

REFERENCE:	Nova Bus Manuals
SECTION:	09: Engine and cooling
RS N°:	MQR 7621-651
EFFECTIVE IN PROD.:	L859 (2014DE)

APPLICATION DEADLINE: 2016DE19
CLAIM REFERENCE NUMBER: WB-3497

SUBJECT:	Engine starter shim
JUSTIFICATION:	Manufacturing tolerances do not always allow optimal starter engagement. Starter shim removal is required.

LEVEL	DESCRIPTION	DIRECT CHARGES		TIME
		LABOUR	MATERIAL	
1	Remove the shim between the engine starter and the flywheel casing.	Nova Bus	Nova Bus	2.5 hr
2	–	–	–	–

MATERIAL

QTY	PART N°	REV.	DESCRIPTION	REPLACES PART N°
LEVEL 1				
–		–		–
LEVEL 2				
–	–	–	–	–

DISPOSAL OF PARTS

REMOVED PARTS ARE:	DISCARDED	RETAINED	
	–	–	

REVISION HISTORY

REV.	DATE	CHANGE DESCRIPTION	WRITTEN BY
NR	2015DE15	Initial release	Kumaraswamy K S
R1	2015DE18	VIN revision for L696	Kumaraswamy K S

APPROVED BY: Daniel Theriault

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Date: 2015.12.18 12:59:52 -05'00'

CLIENT	ORDER	ROAD NUMBER		VIN (2NVY/4RKY...)		QTY
		FROM	TO	FROM	TO	
Belleville Transit - Ontario (ref. L754)	L809	—	—	L82U2D4	L82U2D4	1
Brampton - Ontario	L789	—	—	L82J4E3	L82J1E3	8
Brampton - Ontario	L816	—	—	L82J3E3	L82J9E3	7
Clemson Area Transit - South Carolina (ref. L641)	L722	—	—	L82U1C4	L82U5C4	5
Duke University - North Carolina (ref. L703)	L641	—	—	L82U9C4	L82U1C4	8
Grande Prairie Alberta	L834	—	—	L82J7E3	L82J2E3	4
Hampton Roads - Virginia (L754)	L802	—	—	L82U1D4	L82UXD4	7
Honolulu - Hawaii	L559	201	224	L82U6A4	L82U7A4	24
Krapf's Coaches - Pennsylvania (ref. L833)	L754	—	—	L82U4D4	L82U4D4	1
Moncton (Codiac) - New Brunswick	L569	—	—	L82U4B4	L82U4B4	1
Moncton (Codiac) - New Brunswick	L570	—	—	L82U6B4	L82U6B4	1
Niagara Falls - Ontario	L499	2986	2989	L82U093	L82U693	4
Niagara Parks Commission - Ontario	L656	—	—	L82U0C3	L82U2C3	2
Peterborough - Ontario	L770	55	60	L82U0D3	L82UXD3	6
Puerto Rico (ref. L754)	L788	—	—	L82UXD4	L82U0D4	16
Regina - Saskatchewan	L639	645	654	L82U1B3	L82U2B3	10
Sault Ste-Marie Transit Services - Ontario (ref. L886)	L641	135	139	L82U7C4	L82U6C4	5
Sault Ste-Marie Transit Services - Ontario (ref. L751)	L754	—	—	L82U7D4	L82U7D4	1
St. John's - Newfoundland	L503	1066	1066	L82U4A3	L82U4A3	1
St. John's - Newfoundland	L687	1201	1209	L82U7C3	L82U2C3	9
St. John's - Newfoundland	L731	1310	1314	L82U3C3	L82U2C3	5
St. John's - Newfoundland	L808	1415	1419	L82J4E3	L82J1E3	5
Stratford - Ontario	L493	—	—	L82U2A3	L82U2A3	1
Stratford - Ontario	L634	—	—	L82UXB3	L82UXB3	1
Stratford - Ontario	L752	—	—	L82U9D3	L82U9D3	1
Strathcona County Transit - Alberta	L523	2010	2010	L82U693	L82U693	1
Strathcona County Transit - Alberta	L580	2011	2023	L82U1A3	L82U8A3	13
Strathcona County Transit - Alberta	L659	2024	2028	L82U7B3	L82U4B3	5
Thunder Bay - Ontario	L614	—	—	L82UXB3	L82U3B3	3
Thunder Bay - Ontario	L662	20168	20168	L82U3B3	L82U7B3	3
Thunder Bay - Ontario	L739	—	—	L82U3D3	L82U7D3	3
Thunder Bay - Ontario	L806	—	—	L82J6E3	L82J8E3	2
Walt Disney World - Florida	L535	1204	1213	L82UXA4	L82U0A4	10

**WARNING**

Follow your internal safety procedures.

PROCEDURE

- 1.1. Locate and open the battery compartment door (see Figure 1).

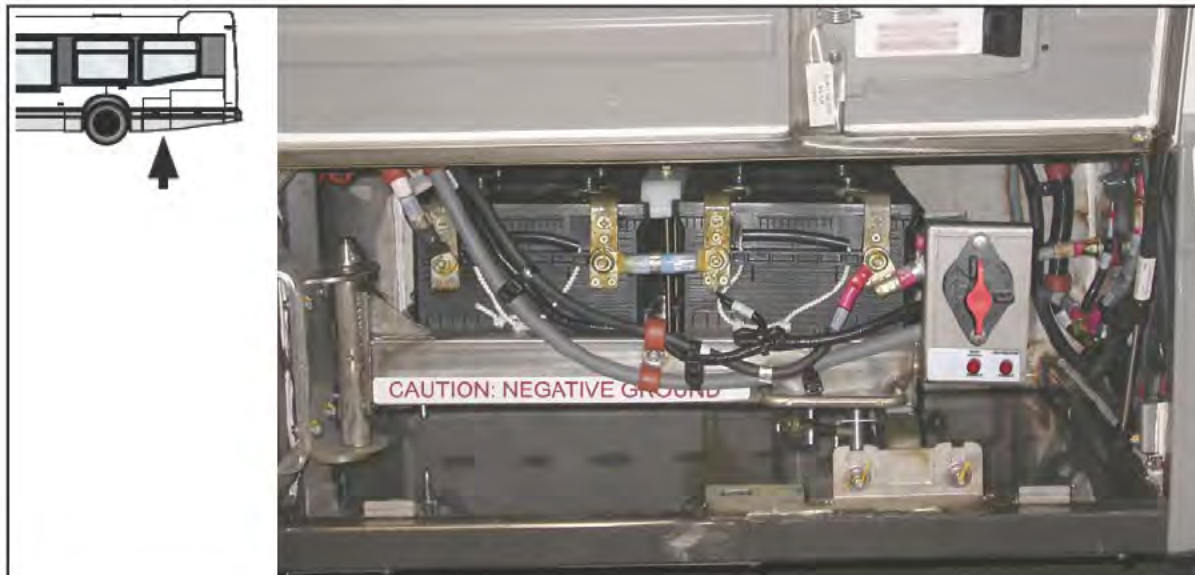


Figure 1 - Typical Battery Compartment Location

- 1.2. Set the battery disconnect switch in the battery compartment to the OFF position (see Figure 2).

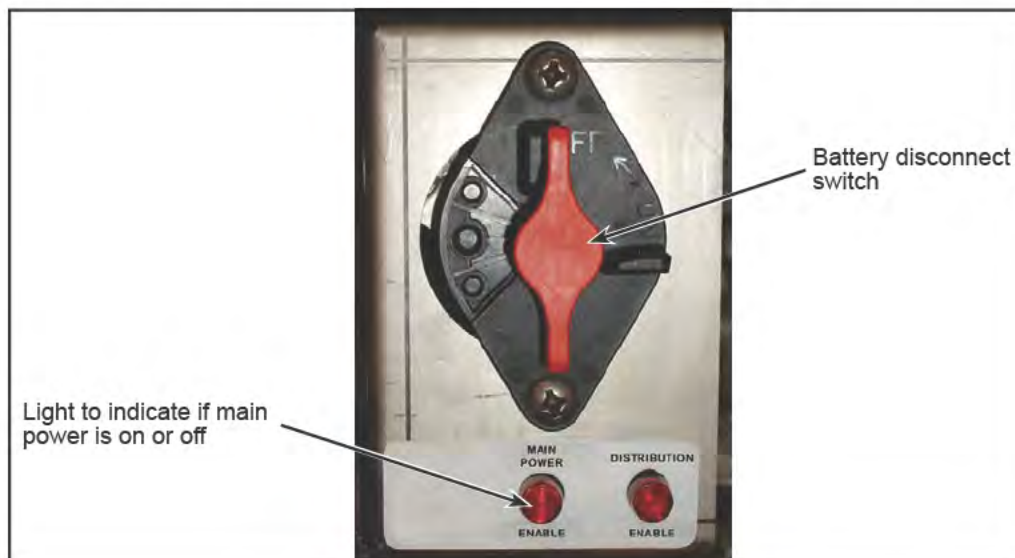


Figure 2 - Typical Battery Disconnect Switch Location

- 1.3. Disconnect the battery ground cable. Insulate the terminals to avoid accidental grounding.

**WARNING**

Before removing any starting system component, always disconnect the battery ground. Disregarding this instruction could cause serious injuries.

**CAUTION**

Always wear proper eye protection when replacing the starter.

- 1.4. Locate and open the side engine access door to access the engine starter (see Figure 3).

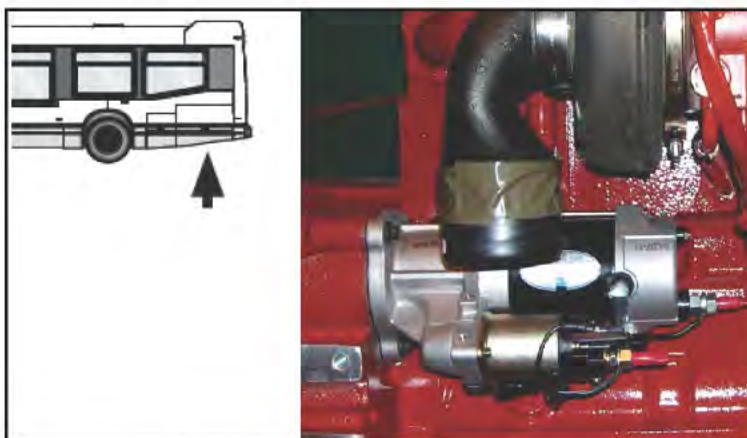


Figure 3 - Location of Engine Starter

- 1.5. Clean the area around the starter to prevent debris from entering the flywheel housing. Dry with compressed air.
- 1.6. Disconnect the cables from the solenoid, magnetic switch and engine starter. Identify cables for proper reconnection (see Figure 4).

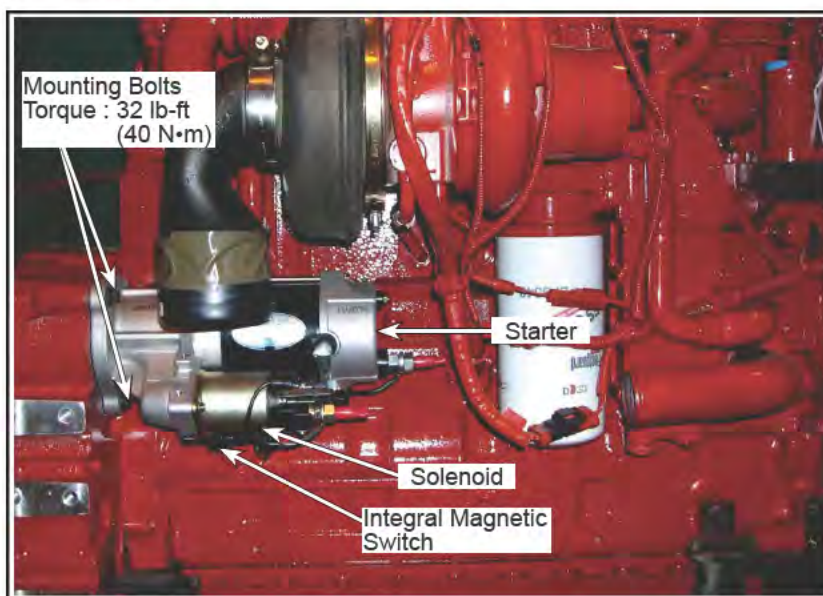


Figure 4 - Location of Solenoid, Magnetic Switch and Starter Cables

**NOTE**

Please refer to section 09: **ENGINE AND COOLING** of the Nova Bus maintenance manual for removal and installation of the engine starter.

- 1.7. Attach an appropriate strap around the engine starter. Remove and retain the hardware.
- 1.8. Remove the engine starter from its original position and secure it for reinstallation.
- 1.9. Remove and discard the shim (see Figure 5).



Figure 5 - Removal of Shim

- 1.10. Clean all the terminals to ensure good electrical connection.
- 1.11. Install the removed engine starter back in its original position.
- 1.12. Install the retained hardware to secure the engine starter. Tighten the bolts to torque specifications (see Figure 4).
- 1.13. Connect the cables back to the solenoid, magnetic switch and engine starter (see Figure 4).
- 1.14. Close the side engine access door.
- 1.15. Connect the battery ground cable back in its original position.
- 1.16. Set the battery disconnect switch in the battery compartment to the ON position.
- 1.17. Close the battery compartment door.

**WARNING**

Before starting the engine, make sure the transmission is in neutral and the parking brake is firmly applied.

The starter, which is controlled by the multiplex system, should not be energized for more than 15 seconds at a time. If the engine does not start within this time interval, wait for 60 seconds before retrying.

- 1.18. Check the operation of the engine starter.
- 1.19. The vehicle may be returned to service. ❖