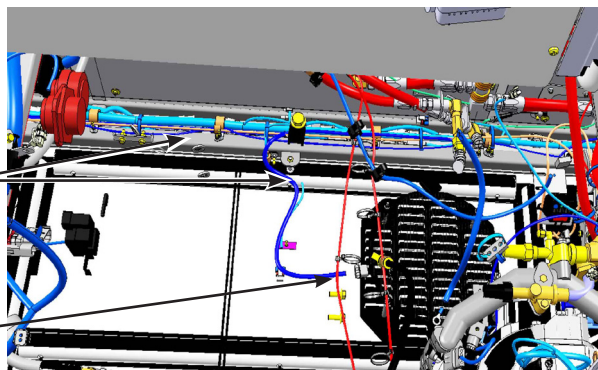


Figure 6 - N76776 Electrical Harness Routing

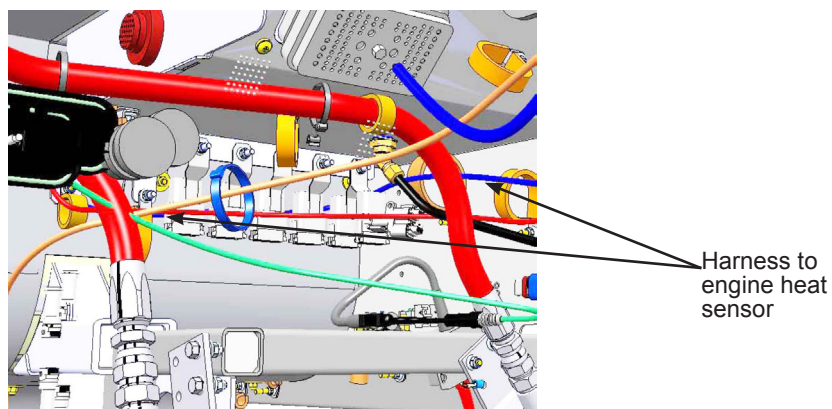
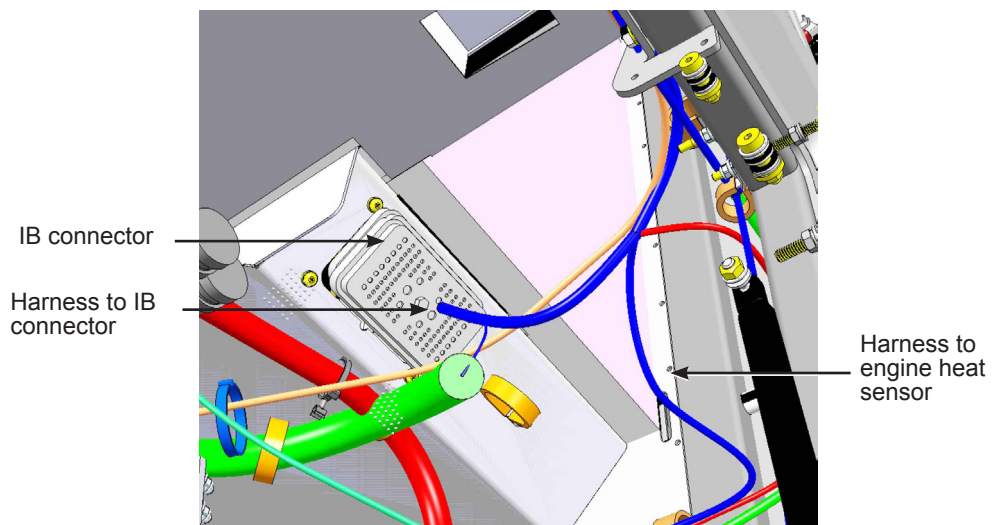
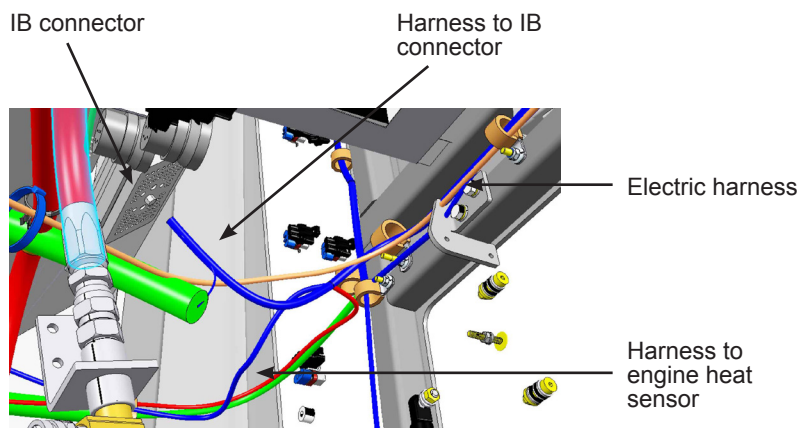


Figure 7 - N76776 Electrical Harness Routing

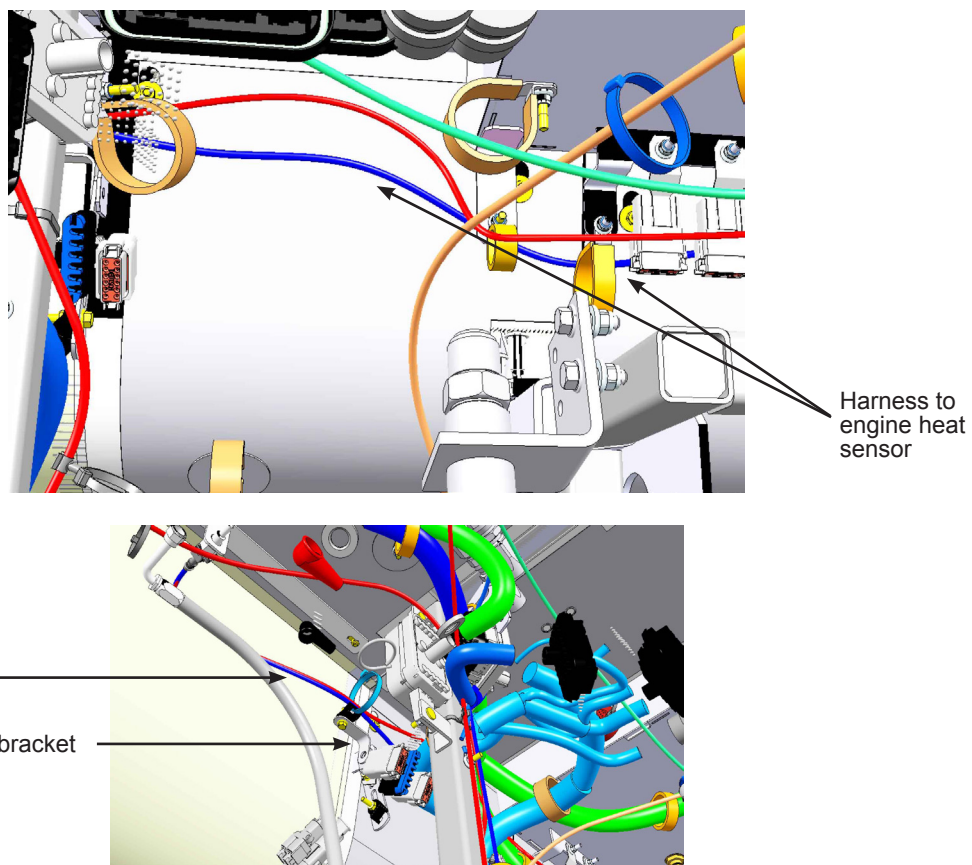


Figure 8 - N76776 Electrical Harness Routing

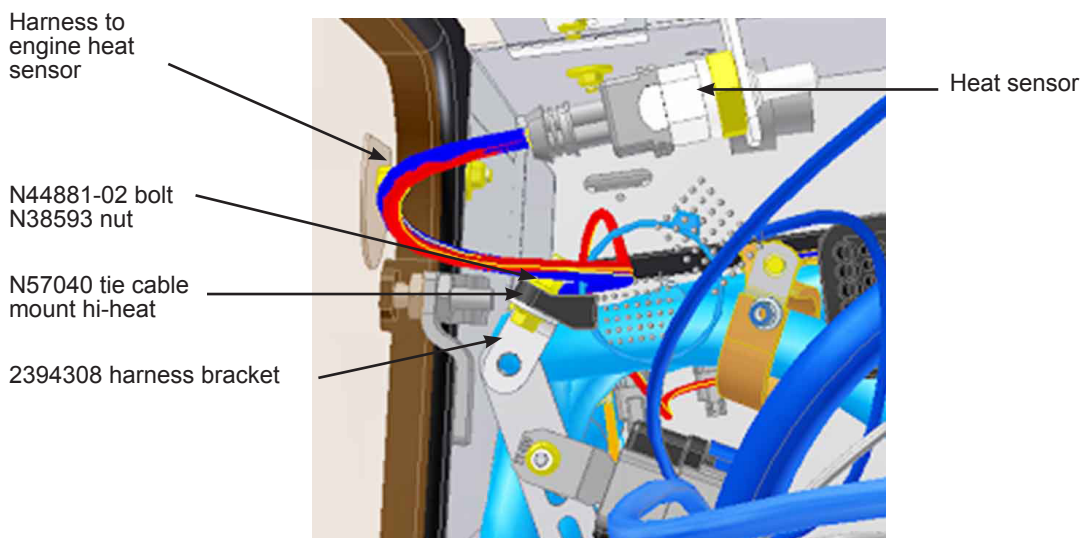


Figure 9 - 2394308 Harness Bracket Installation

- 1.12. Connect the heat sensor to the electric harness.
- 1.13. Install the electrical kit as shown in the electric wiring circuit.

Location: Engine compartment IB connector.

Install fasten electric kit N76776: Refer to Figure x.

- 1.14. Fasten the N76776 connector to the engine fan connector.
- 1.15. Connect the end of wire 64-1816(16 RD) to connector +IB -X6499A (or +IB -6199A) at position 53.

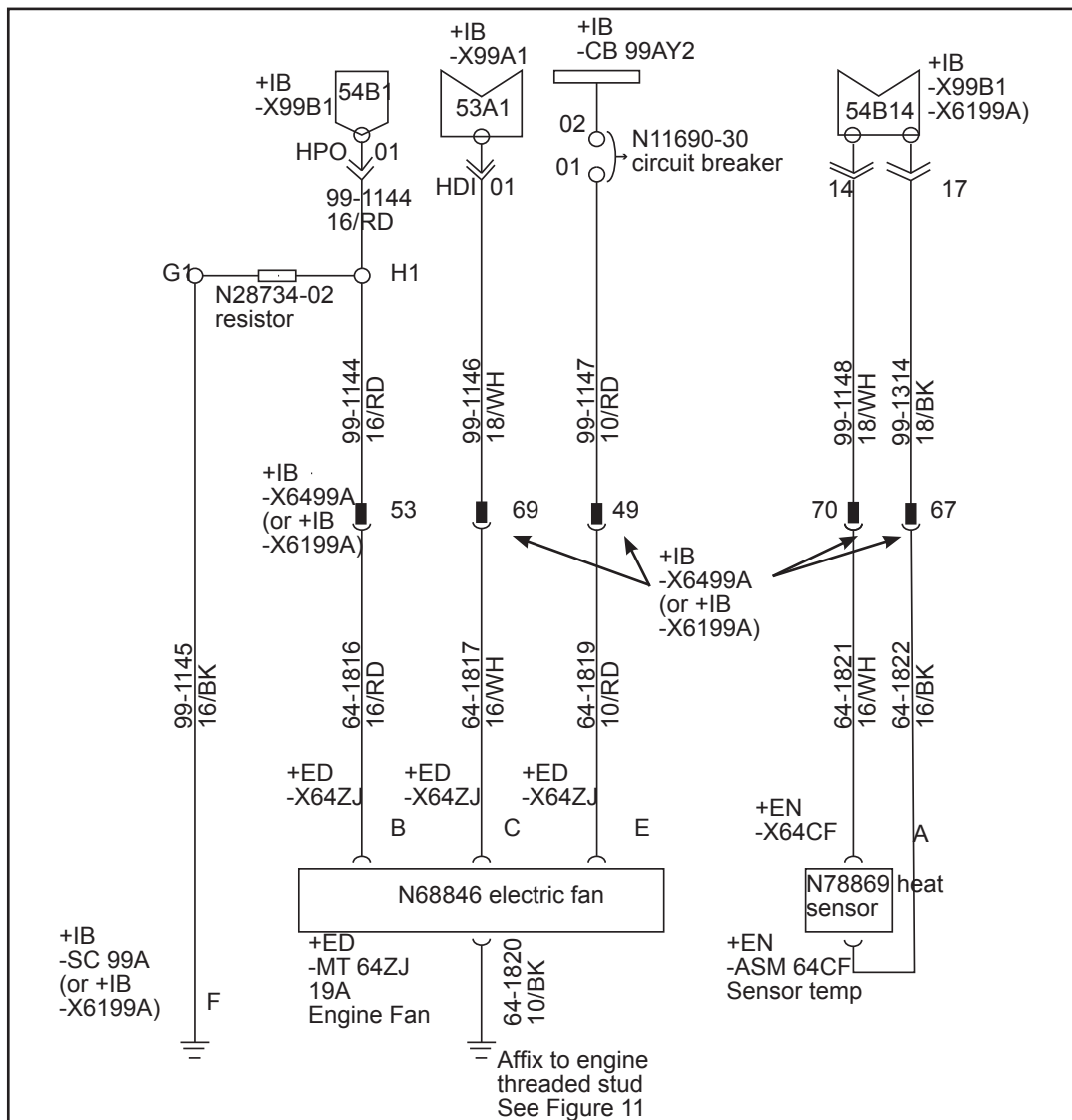


Figure 10 - N76776 and N76810 Electrical Wiring Diagram

- 1.16. Connect the end of wire 64-1817(16 WH) to connector +IB -X6499A (or +IB -6199A) at position 69.
- 1.17. Connect the end of wire 64-1819(10 RD) to connector +IB -X6499A (or +IB -6199A) at position 49.
- 1.18. Connect the end of wire 64-1821(16 WH) to connector +IB -X6499A (or +IB -6199A) at position 70.

- 1.19. Connect one end of wire 64-1820(10 BK) to the vehicle structure threaded stud.

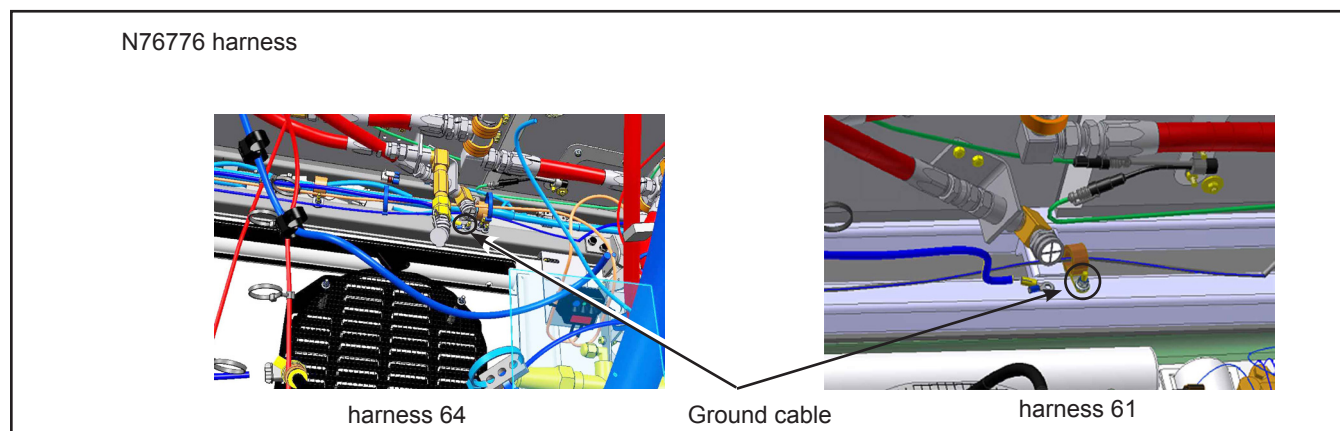


Figure 11 - Ground to Vehicle Structure

- 1.20. Connect one end of wire 64-1822(16 BK) to the connector +IB -X6499A (or +IB -6199A) at position 67.

Location: At the rear of the vehicle in the IB electrical panel.

Install electric kit N76810.

- 1.21. Connect one end of wire 99-1144(16 RD) to connector +IB -X6499A (or to +IB -6199A) to position 53.
- 1.22. Connect the other end of wire 99-1144(16 RD) to IB-TB 99A position H1.
- 1.23. Connect one end of wire 99-1145(16RD) to IB -TB 99A position G1.
- 1.24. Connect the other end of wire 99-1145(16RD) to +IB -SC99A position F or to position +IB -X6199A.

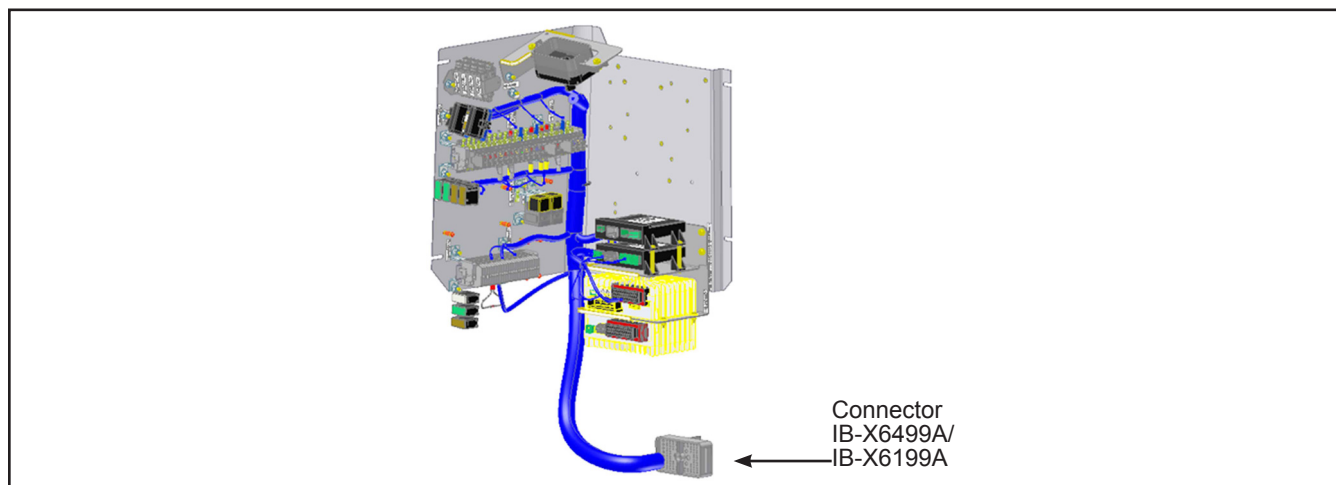


Figure 12 - IB Compartment

- 1.25. Install the N28734-02 resistor at location IB-TB99A H1 and G1.
- 1.26. Connect one end of wire 99-1143(16 RD) to IB-TB99A position H1.
- 1.27. Connect the other end of wire 99-1143(16 RD) to module 54 connector +IB -X99B1 HPO to position 01.
- 1.28. Connect one end of wire 99-1146(18 WH) to module 53 connector +IB -X99A1 HDI to position 01.
- 1.29. Connect the other end of wire 99-1146(18 WH) to connector +IB -X6499A (or to +IB -6199A) to position 69.
- 1.30. Connect one end of wire 99-1147(18 RD) to +IB -CB99AY2 to position 01.

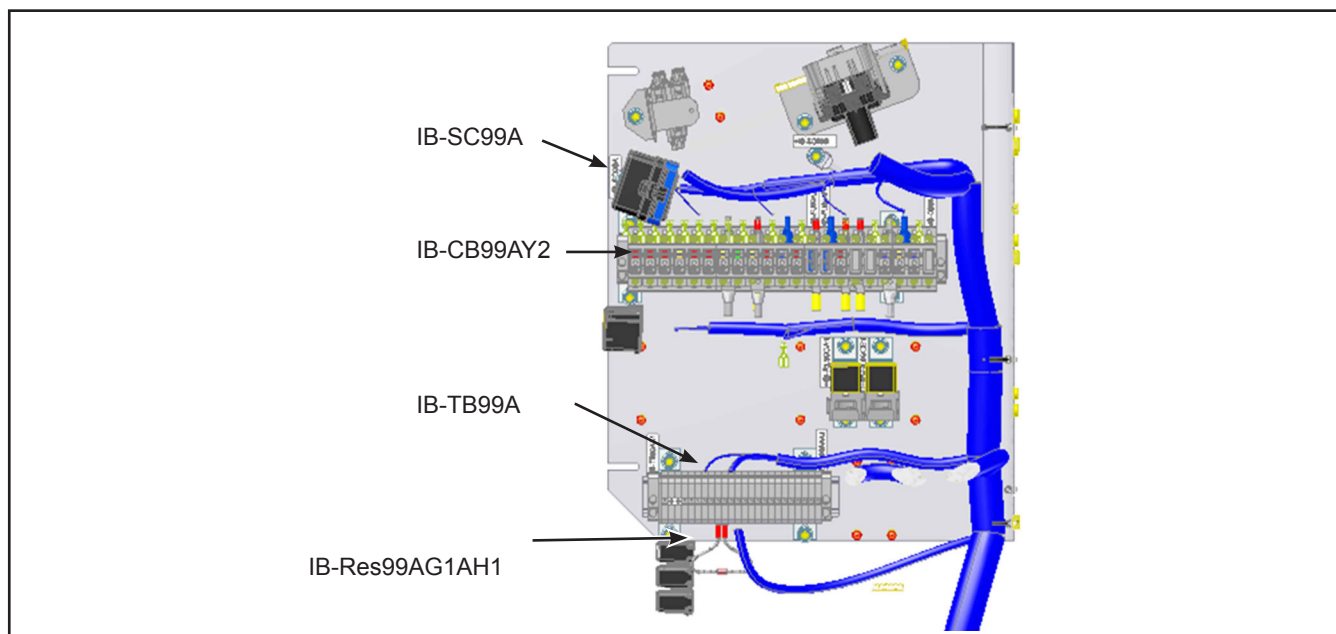


Figure 13 - IB Front View

- 1.31. Connect the other end of wire 99-1147(18 RD) to connector +IB -X6499A (or to +IB -6199A) to position 69.
- 1.32. Install the N11690-30 circuit breaker at location +IB -CB99AY2 to position 01 and 02.
- 1.33. Connect one end of wire 64-1148(18 WH) to module 54 connector +IB-X99B1 to position14.
- 1.34. Connect the other end of wire 64-1148(18 WH) to connector +IB-X 6499A (or to +IB -6199A) to position 70.
- 1.35. Install the Breaker N11690-30 to position +IB -CB 99AY2 01 and 02.

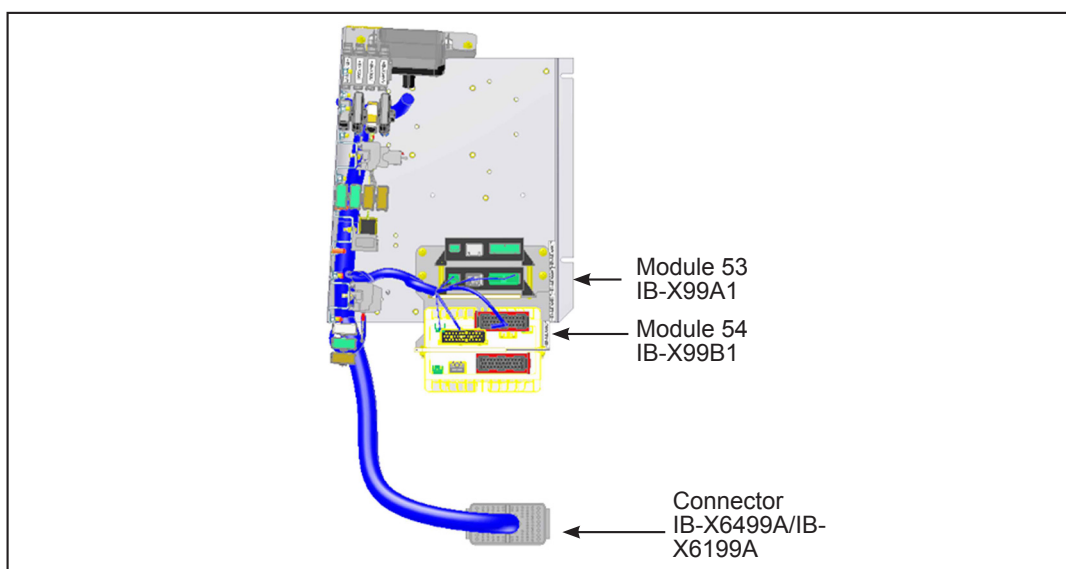


Figure 14 - IB Module View

- 1.36. Connect one end of wire 99-1314 (18 BK) to module 54 connector +IB-X99B1 to position17.
- 1.37. Connect the other end of wire 99-1314(18 BK) to connector +IB-X 6499A (or +IB -6199A) to position 67.

LTD WIRE REPLACEMENT

- 1.38. Open the access panel over the fire suppression bottle (at the rear of the interior of the bus). Use a Torx screwdriver or bit.



Figure 15 - Fire Suppression bottle Access Panel

- 1.39. Disable the fire suppression bottle by disconnecting the Weather Pack connector going to the bottle.

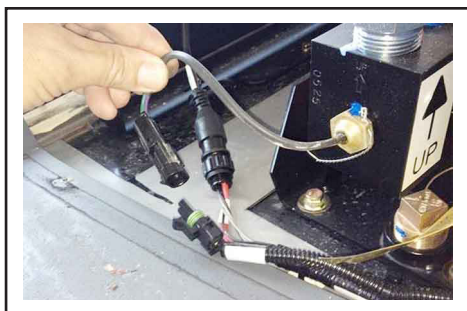


Figure 16 - Disconnect Weather Pack Connector

- 1.40. Install the hot wire cheat on the wire harness (in place of the bottle connector).

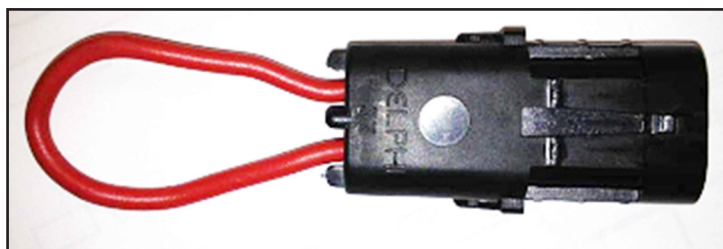


Figure 17 - Hot Wire Cheat Installation

- 1.41. Open the engine access panel in the rear of the bus (interior).
- 1.42. Open the rear (main) engine compartment door (exterior).
- 1.43. On the engine control panel, switch the 'Engine Control' to the middle position (between 'Normal' and 'Rear').
- 1.44. On the engine control panel, switch the 'Engine Control' to the middle position (between 'Normal' and 'Rear').



Figure 18 - Engine Control Panel

- 1.45. Remove the fan guard.



Figure 19 - Rear Engine Compartment

- 1.46. Open the right rear engine compartment panel and locate the two fire suppression system connectors to the right of the air dryer.
- 1.47. There are two 3-pin Weather Pack connectors for the fire suppression system.



Figure 20 - Fire Suppression System Connectors

- 1.48. One of these has three wires coming out of the connector, the other one is the red LTD wire with heat shrink tubing around the first part of the wire.
- 1.49. Attention: on some buses, the LTD wire is on the right, on others it is on the left.

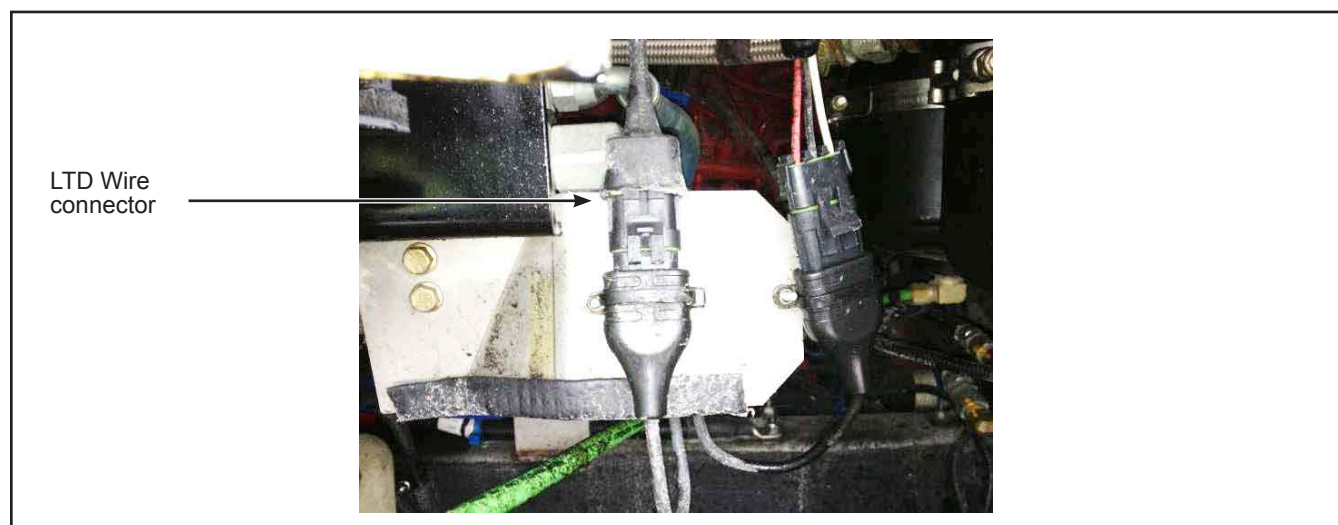


Figure 21 - LTD Wire connector

- 1.50. Raise the vehicle.

For information on hoisting and towing of the vehicle, see section 18: HOISTING AND TOWING in the Nova Bus maintenance manual. Use appropriate hoisting equipment for your protection.

- 1.51. Replace the old LTD wire with the new 20-ft LTD wire. Carefully place it in the exact location where the old wire was, using all the old clamps.
- 1.52. If you find any deteriorated or broken tiewraps, replace them.
- 1.53. Similarly, if you find any deteriorated or broken stand-offs, replace them with the new type of locking stand-off. (The stand-offs often break when you remove the existing LTD wire).
- 1.54. When you get to the end of the new 20-ft LTD wire, disconnect the old LTD Wire and connect the new LTD Wire.

DO NOT CONNECT THE BOTTLE BEFORE YOU HAVE COMPLETED THIS STEP.

- 1.55. Check the new LTD wire. The resistance should be approximately 10,000 Ω ($\pm$ 1000 Ω). If the resistance is outside this range, do not connect the bottle. It could go off!
- 1.56. If the resistance of the LTD wire assembly is within range unplug the multi-meter and reconnect the LTD wire to the body-side connector.



Figure 22 - Kidde Display

- 1.57. Check the Kidde display in the driver area. The ALARM and TROUBLE LED's should not be illuminated. The SYSTEM OK LED should be illuminated. You may have to reset the unit.
- 1.58. If the alarm or trouble tell-tale is lit, find and resolve the cause before proceeding.

- 1.59. Remove the hot wire cheat, connect the bottle and close the cover.
- 1.60. Replace the belt guard.
- 1.61. On the engine control panel, switch the 'Engine Control' to 'Normal'.
- 1.62. Close and lock the rear (main) engine compartment door (exterior).
- 1.63. Close and lock the right rear engine compartment panel.
- 1.64. Check the display again. You may have to reset the Kidde display if the green light is not lit.
- 1.65. Lower the vehicle.
- 1.66. The vehicle may be returned to service.❖