

REFERENCE:	Nova Bus Manuals
SECTION:	16: Electrical System
RS N°:	MQR 7621-1566
EFFECTIVE IN PROD.:	N/A

APPLICATION DEADLINE: N/A

SUBJECT:	Bracket available to improve routing of the Niehoff alternator regulator connections.
JUSTIFICATION:	Addition of strain relief bracket to secure regulator connections against vibration.

LEVEL	DESCRIPTION	DIRECT CHARGES		TIME
		LABOUR	MATERIAL	
1	Add strain relief bracket and improve routing.	Client	Client	1 hr
2	Replace ring terminals and Amphenol connector, if necessary.	Client	Client	0.5 hr

MATERIAL

QTY	PART N°	REV.	DESCRIPTION	REPLACES PART N°
LEVEL 1				
1	N94643	–	STRAIN RELIEF BRACKET	–
4	N93898	–	SCREW M5X16 HEXFL SERRATED YP	–
2	N40492	B	SCREW M6X20 H YZ TRIV 96H 8.8	–
1	N84090-04	–	P-CLAMP ID 0.625"THK	
2	N38593	A	NUT LOCKNYL M6	
500mm	N74787	A	TAPE ELEC CLOTH 19 X 0.27 THK	
4mL	N86688	A	THREADLOCKER 220	
4	N37749	B	DUAL CLAMP TIE	
1	N84090-05	–	P-CLAMP ID 0.750"THK 0.030"M8	
LEVEL 2				
1	N15140-03	–	RING, TERMINAL STUD #10	–
1	N15140-04	–	RING TERMINAL STUD 1/4"	
3	N76294	–	TERMINAL SIZE 20 AMPHENOL PT	
1	N76268	–	CONNECTOR AMPHENOL 10 PIN	

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	2019MR26	Initial release	Devanand B

APPROVED BY:

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CLIENT	ORDER	ROAD NUMBER		VIN (2NVY/4RKY...)		QTY
		FROM	TO	FROM	TO	
Chicago Transit Authority - CTA - Illinois	L773	—	—	L82JXD4500429	L82J6D4500430	2
Chicago Transit Authority - CTA - Illinois	L811	7902	7949	L82J6E4500509	L82J4E4500556	48
Chicago Transit Authority - CTA - Illinois	L837	7950	7999	L82J6E4500655	L82J1E4500708	50
Chicago Transit Authority - CTA - Illinois	L847	8000	8049	L82J1E4500773	L82JXE4500822	50
Chicago Transit Authority - CTA - Illinois	L848	8050	8099	L82JXF4500823	L82J1F4500872	50
Chicago Transit Authority - CTA - Illinois	L849	8100	8149	L82J5F4500874	L82J3F4500923	50
Chicago Transit Authority - CTA - Illinois	L850	8150	8199	L82J5F4500924	L82J6G9775013	50

**WARNING**

Follow your internal safety procedures.

PROCEDURE

- 1.1. Park the vehicle on an even surface with transmission in neutral (N).
- 1.2. Set the Master control switch in the STOP position (see Figure 1).

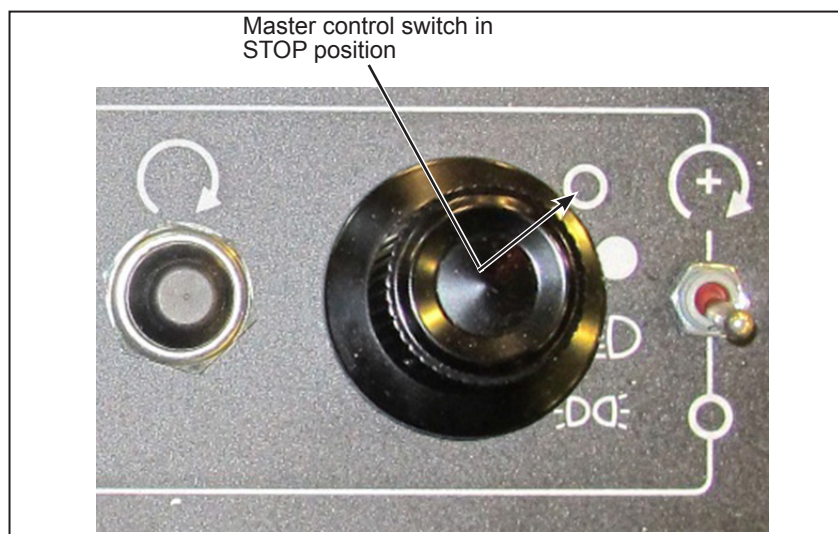


Figure 1 - Master Control Switch in STOP Position

- 1.3. Lift the rear seat and open the engine access panel. Use 13mm socket. Keep hardware (see Figure 2).

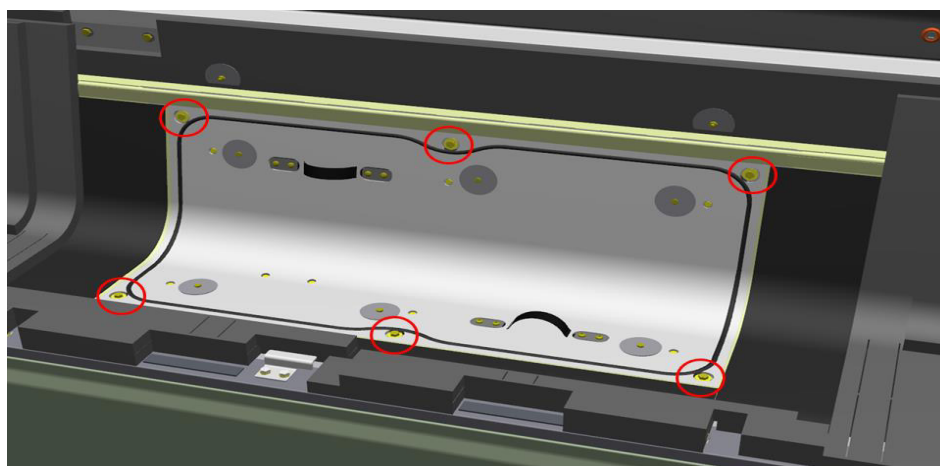


Figure 2 - Engine Access Panel

- 1.4. Remove existing D+ and IGN connections on voltage regulator. Inspect and replace terminals if damaged (see Figure 3).
 - 1.4.1. D+ (front). Use 10mm socket. Terminal: N15140-04. Wire: 95-347
 - 1.4.1.1. For certain configurations (L858, L891 and L935), regulator stud "P" (Alt In Load) is used instead of D+. Terminal N15140-04. Wire: 95-273
 - 1.4.2. IGN (rear). Use 8mm socket. Terminal: N15140-03. Wire: 95-272



Figure 3 - View of Regulator D+ / IGN Terminals

- 1.5. Install new strain relief bracket on regulator (see Figure 4).
 - 1.5.1. Remove the four bolts holding the regulator.
 - 1.5.2. Install the new bracket (N94643) under the regulator with four new bolts (N93898) - Use 8mm deep socket. Apply two drops of Loctite 220 to bolt threads. Torque to 8.5Nm.



Figure 4 - Installation of Strain Relief Bracket on Regulator

- 1.6. Route D+ and IGN wires in p-clamp as shown in Figure 5. If extra length is needed, follow the harness until over-length bundle is found, cut tie wrap, pull extra length and re-attach to power cable.

If configuration has the P wire, secure it to the IGN wire using a double tie-wrap as close as possible to the P-clamp. (see Figure 6).

- 1.7. Install p-clamp mount (N84090-04), M6 bolt (N40492), M6 Locknyl (N38593).
- 1.7.1. Torque p-clamp M6 bolt to 11Nm
- 1.7.2. +MT-MS95D2: D+ (or P) on front connection in image above. Torque to 4.5Nm
- 1.7.3. +MT-MS95D2: IGN on rear connection in image above. Torque to 4.5Nm



Figure 5 - Installation of P-clamp



Figure 6 - Installation of Double Tie Wrap

- 1.8. Inspect circular connector MT-X95D2 for loose pins and loose connector back-shell.
- 1.9. Replace pins N76294 or connector/back-shell N76268 if necessary. To ensure a proper crimping of the solid terminal (N76294) for inspection criteria. (see Figure 7).

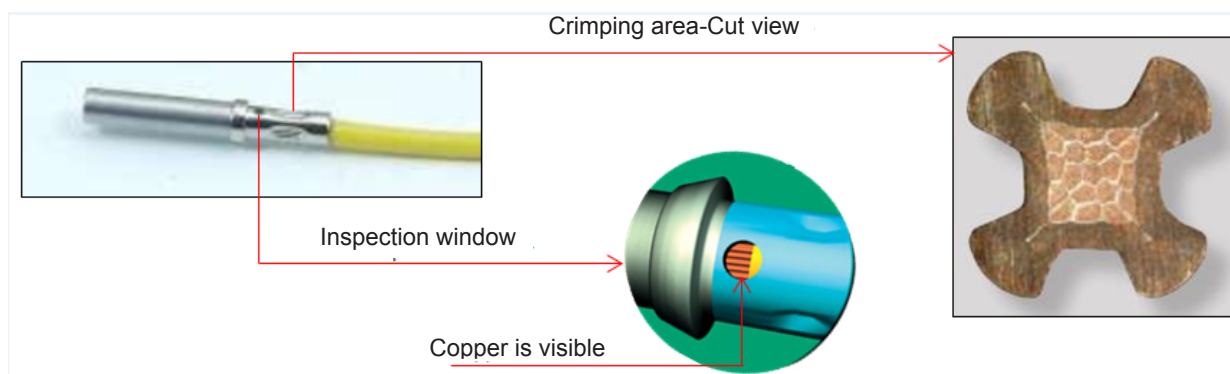


Figure 7 - View of Crimping of the Solid Terminal

- 1.10. On circular connector MT-X95D2, remove the strain relief parts and slide back the grommet. Use cloth tape (N74787) and wrap several layers around the wires where the strain relief grommet is positioned, the goal is for the added tape to fit snugly inside the strain relief grommet to hold the wires tightly. (see Figure 8).

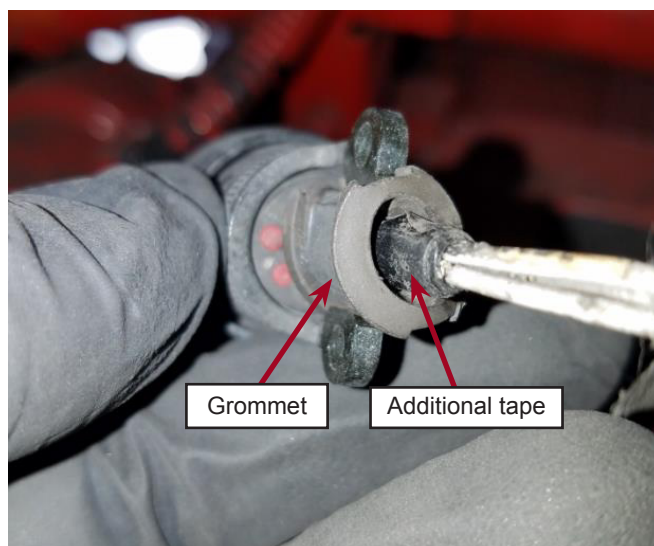


Figure 8 - Replacement of Pin and Connector

- 1.11. Re-install strain relief hardware and test for movement. Install more tape if movement is present. (see Figure 9).

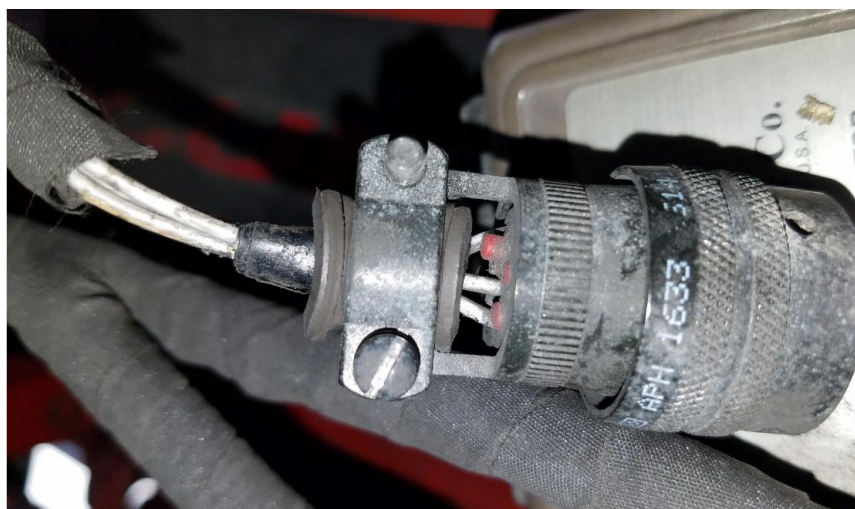


Figure 9 - Re-installation of Strain Relief Hardware

- 1.12. Re-install the circular connector, ensure that it clicks (bayonet locking feature) into place.
- 1.13. When routing the circular connector wires, make sure no sharp bends are present where the wire exits the strain relief. (see Figure 10).

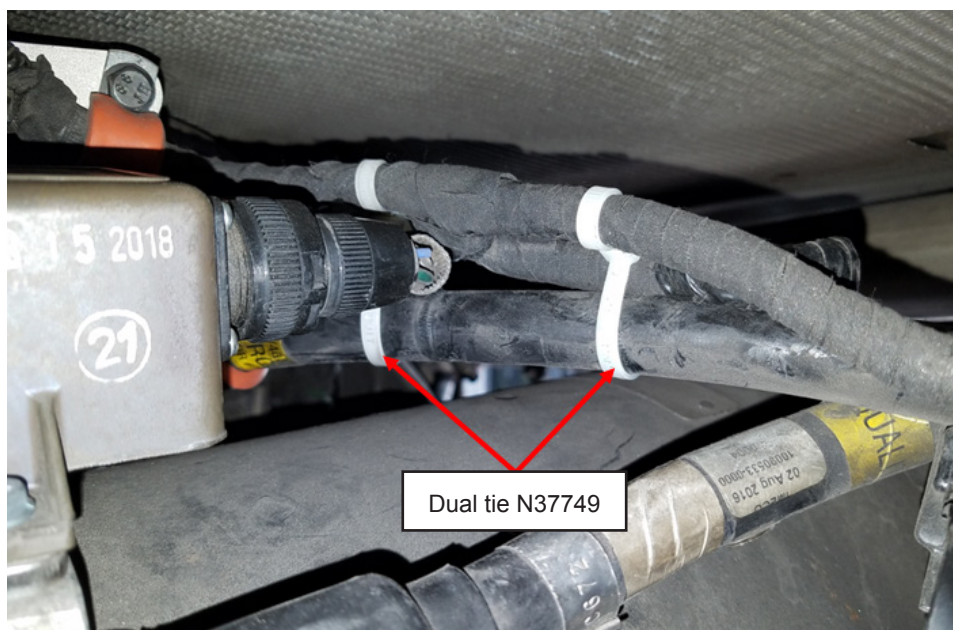


Figure 10 - Installation of Butterfly Tie-Wraps to the Power Cable

- 1.14. Inspect the two circular connectors on the regulator to ensure they are properly locked (top connector). For bottom connector (Niehoff harness), hand-tight + ¼ turn using strap wrench or similar. (see Figure 11).



Figure 11 - Tightening the Connectors on Regulator

- 1.15. Install P-clamp (N84090-05), M6 bolt (N40492), M6 Locknyl (N38593) to secure 0000 AWG positive power cable going to the alternator B+ terminal. (see Figure 12).



Figure 12 - Installation of P-clamp to the Alternator

- 1.16. Turn ON cut off and master switch. Check for error messages on ACTIA dashboard.
1.17. Reinstall and close engine trap panel.
1.18. Bus can be returned to service.❖