REFERENCE:	Nova Bus Manuals
SECTION:	09: Engine Cooling Package
RS Nº:	MQR 7621-2467
EFFECTIVE IN PROD.:	LF49 (2023AU)

APPLICATION DEADLINES: 2025MR21
CLAIM REFERENCE NUMBER:WB5490

SUBJECT:	New protection cover for fuse Holder
JUSTIFICATION:	Fuse holder for the electric cooling fans require an improve protection against road debris.

LEVEL	DESCRIPTION	DIRECT CHARGES		TIME
		LABOUR	MATERIAL	
1	Disconnect the cables connected to the fuse holder. Remove and clean the fuse holder, N84769 and the fuse, N47759-250. Clean and inspect the metal surface of the cable lug which was connected to the lower terminal of the fuse holder. Apply the anticorrosive product on the cables' lug and the metal surface of the fuse holder. Install new cover N109946 on the fuse holder.	Nova Bus	–	1h
2	If required replace the N84769 fuse holder and/or the N47759-250 fuse and/or the cable connected to the lower terminal of the fuse holder.	Nova Bus	Client*	0.75h

* The cost of the material will be reimbursed when claiming for this service document.

DISPOSAL OF PARTS

REMOVED PARTS ARE:	DISCARDED *	RETAINED	* Dispose of the unused parts and the defective parts in accordance with local environmental standards in effect.
	Yes	–	

REVISION HISTORY

REV.	DATE	CHANGE DESCRIPTION	WRITTEN BY
NR	2024JA15	Initial release	Luc Carignan

APPROVED BY: Irina Negoescu Signature numérique de Irina Negoescu Date : 2024.01.16 15:11:33 -05'00'

MATERIAL REQUIRED PER VEHICLE

QTY	PART Nº	REV.	DESCRIPTION
LEVEL 1			
1	N109946		Fuse Holder Cover
1	N111682		Grommet 3/4
1	N109997		Gasket Shim
2	N0249000		Nylon Sleeve 1/4
2	N68458	A	Nylon Spacer 6 mm X 13 mm X 6 mm
2	N20301	X	Bolt M6 X 30
3	N44890	B	Nut Locknyl M6
LEVEL 1 SHOP SUPPLIES* **			
5 oz	N8951729	–	Brake and Part Cleaner (20 oz can)
3.2 oz	N8910848	–	CRC Contact Cleaner (16 oz can)
2 oz	N67314	–	Anticorrosive Compound (NCP-2) (4 0z)
***WHEN YOU ORDER, SPECIFY THE NUMBER OF VEHICLES TO REPAIR.			
LEVEL 2 (only if required)**			
1	N47759-250	–	250A fuse
1	N84769	A	Fuse Holder
1	N106873-05	–	Cable C1415 4/0 awg BK-RD
7	N37749	B	Dual clamp tie

Materials will be available within 41 days once your order has been placed.

To order, please contact novabus.parts@volvo.com

Or by phone for CANADA 1-800-771-6682, for USA 1-877-999-8808

Specify document number, quantity of parts required and shipping address.

** The material identified in Level 2 is to be ordered only for vehicles that meet the criteria defined in Level 1.

CLIENT	ORDER	ROAD NUMBER		VIN (2NVY/4RKY...)		QTY
		FROM	TO	FROM	TO	
Chicago Transit Authority - CTA - Illinois	LE87	8450	8549	L82J5N977[redacted]	L82J2P977[redacted]	100
Chicago Transit Authority - CTA - Illinois	LF11	8550	8551	L82JXP977[redacted]	L82J1P977[redacted]	2
Chicago Transit Authority - CTA - Illinois	LF11	8553	8563	L82J5P977[redacted]	L82J8P977[redacted]	11
Chicago Transit Authority - CTA - Illinois	LF11	8565	8585	L82J1P977[redacted]	L82JXP977[redacted]	21
Chicago Transit Authority - CTA - Illinois	LF11	8592	8592	L82J6P977[redacted]	L82J6P977[redacted]	1
Chicago Transit Authority - CTA - Illinois	LF11	8597	8598	L82J0P977[redacted]	L82J2P977[redacted]	2
Chicago Transit Authority - CTA - Illinois	LF11	8623	8623	L82J5P977[redacted]	L82J5P977[redacted]	1
Chicago Transit Authority - CTA - Illinois	LF11	8626	8646	L82J0P977[redacted]	L82J8P977[redacted]	21

WARNING

FOLLOW YOUR INTERNAL SAFETY PROCEDURES.

PROCEDURE

NOTE

For your safety it is suggested to wear the following protective equipment when working in the battery and engine compartments; safety helmet, protective glove, safety glasses, and safety shoes.

1.1. Park the vehicle on an even surface with the transmission on neutral.

1.2. Apply the parking brake and set the master control switch to the ***stop*** position.

1.3. Open the battery compartment door and set the battery disconnect switch to the ***off*** position.

1.4. Disconnect all the cables from the batteries' positive terminals. Install a protective sleeve on the tip of the cables lug to avoid any contact with the positive terminal of the batteries.

1.5. Disconnect all the cables from the batteries' negative terminals. Install a protective sleeve on the tip of the cables lug to avoid any contact with the negative terminal of the batteries.

1.6. Open the rear access door of the engine compartment.

1.7. Locate the 250A fuse holder N84769 for the radiator fan power supply. See Figure 1.

1.8. Remove the cover from the fuse holder. Retain the cover. See Figure 1.

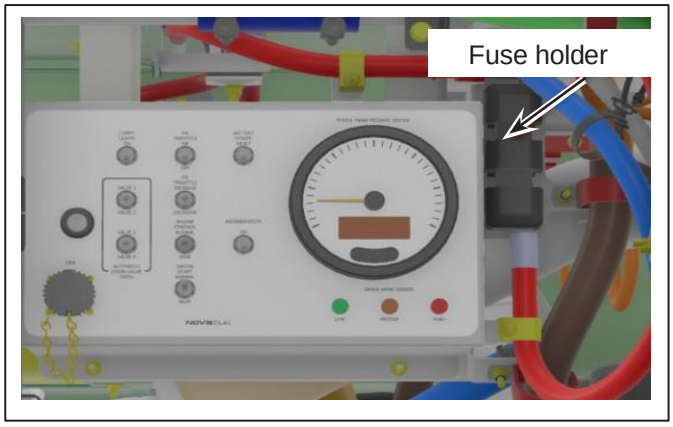


Figure 1 - Typical Location of the Fuse Holder N84769

WARNING

For the next steps, follow your safety procedures.

Before starting the application of the products recommended in the next steps, make sure that ventilation is adequate, to wear personal protective equipment (PPE), such as chemical splash goggles and neoprene gloves, as specified on the Material Safety Data Sheet (SDS) of the cleaning product and anticorrosive compounds.

1.9. Clean thoroughly the lug of the cables, the fuse holder terminals and the fuse holder anchor bolts preferably with brake and part cleaner (P/N N8951729) or any equivalent product. See Figure 2.

1.10. Remove the M8 anchor nuts which affix the cables connected to the fuse holder. Secure the cable to avoid contact with structure. Retain the M8 nuts. See Figure 2.

1.11. Remove the M8 anchor nuts which affix the N47759-250 to the fuse holder N84769. Retain the nuts. See Figure 2.

1.12. Remove the M6 anchor bolts and nuts which affix the fuse holder to the structure. Retain only the fuse and the fuse holder. See Figure 2.

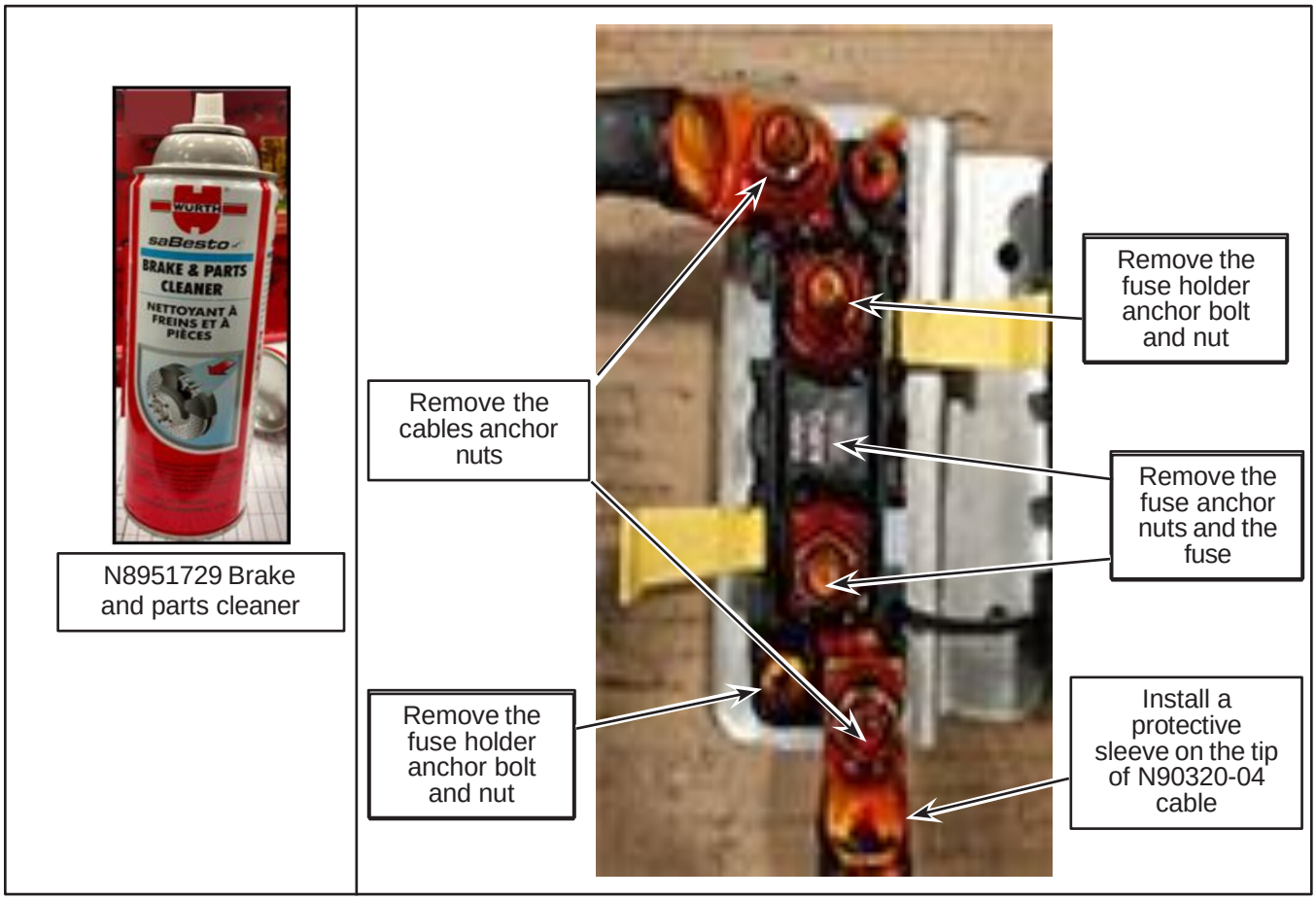


Figure 2 - N8951729 Brake and Parts Cleaner and Typical N84769 Fuse Holder Installation

1.13. Disconnect and remove the engine control box. Retain the engine control box and hardware. See Figure 3.

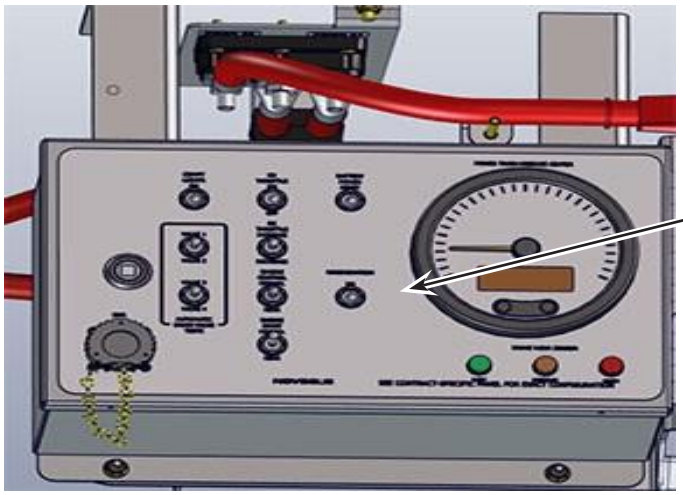


Figure 3 - Engine Control Box

1.14. Clean thoroughly the lug of the cable for the lower terminal of the fuse holder, fuse holder and their anchor nuts with a nylon brush and CRC Contact Cleaner (P/N N8910848) or any equivalent product. Make sure that there are no traces of corrosion or dirt on both sides of the fuse, the lug of the cables and on the retain nuts. See Figure 4.



Figure 4 - Nylon Brush and Contact Cleaner N8910848

1.15. Inspect the fuse for any visible sign of overheating on the fuse housing or any other significant damage. See Figure 5.

1.16. If any sign of overheating or any significant damage is detected on the fuse, proceed with the Level 2 procedure.

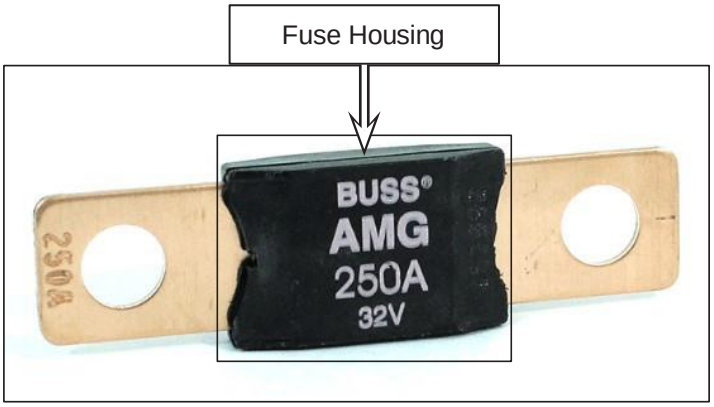


Figure 5 - Fuse N47759-250

1.17. Inspect the fuse holder and the cover for any visible sign of overheating or any other significant damage.

1.18. If any sign of overheating or any significant damage is detected on the fuse holder or the cover, proceed with the Level 2 procedure.

1.19. Inspect the lug of the cable for the lower terminal of the fuse holder. If there is damage or loss of the surface area of the lug, and the thickness of the lug is less than 0.075 in. (1.9 mm), proceed with level 2 procedure. See Figure 6.

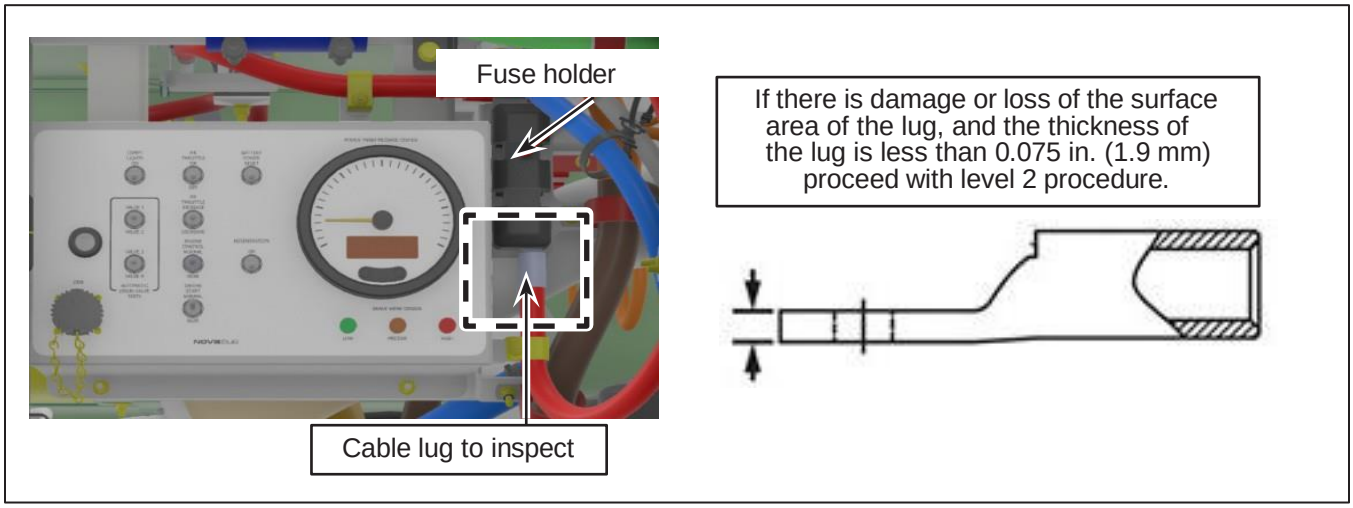


Figure 6 - Cable Lug to Inspect

1.20. Install the fuse holder N84769 on the structure using the new material listed in Figure 7. See Figure 7 for torque value. Fuse holder must be installed with the cord of the cover down.

Fuse Holder N84769 New Installation Part List			
QTY	**PART Nº**	**REV.**	**DESCRIPTION**
2	N0249000	–	Nylon Sleeve 1/4
2	N68458	A	Nylon Spacer 6 mm X 13 mm X6 mm
2	N20301	X	Bolt M6X30
2	N44890	B	Nut Locknyl M6
1	N109997	–	Gasket Shim

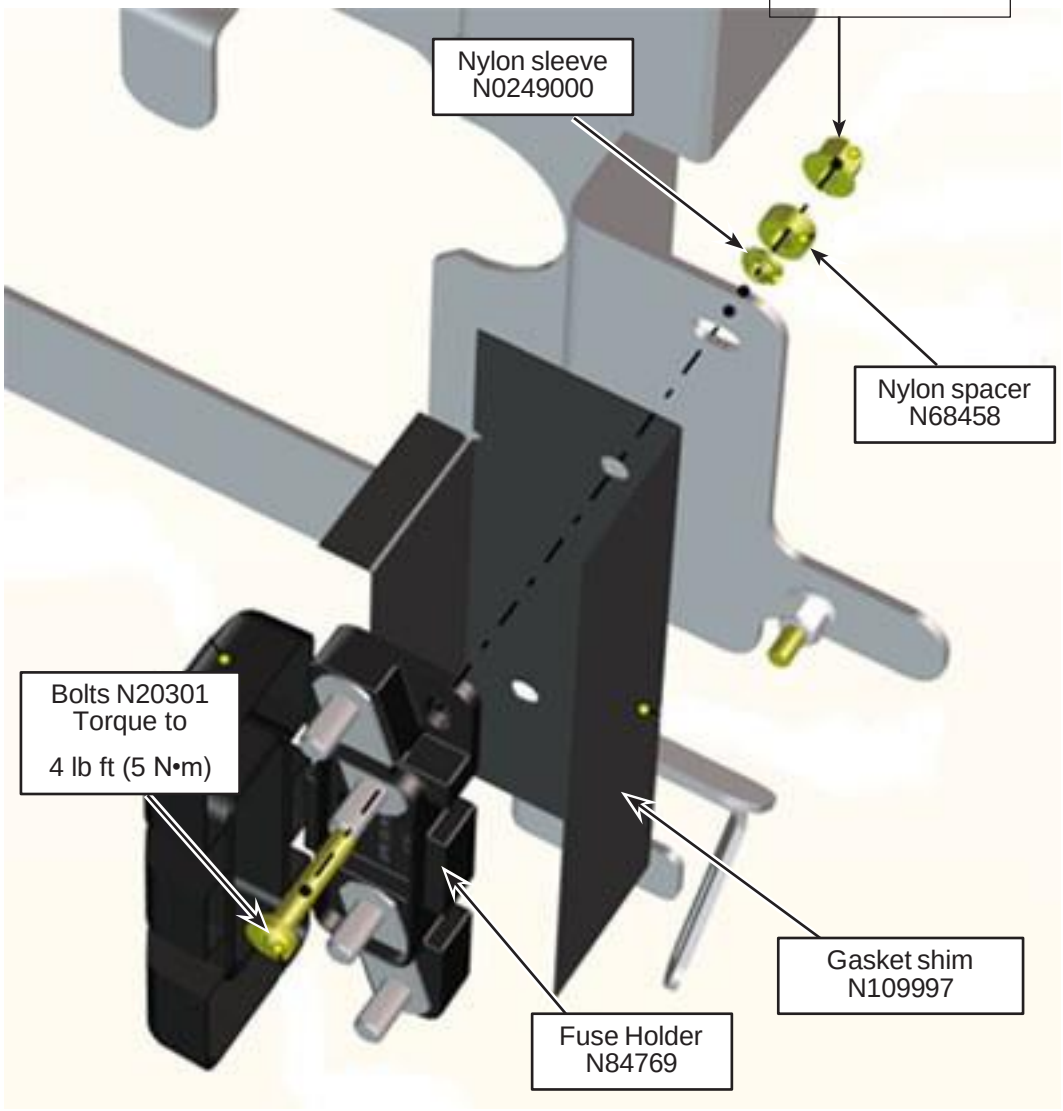


Figure 7 - Fuse Holder N84769 New Installation

1.21. Install the fuse N47759-250 in the fuse holder using the retained M8 nuts. See Figure 8 for torque value. Apply torque seal.

1.22. Install the retained clamp and new grommet N111682 on the cable and connect the cable to the fuse holder N84769. See Figure 8 for required parts and torque value. Apply torque seal.

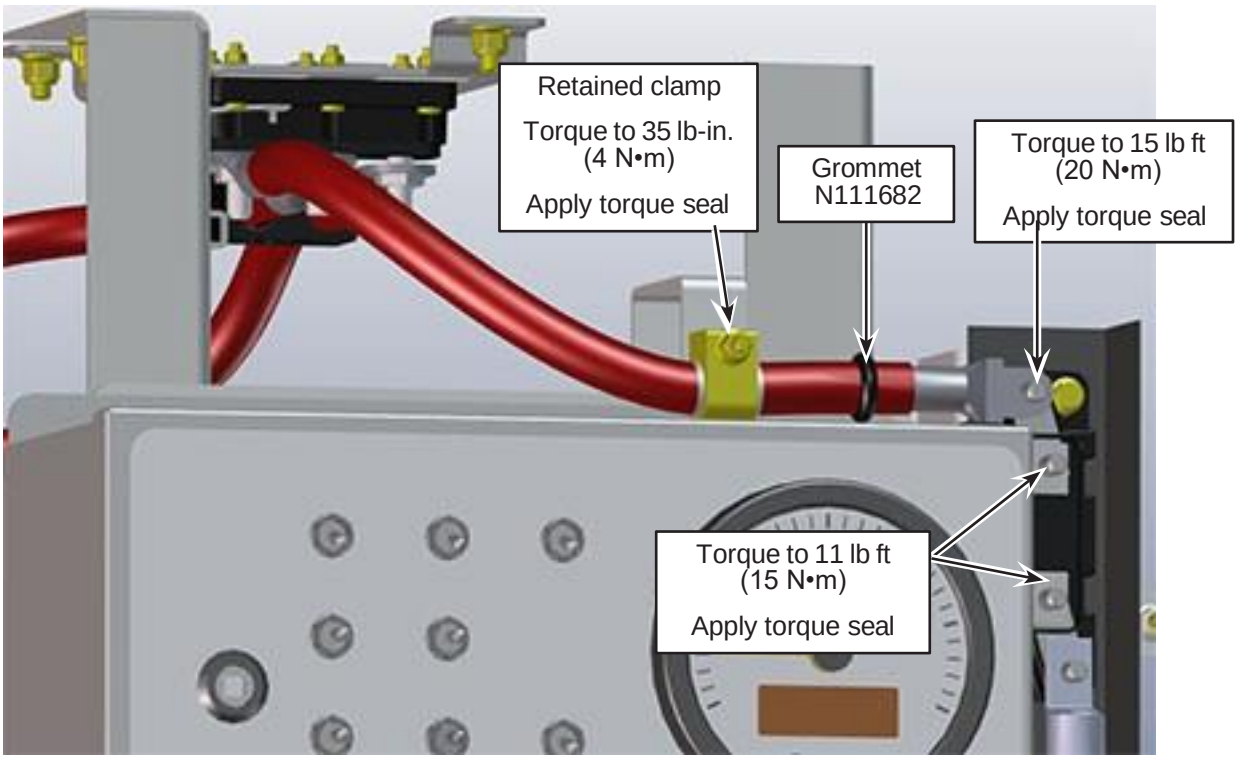


Figure 8 - Cable Installation

1.23. Connect the lower cable to the fuse holder N84769. See Figure 9 for torque value.

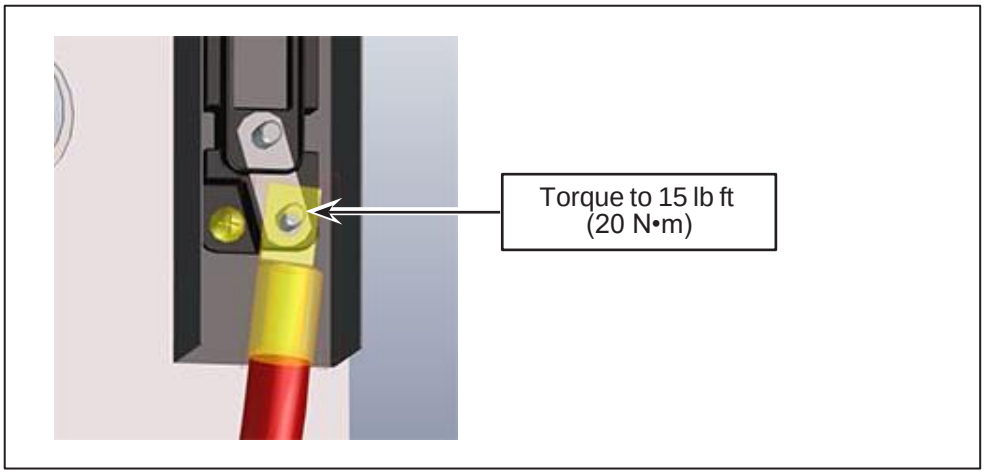


Figure 9 - Torque Value of the Lower Connection on the Fuse Holder

1.24. Using a brush, apply a liberal amount of N67314 NCP-2 anticorrosive compound on the exposed metallic surface of the connections to protect them from corrosion. The product must cover completely the metallic surface of the electrical connection, the electrical connection points of the fuse, the exposed metallic parts of cable lugs connect to the fuse holder and the fuse holder anchor bolts. Avoid covering the cables shrink tubing. See Figure 10.

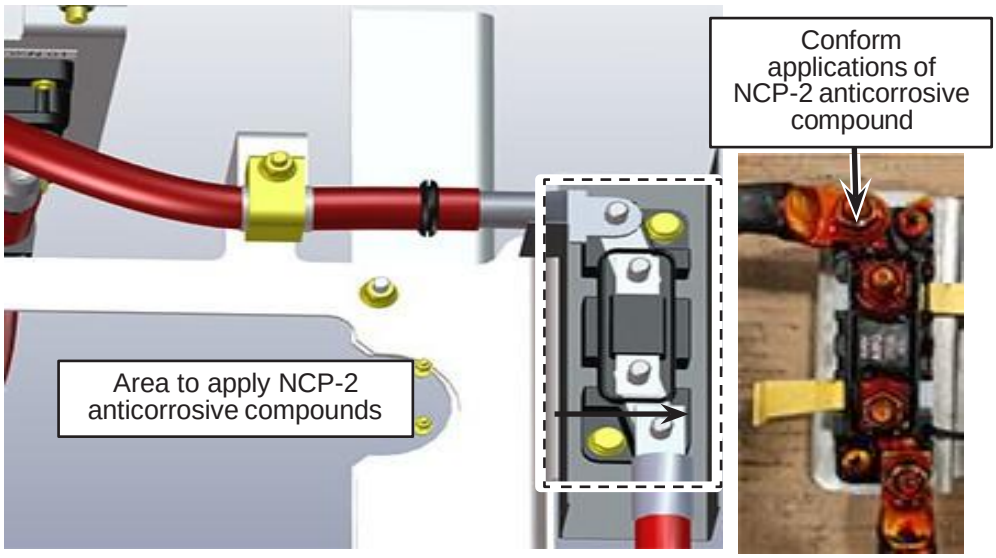


Figure 10 - Area to Apply NCP-2 Anticorrosive Compound N67314

1.25. Install the retained cover on the terminal junction block.

1.26. Break and remove the top street side portion of the fuse holder cover to avoid interference with the lug. See Figure 11.

1.27. Install the cover on the fuse holder. See Figure 11.

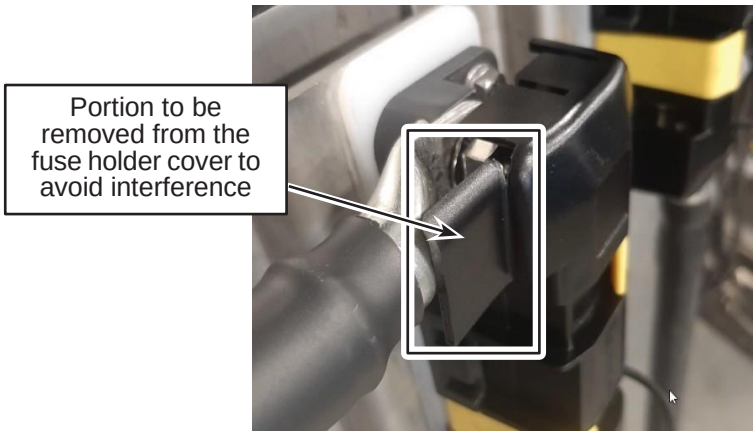


Figure 11 - Modification of the Fuse Holder Cover

1.28. Insert properly the new fuse holder cover N109946 and ensure the grommet N111682 is well inserted in the slot of the cover. See Figure 12.

1.29. Affix the new fuse holder cover N109946 using N44890 M6 nut. See Figure 12.

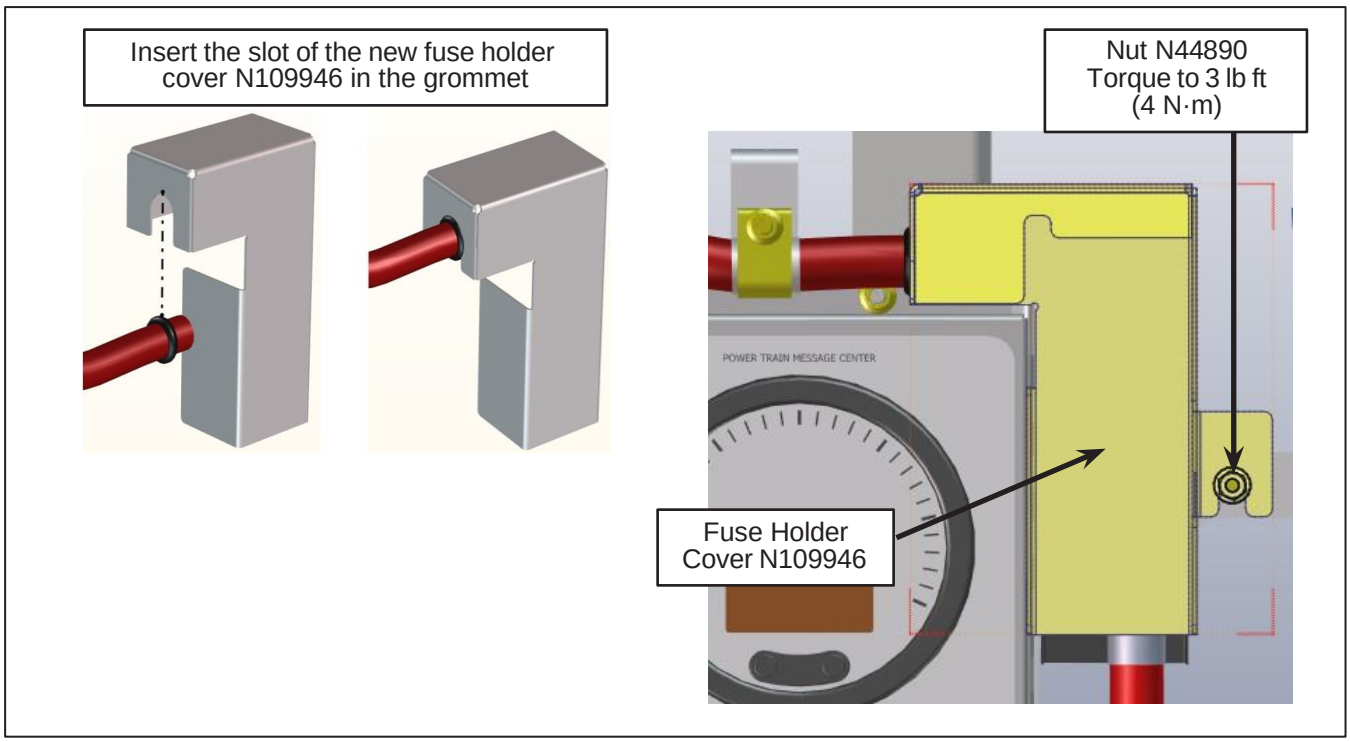


Figure 12 - Cover N109946 Installation

1.30. Install and connect the engine control box using the retained hardware.

1.31. Connect the cables to the batteries' positive terminals. Refer to your maintenance manual for the tightening torque applicable to the positive terminal of the batteries.

1.32. Connect the cables to the batteries' negative terminals. Refer to your maintenance manual for the tightening torque applicable to the negative terminal of the batteries.

1.33. Close all the open doors and return the vehicle in service.

LEVEL 2: INSPECTED PARTS REPLACEMENT

2.1. Replace the fuse N47759-250 by a new N47759-250 fuse.

2.2. Replace the fuse holder N84769 by a new N84769 fuse holder.

PROCEDURE TO REPLACE CABLE N106873-05 CONNECTS TO THE LOWER TERMINAL OF THE FUSE HOLDER

2.3. Remove the rear curbside lights panels. See Figure 13.

2.4. Open radiator compartment door grid. See Figure 13.

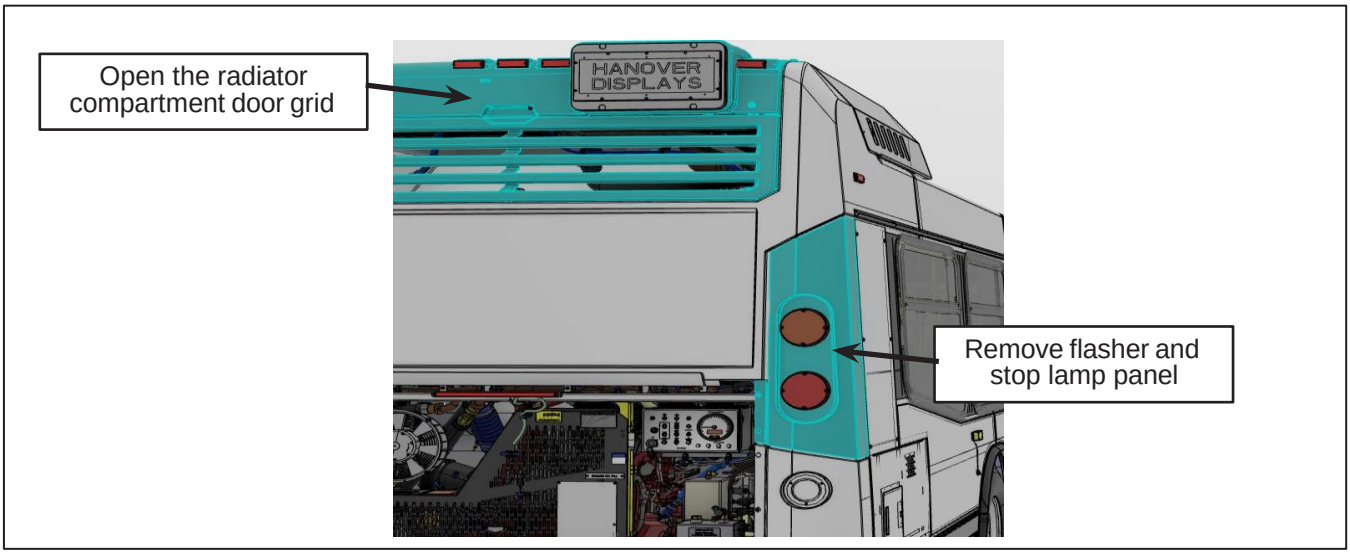


Figure 13 - Panel and Door to Open

2.5. In the radiator compartment, clean thoroughly with brake and part cleaner (P/N N8951729) or any equivalent product, the lug of the cable and the terminal of the junction block. See Figure 14

2.6. Disconnect the cable from the junction block. See Figure 14.

2.7. Take note where the split block and the dual clamps are installed and remove the cable from the vehicle. Retain the split block and hardware.

2.8. Install a new cable N106873-05 in the same position as the one removed using N37749 dual clamp ties, the retained split block and hardware.

2.9. Connect the cable to the junction block. See Figure 14 for torque value.

2.10. Apply N67314 NCP-2 anticorrosive compound on the terminal and the cable lug. Refer to step 1.24 for the required application procedure.

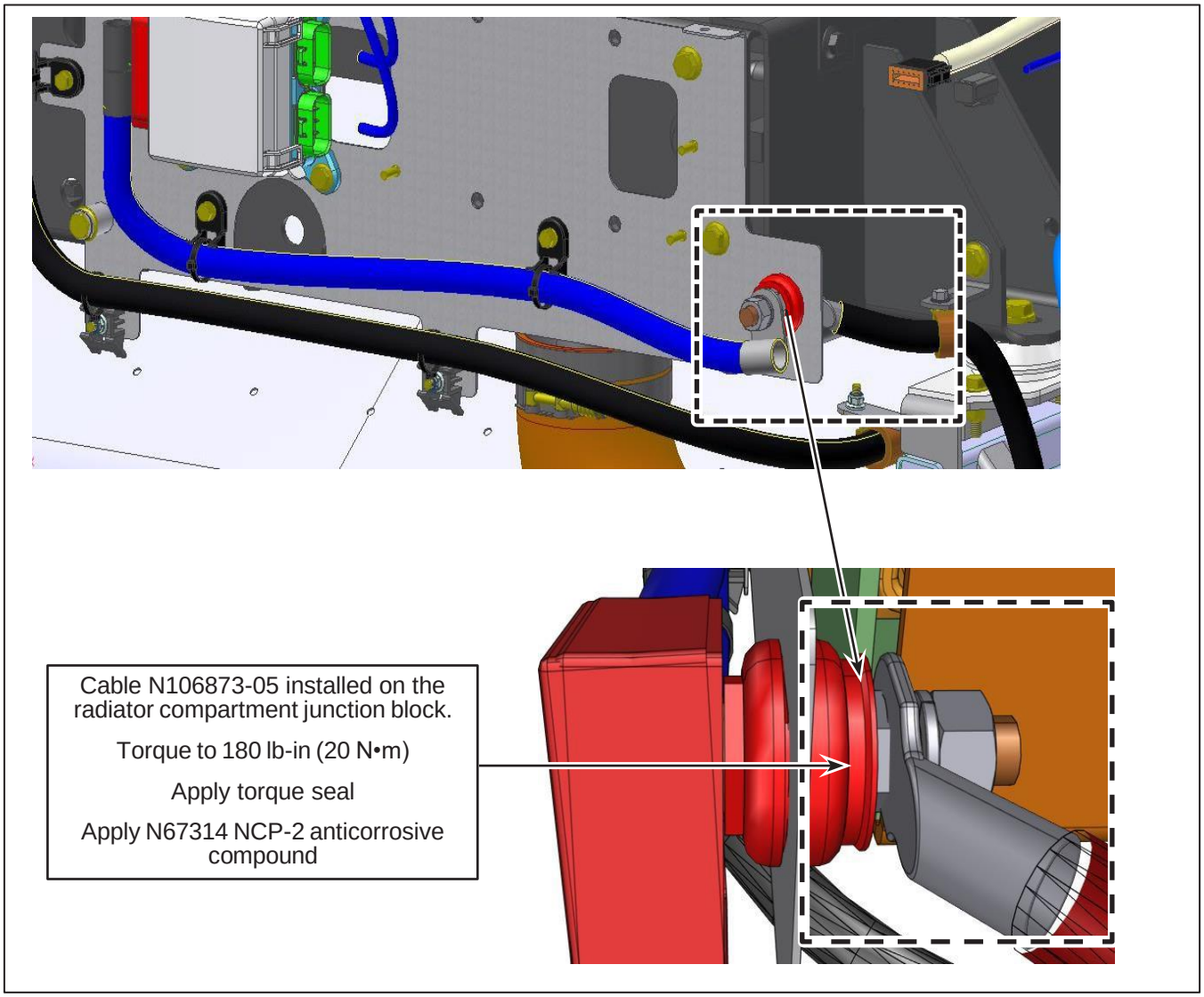


Figure 14 - Cable N106873-05 Connection to the Radiator Compartment Junction Block

2.11. Complete Level 1 procedure.

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