



Service Bulletin

PRELIMINARY INFORMATION

Subject: Fuel Gauge Intermittently Does Not Read Full When Fuel Tank is Filled

Models: 2011-2013 Chevrolet Equinox
2011-2013 GMC Terrain

Attention: This PI also applies to any of the vehicles listed above that may be export vehicles.

Condition/Concern

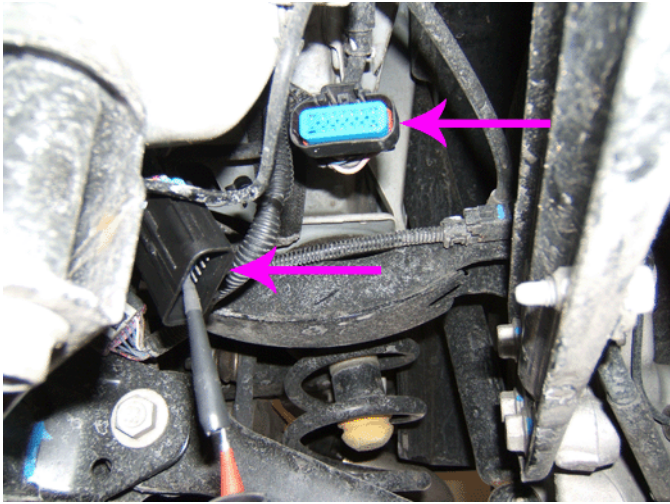
Some customers may comment when they fill up the fuel tank, the fuel gauge intermittently will not read full.

The primary fuel level sensor and the secondary fuel level sensor change resistance based on fuel level. The engine control module (ECM) monitors the signal circuits of the primary fuel level sensor and the secondary fuel level sensor in order to determine the fuel level. When the fuel tank is full, the resistances of both fuel level sensors are low and the ECM senses a low signal voltage on both the signal circuits of the primary fuel level sensor and the secondary fuel level sensor. When the fuel tank is empty, the resistances of the fuel level sensors are high and the ECM senses a high signal voltage. The ECM uses the signal circuits of the primary fuel level sensor and the secondary fuel level sensor in order to calculate the percentage of remaining fuel in the tank. The ECM sends the fuel level percentage via High Speed CAN-Bus to the body control module (BCM). The BCM then sends the fuel level percentage via Low Speed CAN-Bus to the instrument cluster in order to control the fuel gauge.

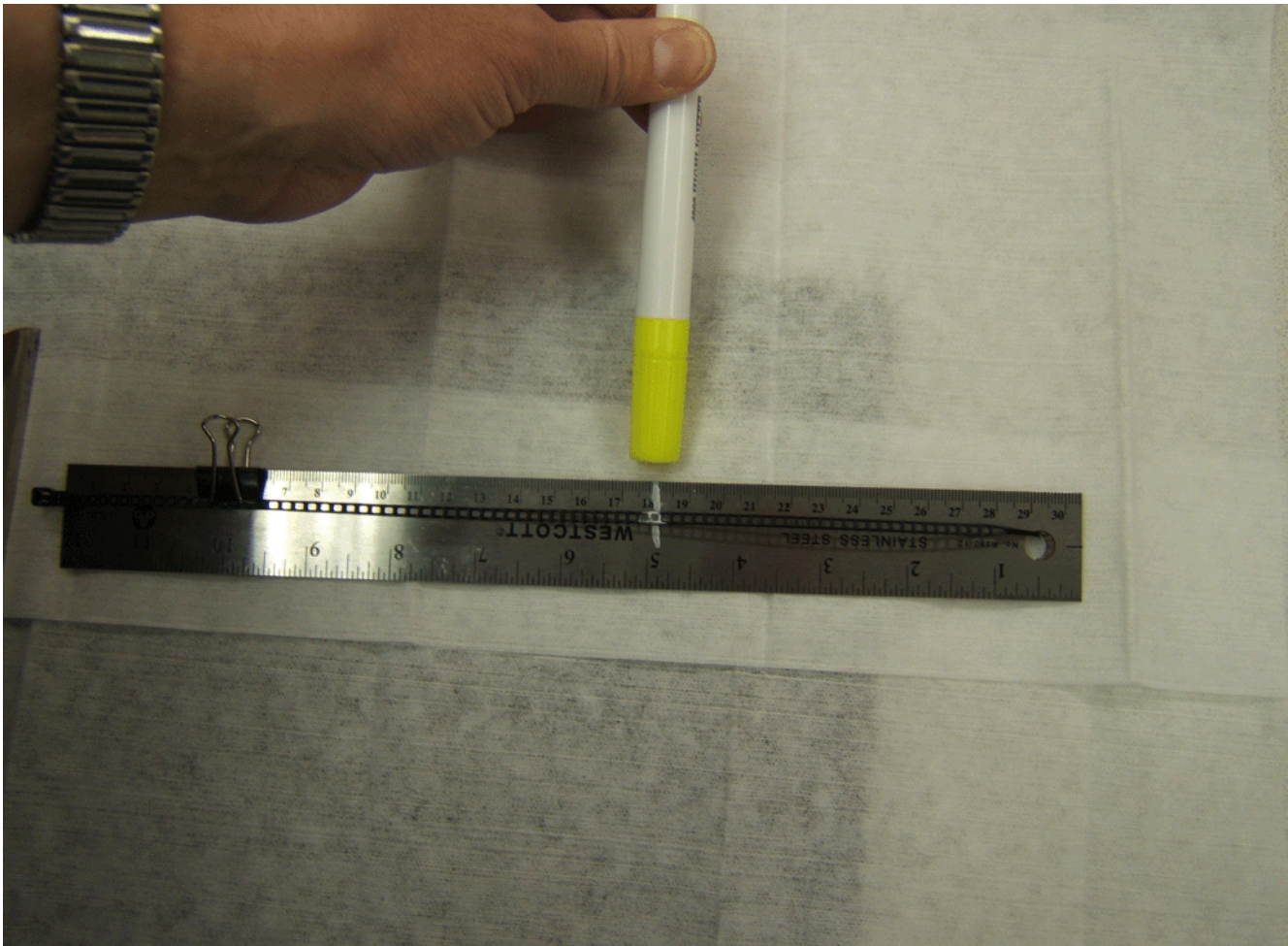
Recommendation/Instructions

If the above Condition/Concern is encountered, perform the following actions:

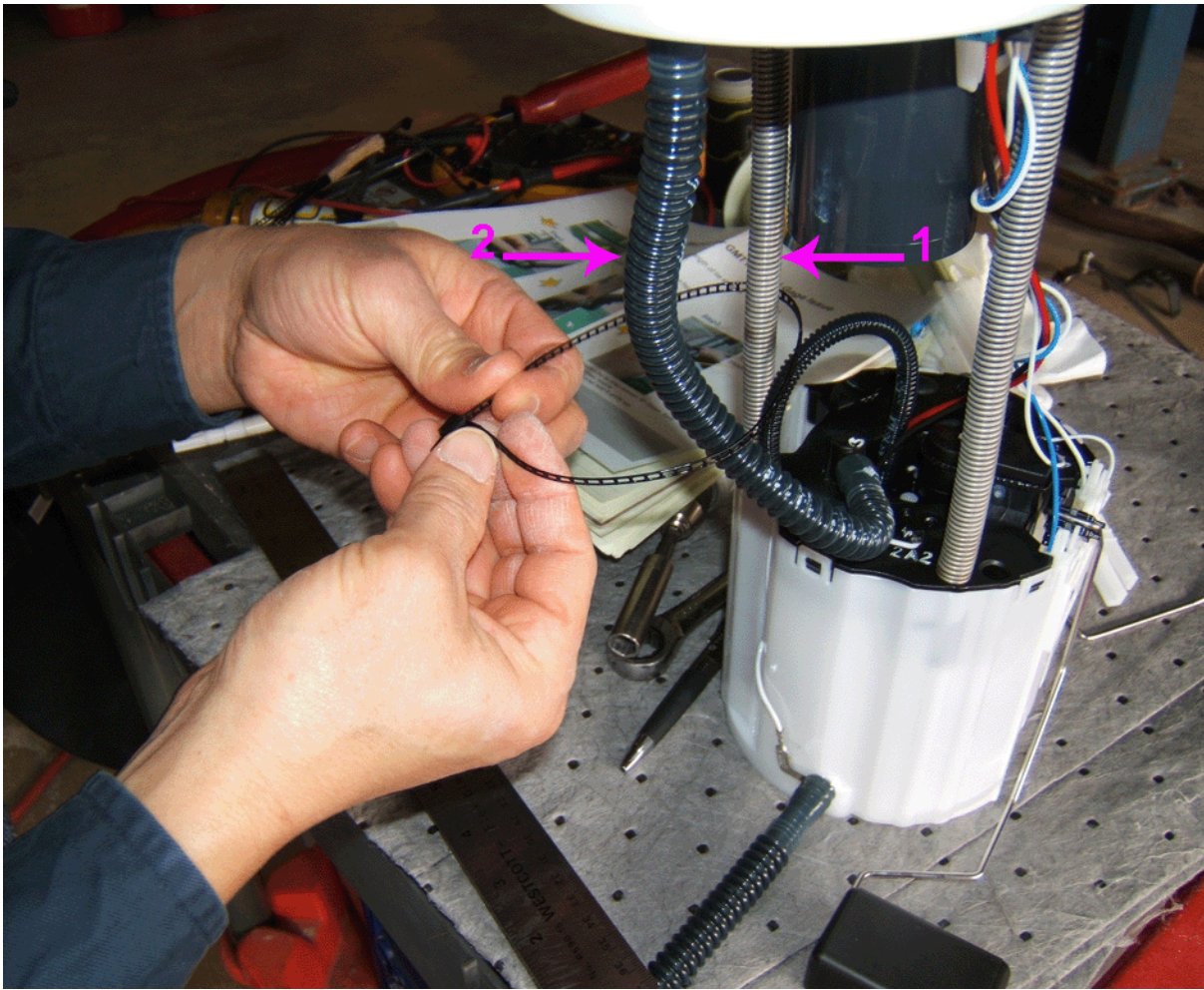
1. Perform the Diagnostic System Check - Vehicle.
2. **Verify the Condition/Concern is present by ensuring that the fuel tank fuel level is physically full and the fuel gauge is not reading full, BEFORE proceeding.**
 - ⇒ If the Condition/Concern as described is present, Go to Step 3.
 - ⇒ If the Condition/Concern as described is not present, Go to Testing for Intermittent Conditions and Poor Connections in SI.
3. Turn **OFF** the ignition.
4. Raise the vehicle. Refer to Lifting and Jacking the Vehicle in SI.



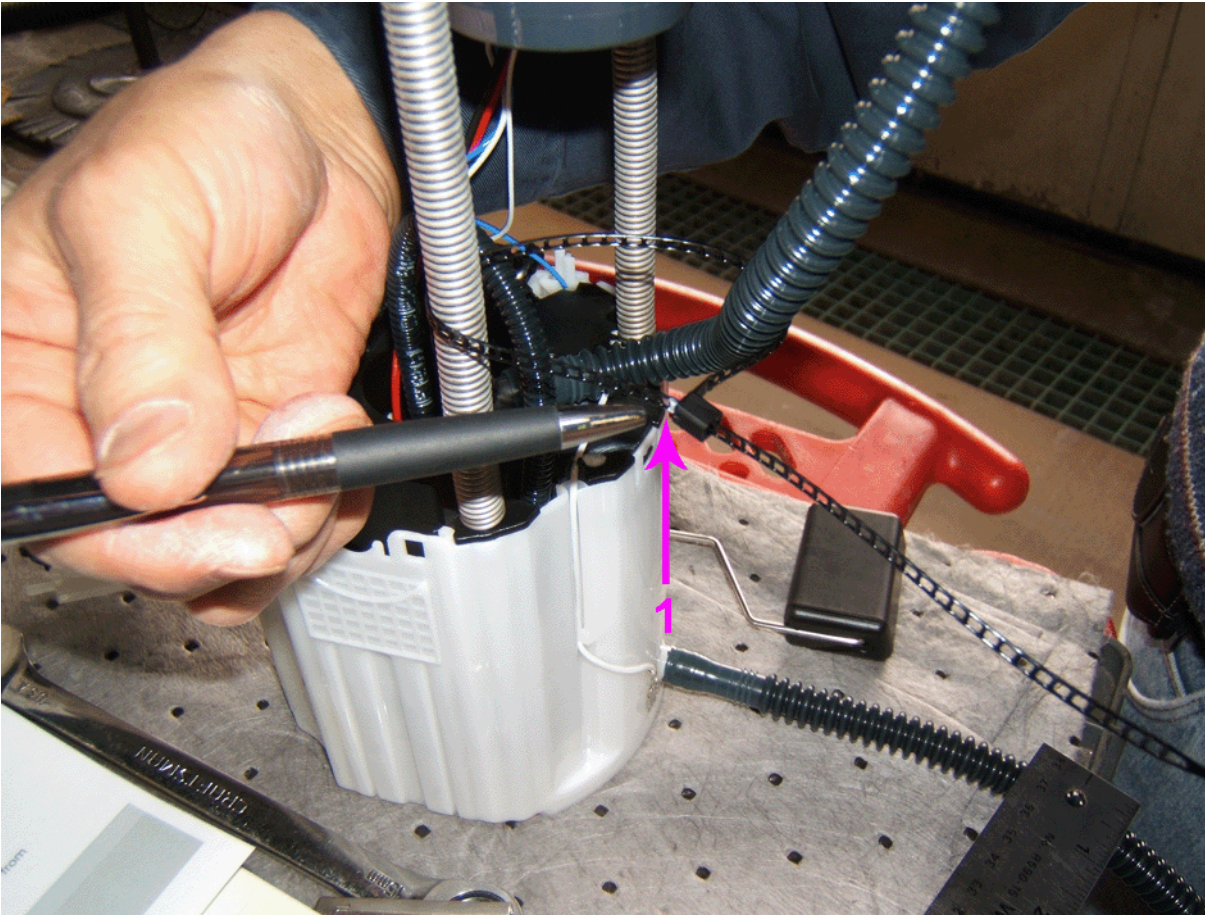
5. Disconnect the X350 body harness to fuel tank harness connector, which is under the vehicle near the driver side rear wheel.
6. At connector X350, measure for 40Ω ($\pm 2.5\Omega$) on the fuel level sensor - primary, between terminal E and terminal K.
 - ⇒ If the resistance is within the specified range of 40Ω ($\pm 2.5\Omega$), **Go to Step 7.**
 - ⇒ With a full fuel tank the resistance should be within the specified range. If the resistance is not within the specified range of 40Ω ($\pm 2.5\Omega$), **Go to Step 8.**
7. At connector X350, measure for 40Ω ($\pm 2.5\Omega$) on the fuel level sensor - secondary between terminal M and terminal K.
 - ⇒ If the resistance is not within the specified range of 40Ω ($\pm 2.5\Omega$), **Go to Step 20.**
 - ⇒ If the resistance is within the specified range for both fuel level sensors, then refer to Fuel Gauge Inaccurate or Inoperative in SI.
8. Drain the fuel tank. Refer to Fuel Tank Draining in SI.
9. Remove the fuel tank. Refer to Fuel Tank Replacement in SI.
10. Remove the primary fuel tank fuel pump module (**passenger side of tank**) from the fuel tank. Refer to Fuel Tank Fuel Pump Module Replacement in SI.
11. Raise and hold the float arm at the filled fuel tank position.
12. Measure for 40Ω ($\pm 2.5\Omega$) on the fuel level sensor - primary, between Pin 3 - Sensor Low Reference and Pin 4 - Primary Fuel Level Sensor Signal.
 - ⇒ If the resistance is within the specified range of 40Ω ($\pm 2.5\Omega$), **Go to Step 13.**
 - ⇒ If the resistance is not within the specified range of 40Ω ($\pm 2.5\Omega$), replace the fuel tank fuel pump module fuel level sensor. Refer to Fuel Tank Fuel Pump Module Fuel Level Sensor Replacement in SI.



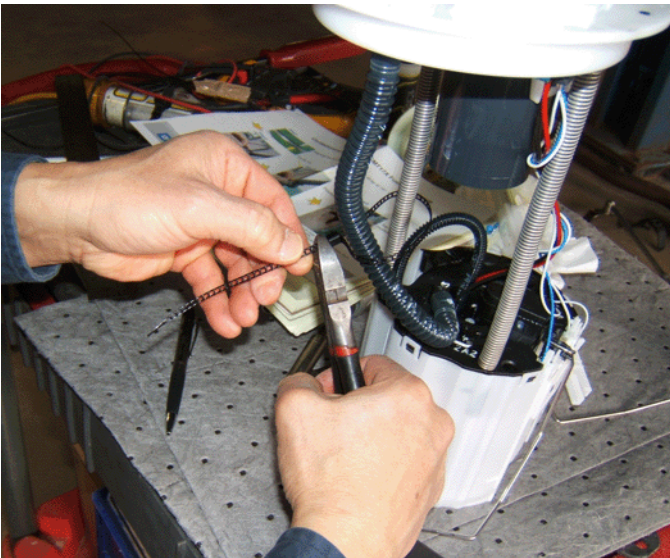
13. Place a tie-strap, P/N 12337820 on the ruler as shown. Measure the tie-strap at 181 mm (± 9 mm) and then mark that measurement point visibly with a paint stick.



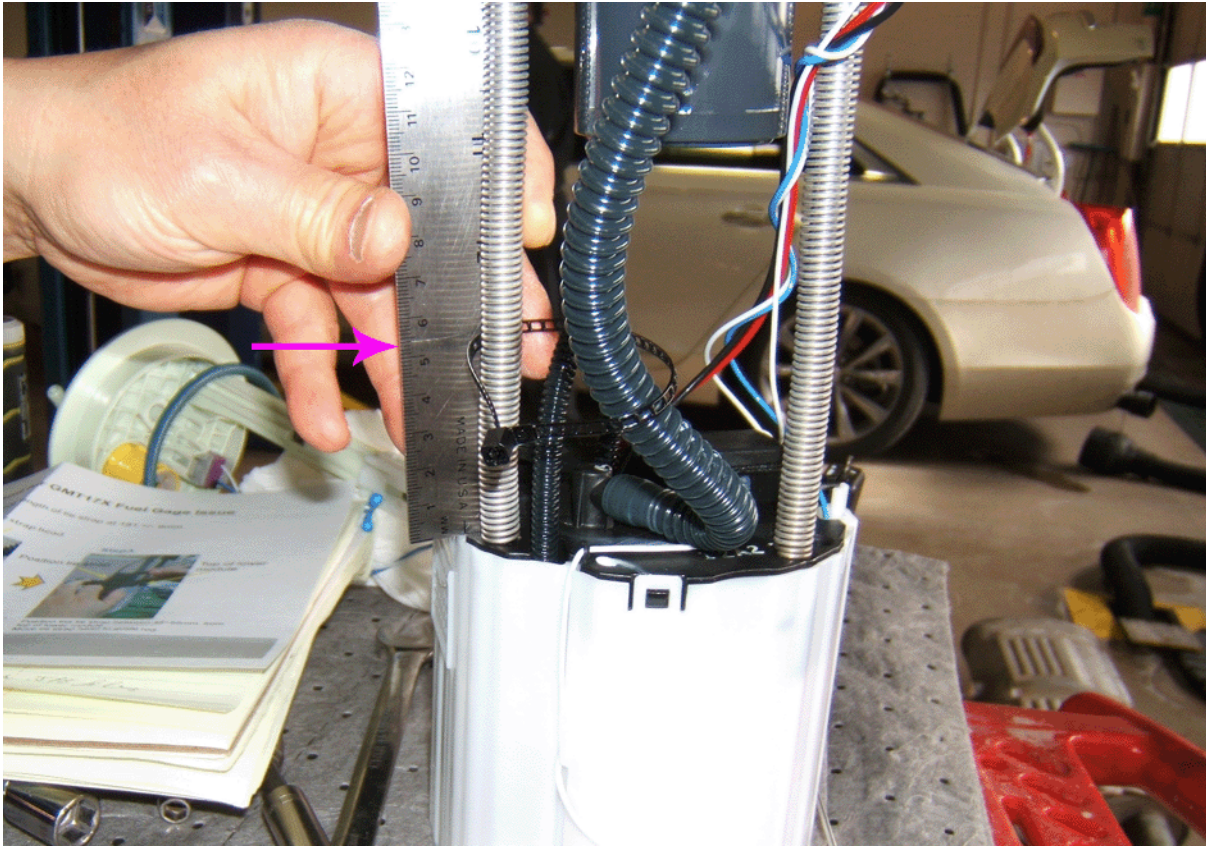
14. Wrap the tie-strap around the guide rod (1) and fuel feed hose (2) in the orientation that is shown.



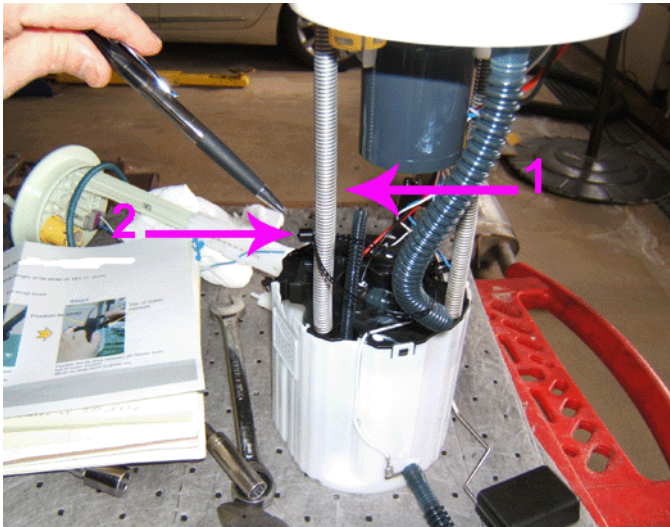
15. Tighten the tie-strap to the measured point (1).



16. Trim the tie-strap.



17. Position the tie-strap between 45–55 mm from the top of the lower module as shown.



18. Move the head of the tie-strap (2) to the guide rod (1).
19. Install the primary fuel tank fuel pump module in the fuel tank. Refer to Fuel Tank Fuel Pump Module Replacement in SI.
Go to Step 24.
20. Drain the fuel tank. Refer to Fuel Tank Draining in SI.
Go to Step 21.
21. Remove the fuel tank. Refer to Fuel Tank Replacement in SI.
Go to Step 22.
22. Remove the fuel tank fuel pump module - secondary (**driver side of tank**). Refer to Fuel Tank Fuel Pump Module Replacement - Secondary in SI.
Go to Step 23.
23. Install a new fuel tank fuel pump module - secondary. Refer to Fuel Tank Fuel Pump Module Replacement - Secondary in SI.
Go to Step 24.
24. Install the fuel tank. Refer to Fuel Tank Replacement in SI.

Go to Step 25.

25. Fill the fuel tank.

Parts Information

Part Number	Description
12337820	Tie-Strap

Warranty Information

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
L9735*	AWD Vehicles: Fuel Tank Fuel Pump Module - Fuel Level Sensor Tie-Strap Installation	3.0 hrs
L9735*	Base Vehicles: Fuel Tank Fuel Pump Module - Fuel Level Sensor Tie-Strap Installation	2.2 hrs
Emission Code Coverage E		
*This is a unique labor operation for bulletin use only. It will not be published in the Labor Time Guide.		

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