SERVICE BULLETIN

Classification:	Reference:	Date:
EL15-042	NTB16-009	January 19, 2016

LEAF; EVSE (120VAC CHARGER)

APPLIED VEHICLE: 2011 - 2016 LEAF (ZE0)

SERVICE INFORMATION

If a customer states “vehicle charger is not working” or “the EVSE is broken”, verify EVSE (Electric Vehicle Service Equipment) condition and operation before replacing it.

- The EVSE is also known as a trickle charge cable, L1 charger, and 120VAC charger (see Figure 1).

Refer to the following pages in this bulletin for supplemental diagnosis and service information.

Figure 1

EVSE Kit

Figure 2

1. EVSE
2. Control box
3. Warning label
4. 110-120VAC Plug
5. Charge connector
6. Safety cap
7. Storage case
8. Quick reference safety instructions

EVSE

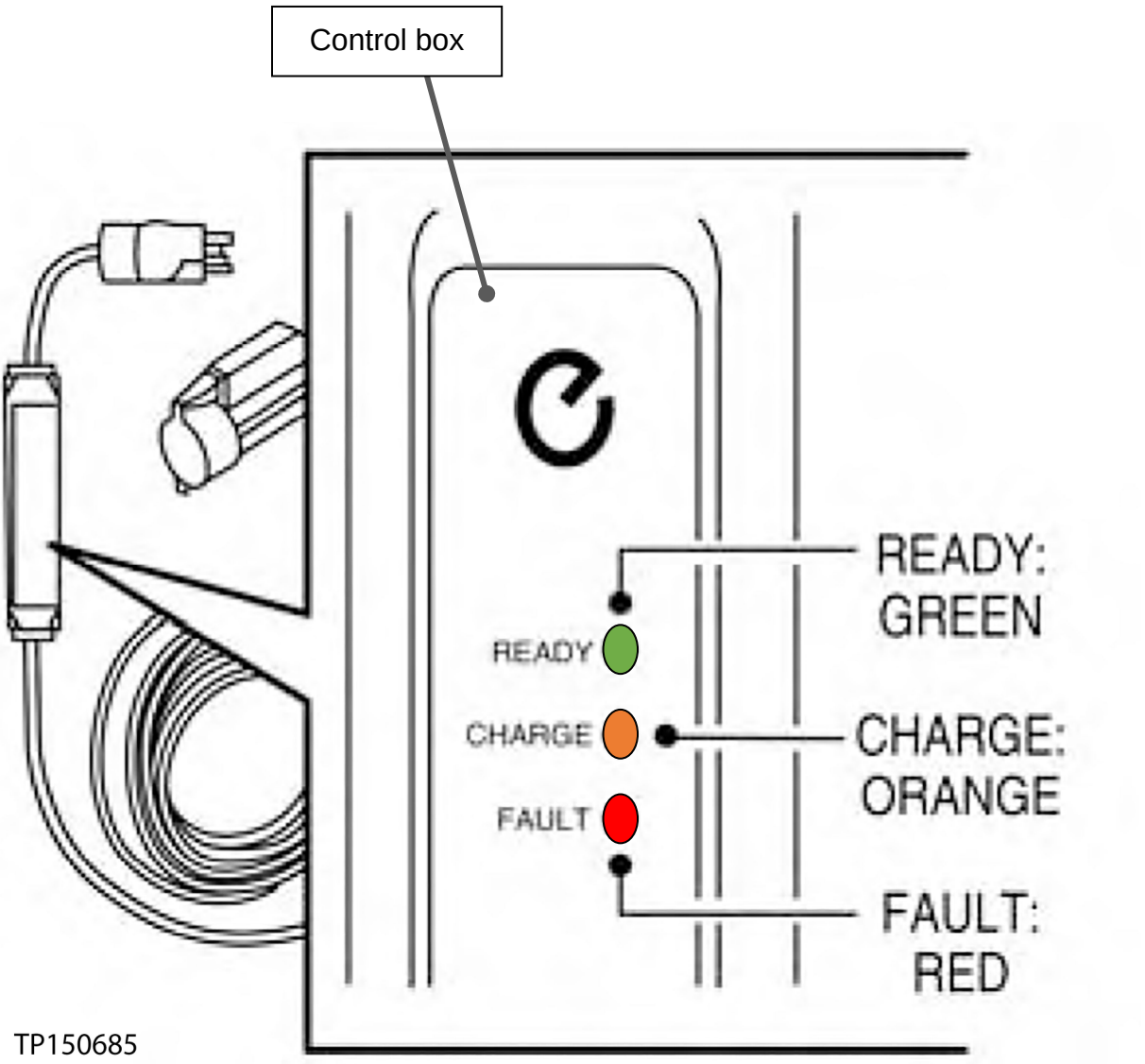


Figure 3

EVSE DIAGNOSIS

INDICATOR LIGHTS			READING	PROPER ACTION BEFORE REPLACEMENT
READY (Green)	CHARGE (Orange)	FAULT (Red)		
Illuminates for 0.5 seconds			All EVSE indicator lights turn ON for half second (bulb check confirmation) after being plugged in electrical outlet	No further action necessary EVSE has no malfunction
ON	**OFF**	**OFF**	EVSE is connected to electrical outlet If charge connector is plugged into vehicle charge port, charging is complete or charging timer is activated	See **SUPPLEMENTAL EVSE DIAGNOSIS-Charging does not start**
ON	**ON**	**OFF**	Traction battery is charging	No further action necessary EVSE has no malfunction
ON	**OFF**	**ON**	**EVSE malfunction** **Stop using EVSE immediately**	Confirm no abuse or modifications to EVSE If OK, replace EVSE, confirm proper charging with replacement EVSE
ON	**OFF**	**Flashing**	EVSE communication error or electric leakage occurs	See **SUPPLEMENTAL EVSE DIAGNOSIS-EVSE detecting an error**
OFF	**OFF**	**OFF**	EVSE cannot detect any power coming from electrical outlet If electrical outlet supply is good and all indicator lights have not switched on for half second, EVSE may be damaged	See **SUPPLEMENTAL EVSE DIAGNOSIS-EVSE does not wake up** and **SUPPLEMENTAL ELECTRICAL OUTLET DIAGNOSIS-Socket outlet not available**
Flashing	**OFF**	**OFF**	EVSE cannot detect sufficient ground at electrical outlet to support charging	See **SUPPLEMENTAL ELECTRICAL OUTLET DIAGNOSIS-Sufficient grounding not available**
Flashing	**ON, OFF, or Flashing**	**Flashing**	EVSE detects overheating in electrical outlet, regulates charging power to minimize possible damage CHARGE indicator light status: - **OFF** : Not charging - **Flashing** : Reduced charging power - **ON** : Charge in progress and monitored	See **SUPPLEMENTAL ELECTRICAL OUTLET DIAGNOSIS-Overheating detected**

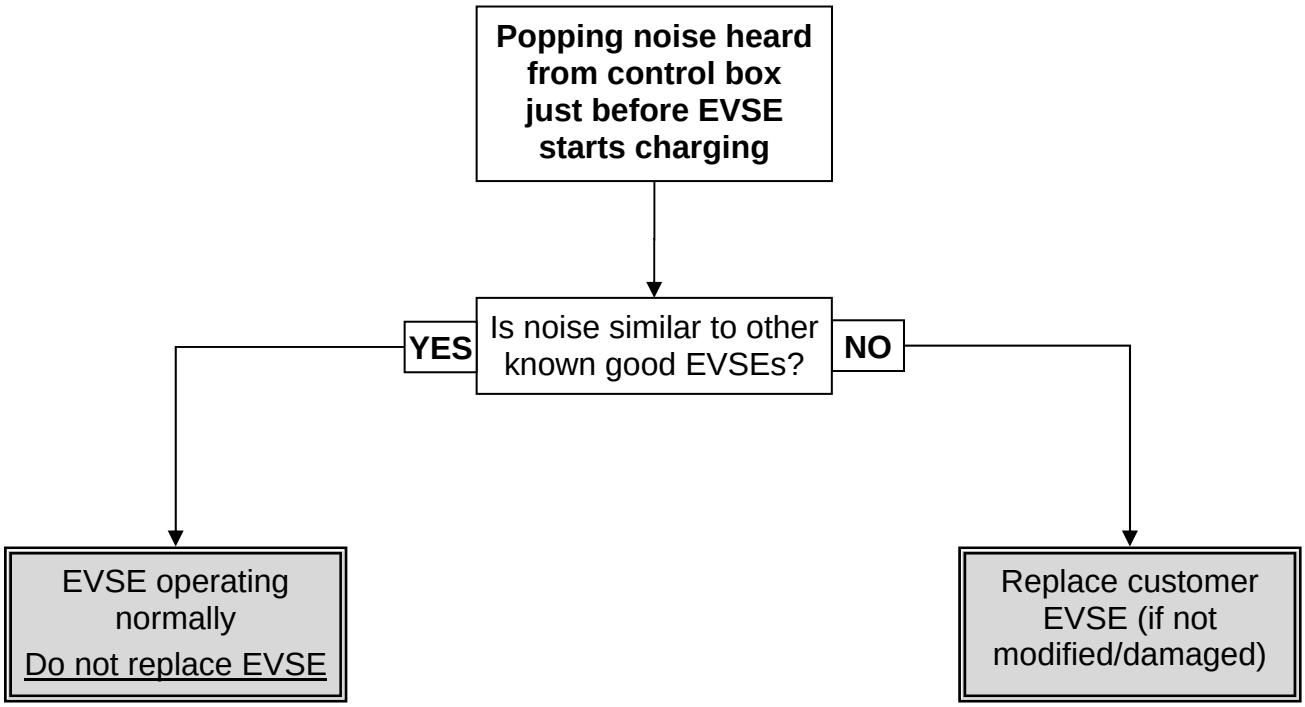
SUPPLEMENTAL EVSE DIAGNOSIS

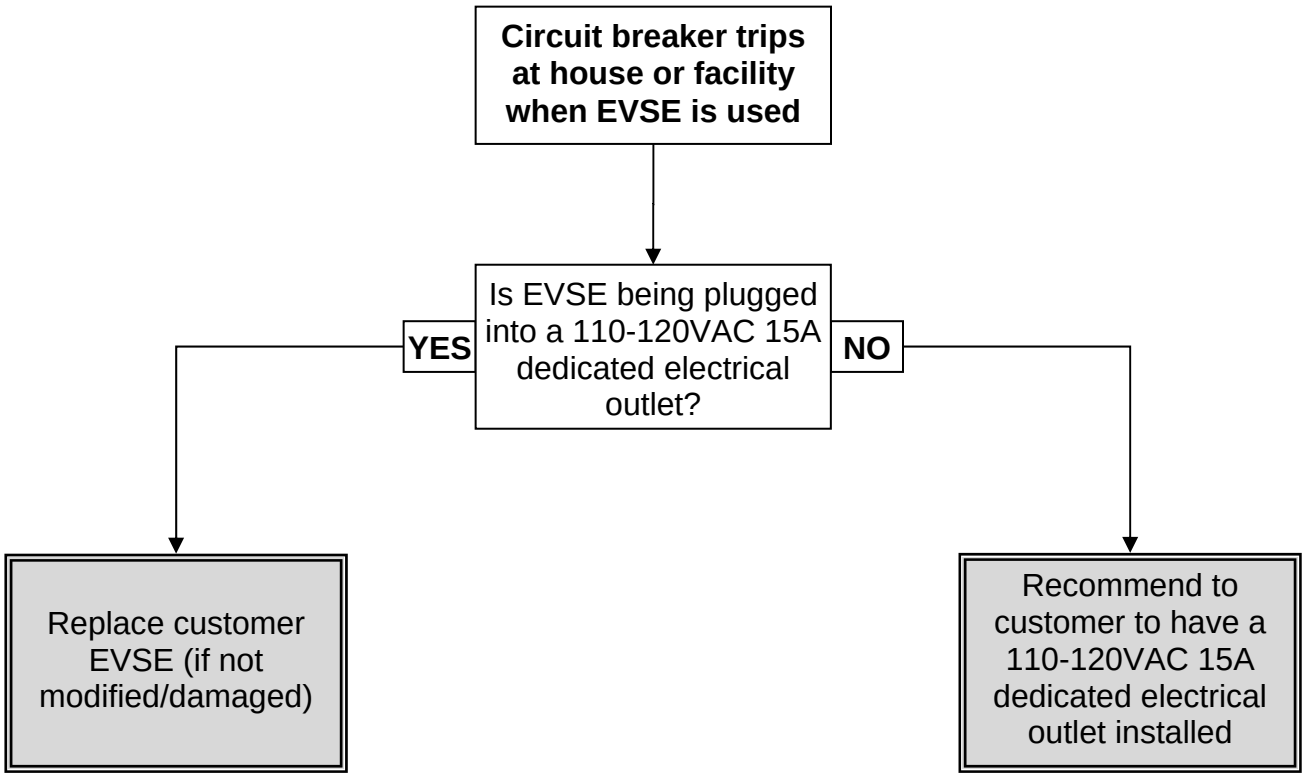
	POSSIBLE CAUSE	CONFIRMATION OF CAUSE	RESOLUTION
Charging does not start	Charging timer activated	Verify charging timer is activated per vehicle owner's manual	Deactivate charging timer or press the "charge now" switch
	EVSE does not detect customer vehicle	Attempt charging customer vehicle with customer EVSE and then Attempt charging customer vehicle with more than one known good EVSE	If charging does not start with known good EVSEs, perform ESM vehicle diagnosis If charging starts properly with known good EVSEs, replace customer EVSE (if not modified/damaged)
EVSE detecting an error	Communication not built	Check indicator light status: 1. Connect EVSE to electrical outlet 2. Connect EVSE charge connector to vehicle charge port 3. Release charge connector from charge port	If FAULT (red) indicator light flashes during procedure 1-3, replace EVSE (if not modified/damaged) If FAULT (red) light flashes only during procedure 2, perform ESM vehicle diagnosis
	Electrical leakage occurred		If FAULT (red) light starts flashing on procedure 2 and continues after procedure 3, perform ESM vehicle diagnosis
EVSE does not wake up (indicator lamps do not illuminate for half second)	No power at electrical outlet	See **SUPPLEMENTAL ELECTRICAL OUTLET DIAGNOSIS-No power at electrical outlet**	If electrical outlet has proper power, replace EVSE (if not modified/damaged)

SUPPLEMENTAL ELECTRICAL OUTLET DIAGNOSIS

	POSSIBLE CAUSE	CONFIRMATION OF CAUSE	RESOLUTION
No power at electrical outlet	Electrical outlet circuit breaker OFF	Confirm proper electrical outlet power with other electric devices	If the electrical outlet power is proper and EVSE does not wake up, replace customer EVSE (if not modified/damaged)
	Electrical switch OFF (differential)		
Sufficient grounding not available	Customer electrical outlet not grounded	Connect customer EVSE to other approved electrical outlets (110-120VAC 15A, dedicated)	If EVSE does not detect ground at verified electrical outlet, replace customer EVSE (if not modified/damaged)
Overheating detected	Connection of domestic plug to deformed or aged electrical outlet	Connect customer EVSE to known good approved electrical outlet at ambient temperature for 10 seconds	If EVSE does not detect overheating, recommend customer electrical outlet replacement. If customer electrical outlet known as OK, replace customer EVSE (if not modified/damaged)

ADDITIONAL DIAGNOSIS





ADDITIONAL DIAGNOSIS/INFORMATION

EVSE Plug Terminal Resistance Inspection

Verify the EVSE condition by checking its internal resistance values at the 110-120VAC plug (see Figure 4).

- Resistance between terminals 1 and 2: 0.485 mega ohms - **OK**
- Resistance between terminals 1 and 3, and then between 2 and 3: open/infinity - **OK**

  NOTE: Polarity is not an issue. The leads of a volt/ohm tester may contact the terminals in any order during testing.

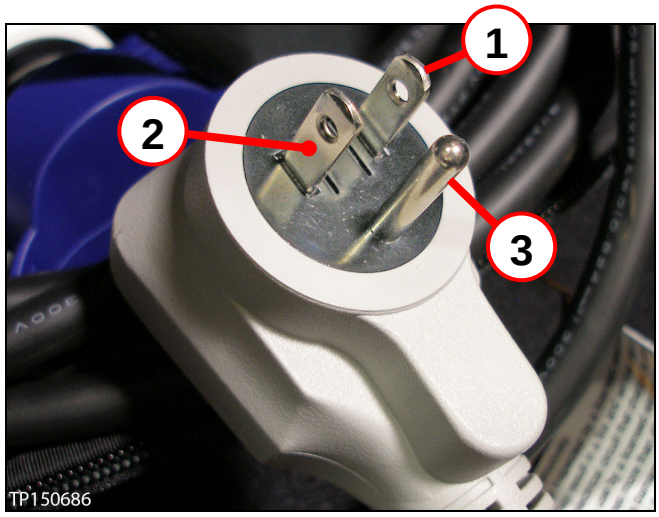


Figure 4

CAUTION:

- Do not use an extension cord or adaptor with the EVSE. Overheating may occur.
- Do not use the EVSE outside during inclement weather (for example, rain, snow, lightning, thunder, etc.).

NOTE:

- Always have the safety cap installed on the charging connector when not in use.
- Before using the EVSE, read the operating instructions in the owner's manual including all warnings, cautions, and important information.

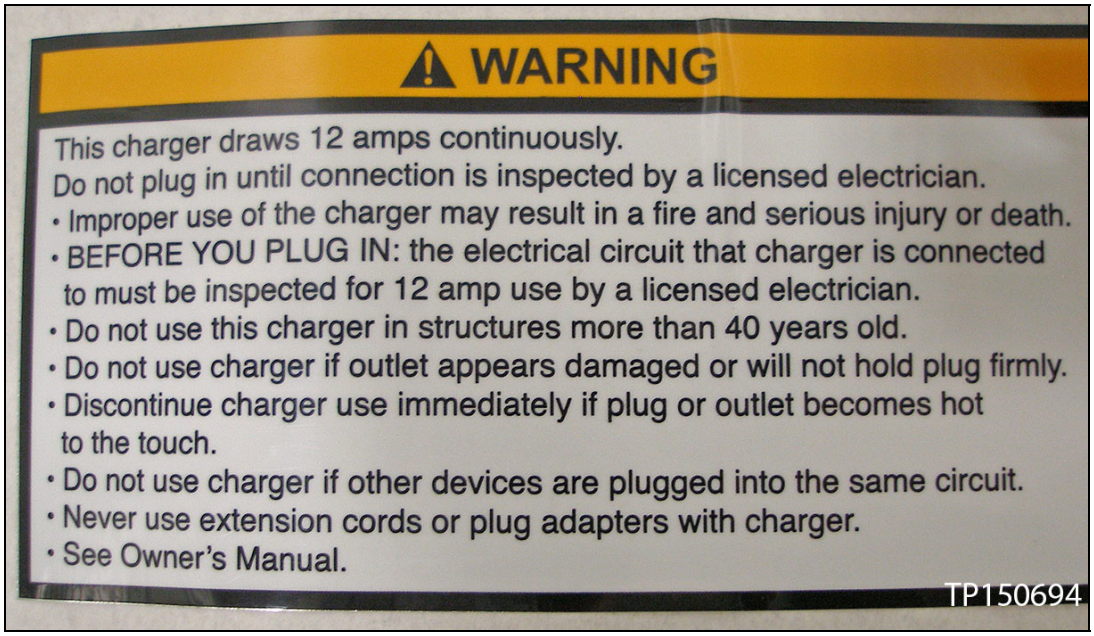


Figure 5: Warning label

NON-WARRANTABLE Modified/Abused Conditions (some examples shown)

Figure 6

Figure 7

Figure 8

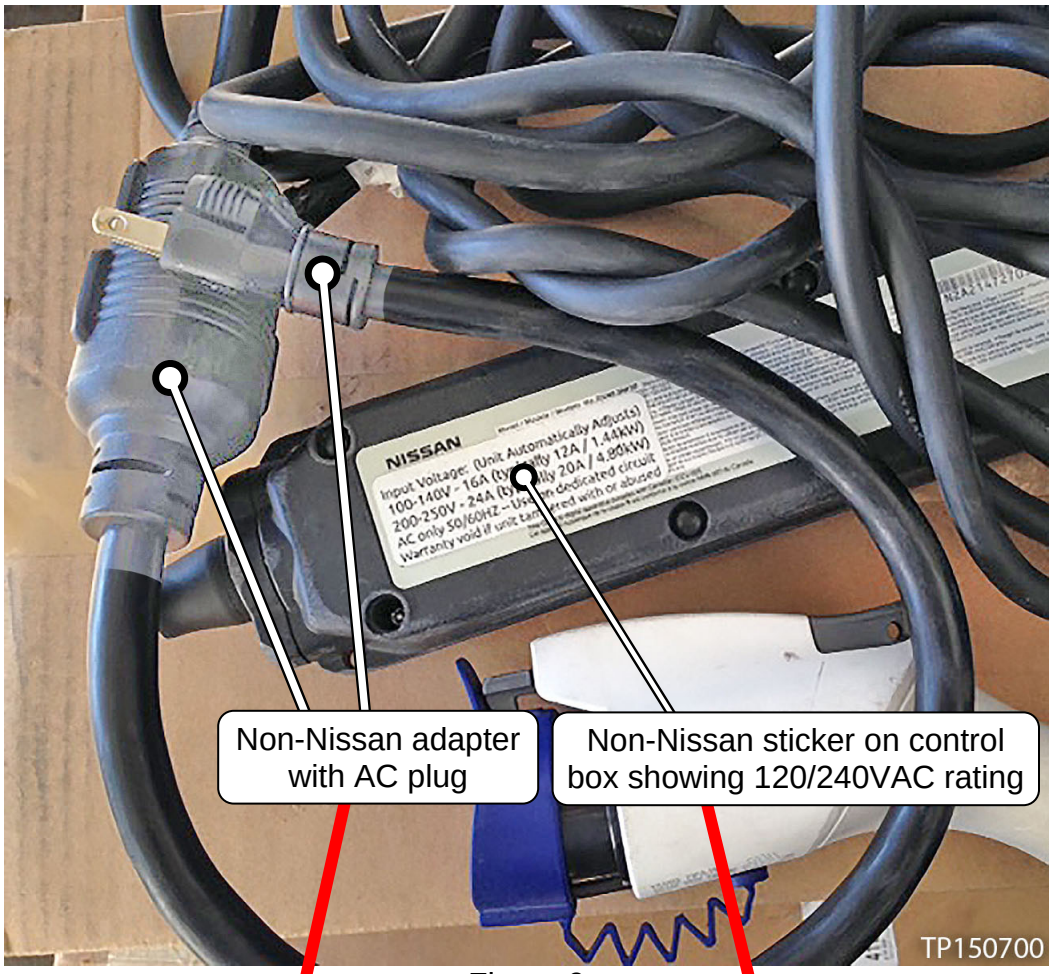


Figure 9

Figure 10

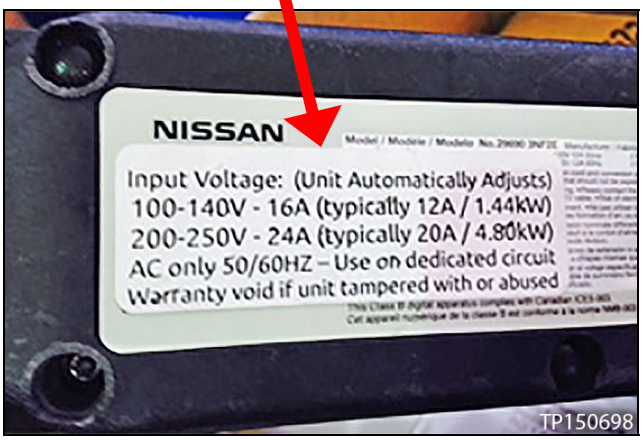


Figure 11