

TECHNICAL BULLETIN  
LTB00566NAS1  
03 OCT 2013



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NOTE: The information in Technical Bulletins is intended for use by trained, professional Technicians with the knowledge, tools, and equipment required to do the job properly and safely. It informs these Technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by 'do-it-yourselfers'. If you are not a Retailer, do not assume that a condition described affects your vehicle. Contact an authorized Land Rover service facility to determine whether this bulletin applies to a specific vehicle.

**SECTION: 310-00**

Fuel Gauge Operation / DTC U0128-00 Stored

**AFFECTED VEHICLE RANGE:**

**LR2 (LF)**

**Model Year:** 2008 Onwards  
**VIN:** 8H000212 Onwards

**LR4 (LA)**

**Model Year:** 2010-2013  
**VIN:** AA510742-DA656034

**Range Rover Sport (LS)**

**Model Year:** 2010-2013  
**VIN:** AA212147-DA790997

**Range Rover (LM)**

**Model Year:** 2010-2012  
**VIN:** AA304426-CA369495

**MARKETS:**

NAS

**CONDITION SUMMARY:**



**NOTE: This bulletin supersedes all versions of LTB00304NAS.**

**Situation:** The fuel gauge may experience one or more of the following issues:

- **LR4, Range Rover Sport only:** Diagnostic Trouble Code (DTC) U0128-00 stored in the Instrument Cluster (IC);
- Fuel gauge inoperative;
- Fuel gauge not showing more than half full;
- Fuel gauge fluctuates; and/or
- Fuel gauge switches on/off intermittently.

**Cause:** These issues may be caused by:

- **LR4, Range Rover Sport only:** Software issue within the Instrument Cluster (IC).

- Backed-out pins in any of the following areas: internal to the fuel tank (sender wiring), fuel pump module, and/or fuel tank flange assembly.
- Fretting corrosion across the fuel sender harness pins inside the fuel tank (black connectors).



**NOTE: LR4, Range Rover Sport only: If Diagnostic Trouble Code (DTC) U0128-00 is present, update the Instrument Cluster (IC) software using IDS-DVD133.02 v128 or later. If the fuel gauge then reads correctly, release the vehicle. If DTC U0128-00 remains after updating the IC software, refer to the Service Instruction outlined below.**



**NOTE: Refer to TOPIx Workshop Manual, Section 310-01: Fuel Tank and Lines Diagnosis and Testing; if a harness or fuel sender fault cannot be identified, follow the Service Instruction outlined below.**

**Action:** Should a customer express this concern, follow the Service Instruction outlined below.

### **PARTS:**



**CAUTION: The splice joint connectors must be used for this repair and crimped with special tool 418-116A / YRW500010.**

|          |                                      |                            |
|----------|--------------------------------------|----------------------------|
| LR050538 | Splice joint connector               | Quantity: 6 (if necessary) |
| LR000966 | Gasket - LR2, LR4, Range Rover Sport | Quantity: 1 (if necessary) |
| ESR3806  | Gasket - Range Rover                 | Quantity: 2 (if necessary) |

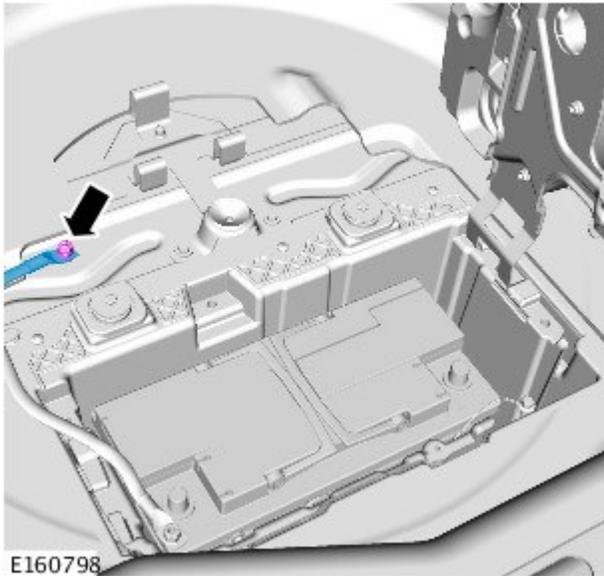
### **TOOLS:**



**NOTE: This document is an 'Active Bulletin' that will display a functional programming shortcut if accessed within a diagnostic session using SDD.**

SDD with latest DVD and Calibration File; first available on DVD133.02 v.128  
Jaguar Land Rover-approved Midtronics battery power supply

Crimping Pliers  
418-116A / YRW500010



### **WARRANTY:**

 **NOTE: Repair procedures are under constant review, and therefore times are subject to change; those quoted here must be taken as guidance only. Always refer to TOPIx to obtain the latest repair time.**

 **NOTE: DDW requires the use of causal part numbers. Labor only claims must show the causal part number with a quantity of zero.**

| DESCRIPTION  | SRO                | TIME (HOURS) | CONDITION CODE | CAUSAL PART |
|--|--------------------|--------------|----------------|-------------|
| Fuel sender harness modification - LR4, Range Rover Sport, Range Rover | <b>88.25.89/35</b> | 1.5          | X2             | LR050538    |
| Fuel sender harness modification - LR2                                 | <b>88.25.89/35</b> | 2.6          | X2             | LR050538    |
| Update Instrument Cluster software - LR4, Range Rover Sport            | <b>88.90.04</b>    | 0.2          | X2             | LR050538    |

 **NOTE: Normal Warranty policies and procedures apply.**

### **SERVICE INSTRUCTION:**

#### **Steps 1-13: LR4, Range Rover Sport only**

-  **CAUTION: A Jaguar Land Rover-approved Midtronics battery power supply must be connected to the vehicle battery during SDD diagnosis / module programming.**

 **NOTE: IDS must be loaded with DVD133.02 v.128 or later.**

Connect the Jaguar Land Rover-approved Midtronics battery power supply to the vehicle battery.

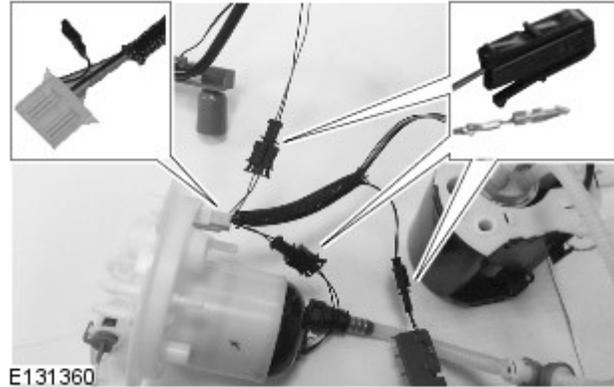
- Turn ignition 'ON' (engine not running).
- Connect the Symptom Driven Diagnostics (SDD) to the vehicle and begin a new session.
- Follow the on-screen prompts, allowing SDD to read the VIN and identify the vehicle and initiating the data collect sequence.

5. Select 'Diagnosis' from the Session Type screen.
6. Select the 'Selected Symptoms' tab, and then select the following:
  - Electrical > Instruments > Gauges > Fuel gauge
7. Select the 'Related' DTC view Tab and view the DTCs.
  - If Instrument Cluster (IC) DTC U0128-00 is present, continue to step 8.
  - If Instrument Cluster (IC) DTC U0128-00 is not present, exit the current SDD session, disconnect the SDD and battery power supply, and continue to step 14.
8. Select 'continue'.
9. Select the 'Recommendations' tab, and then select '**Run**' to perform the 'Configure existing module – Instrument cluster control module' option.
10. Follow all on-screen instructions to complete this task.
11. Check fuel gauge operation:
  - If the fuel gauge operates correctly, no further action required; return vehicle to customer.
  - If the fuel gauge does not operate correctly, continue to step 14.
12. Exit the current session.
13. Disconnect the SDD and the battery power supply from the vehicle.

#### Steps 14-38: all vehicles

14. Lower the fuel tank for access (see TOPIx Workshop Manual, Section 310-01).
15. Check the body harness-to-fuel-tank-connector integrity:
  - With the ignition OFF, pull the connector 'up'.
  - Turn the ignition ON.
    - Does the fuel gauge drop to '0' (empty)?
      - Repeat several times.
      - If the fuel gauge does not drop, continue with the diagnostics in TOPIx Workshop Manual, Section 310-01: Fuel Tank and Lines Diagnosis and Testing.
      - If the fuel gauge drops, remove the connector and ensure pin connections are not loose and are correctly retained in the housing.
        - Repair as necessary.
16. Remove the fuel pump and sender unit / fuel pump module (see TOPIx Workshop Manual, Section 310-01).
17.  **NOTE: Typical in-tank fuel module and sender components; not all derivatives will have the same number of connectors.**

Place the fuel pump and sender unit / fuel pump module on a clean work surface.



18.  **NOTE: All internal wiring must be checked.**

Check the internal components for backed out pins/wires.

- If no backed-out pins/wires are found, continue to the next step.
- If any backed-out pins/wires are found, repair as necessary.

19. Using SDD, measure the resistance of the fuel gauge sending units.

20. Compare values to the resistance chart (see TOPIx Workshop Manual, Section 310-01).

- If the sending units resistance value is correct, continue to the next step.
- If the sending units resistance value is not correct, replace the faulty units. Must be performed as a separate claim.

21.  **CAUTION: To reduce the chance of incorrect wiring of the harnesses, wherever possible, only repair one wire at a time.**

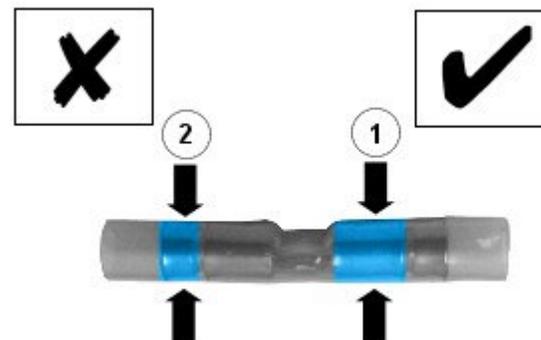
 **CAUTION: Make sure that the splice is crimped in the correct location.**

 **CAUTION: Make sure that the splice is crimped using special tool 418-116A / YRW500010.**

 **CAUTION: Make sure that the splice with the part number listed above is used. Failure to follow these instructions may result in a poor repair.**

 **NOTE: The number of black connectors shown in the fuel tank on a vehicle may vary from the procedure shown below. To achieve the best possible repair, replace as many of the black connectors (up to 3 in total) as possible.**

 **NOTE: Some variation in the illustrations may occur, but the essential information is always correct.**



E155408

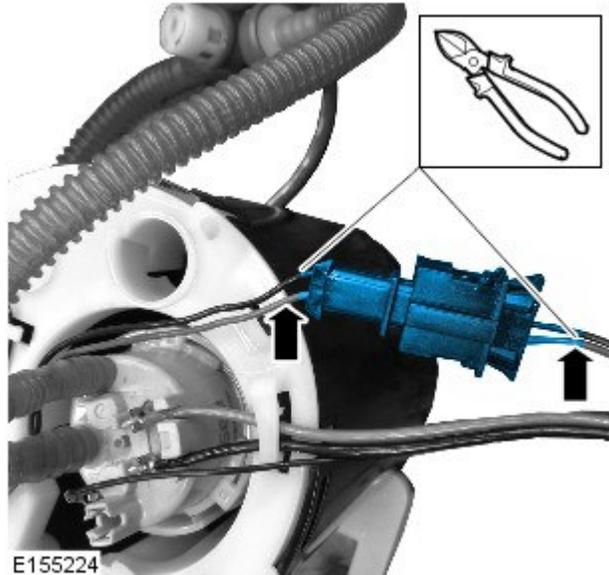
When installing the splices, make sure that the splice is crimped in the correct location.

- 'Tick' / '1' - correct crimp location.
- 'X' / '2' - incorrect crimp location.

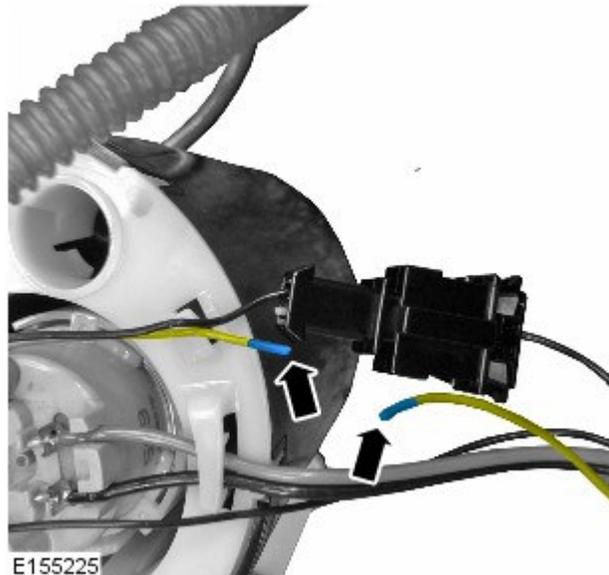
22.  **NOTE: A total of three (3) black two-pin connectors may be found. Replace only one at a time.**

Identify a black two-pin connector to be removed.

- Cut wiring as close to the connector as possible.

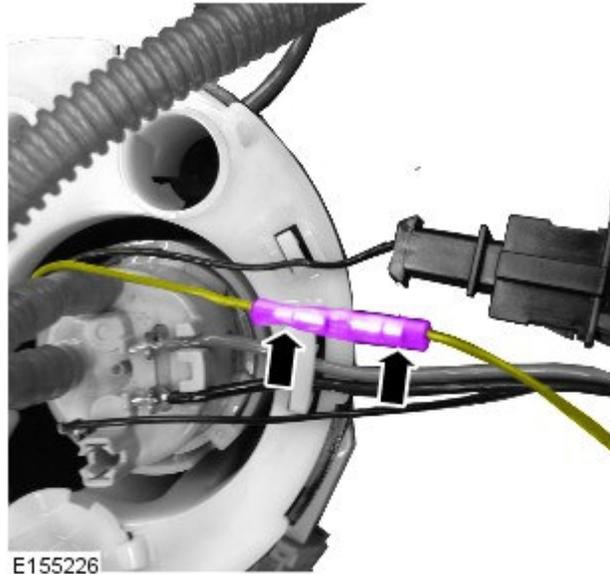


23. Using a suitable tool, remove 5mm of insulation from the end of each wire.



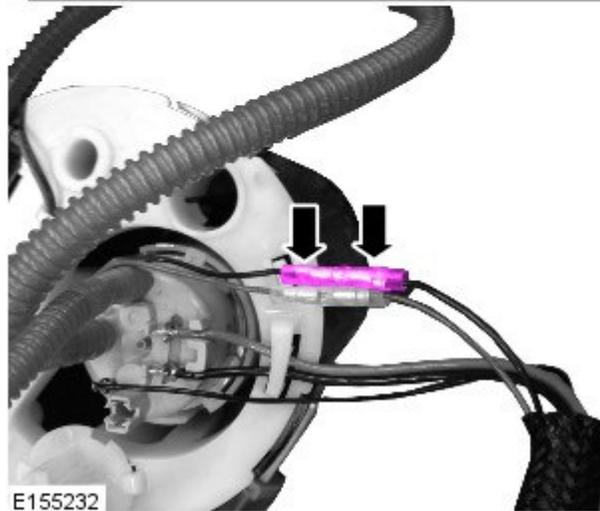
24.  **CAUTION: After crimping the connection, perform a gentle pull test to make sure that a sufficiently strong connection has been created. If required, remove and replace the splice.**

Using Crimping Tool 418-116A / YRW500010, install and crimp a splice to the ends of each wire.



**25.** Repeat steps 23-24 to the other wire in the connector.

- Discard the connector.



**26.** Repeat steps 22-25 to all black two-pin connectors (maximum of three [3]).

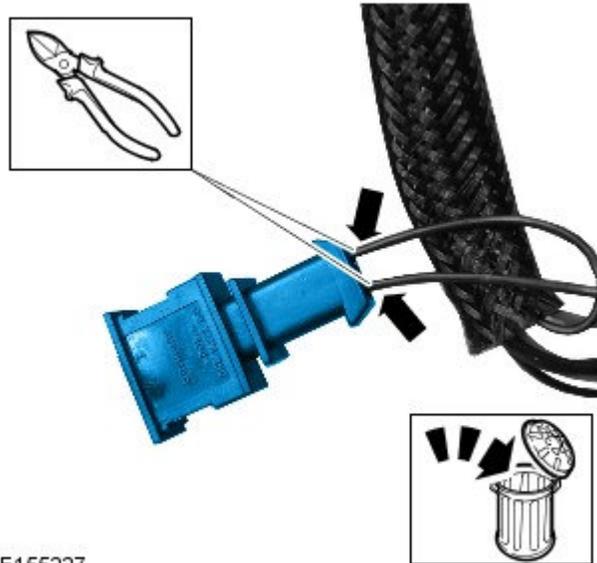
**27.** Using a suitable tie strap, secure the two splices together.



E 155409

**28.** Identify the ground connector (two black wires) to be removed.

- Cut wiring as close to the connector as possible.
- Discard the connector.

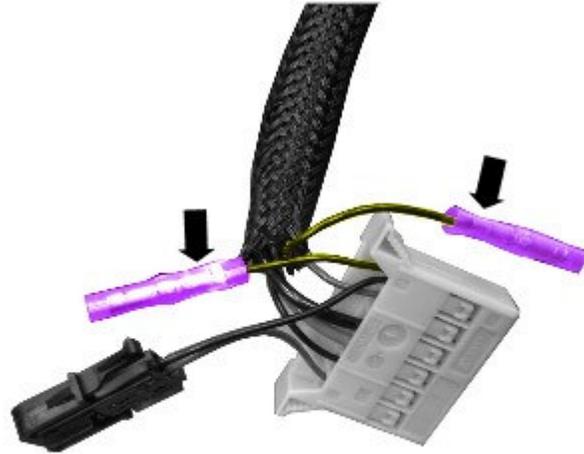


E155227

**29.** Using a suitable tool, remove 5mm of insulation from the end of each wire.

**30.**  **NOTE: Do not connect the two splices until step 34.**

Using Crimping Tool 418-116A / YRW500010, install and crimp a splice to the end of each wire.



E155228

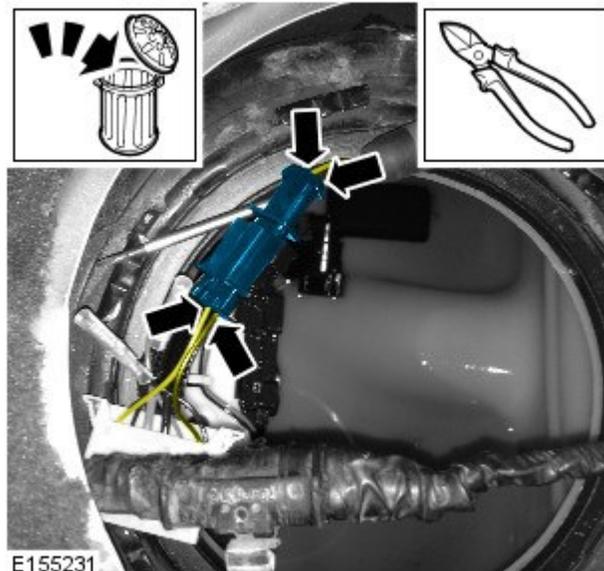
**31. ⚠ CAUTION: Do not install the fuel tank flange at this point.**

Install the fuel pump and sender unit / fuel pump module into the fuel tank (see TOPIx Workshop Manual, Section 310-01).

**32. ⚠ CAUTION: Make sure that the correct wires are re-connected to each other.**

Identify the connector to be removed.

- Carefully withdraw the connector out of the tank.
- Cut the wires shown as close to the connector as possible.
- Discard the connector.



E155231

**33. ⚠ CAUTION: After crimping the connection, perform a gentle pull test to make sure that a sufficiently strong connection has been created. If required, remove and replace the splice.**

Using a suitable tool, remove 5mm of insulation from the end of each wire.

- Using Crimping Tool 418-116A / YRW500010, install and crimp a splice to the ends of each

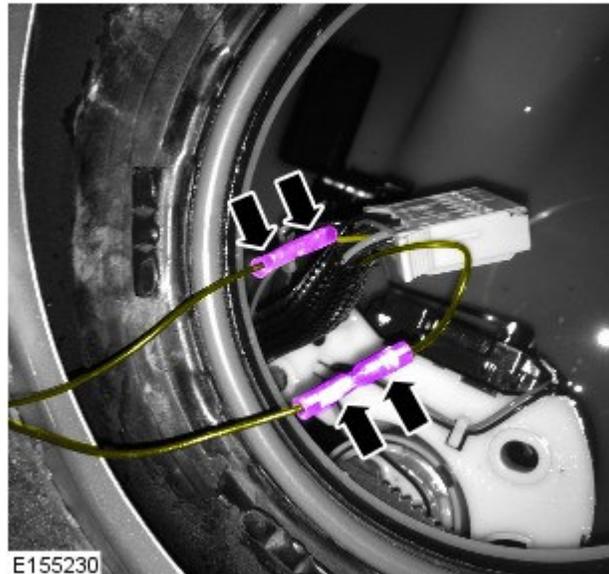
- wire.
- Using a suitable tie strap, secure the two splices together.



- 34. ⚠ CAUTION: After crimping the connection, perform a gentle pull test to make sure that a sufficiently strong connection has been created. If required, remove and replace the splice.**

Connect the two ground wires from the base of the fuel tank flange to the two splices installed in step 29.

- Position the fuel tank flange close to the fuel tank.
- Using a suitable tool, remove 5mm of insulation from the end of each wire.
- Using Crimping Tool 418-116A / YRW500010, install and crimp a splice to the ends of each wire.
- Using a suitable tie strap, secure the two splices together.



- 35.** Measure the resistance values of the fuel gauge sending units.
- 36.** Compare the resistance values to the resistance chart (see TOPIx Workshop Manual, Section 310-01).
- If the sending units resistance value is correct, continue to the next step.
  - If the sending units resistance value is not correct, further diagnosis is required. Must be performed as a separate claim.

- 37. ⚠ CAUTION: Make sure that a successful resistance check has been carried out before continuing to install the fuel pump and sender unit / fuel pump module.**

Complete the installation of the fuel pump and sender unit / fuel pump module (see TOPIx Workshop Manual, Section 310-01).

- 38.** Read and clear all Diagnostic Trouble Codes (DTC).