

# TECHNICAL INFORMATION



## Intermittent Fuel Gauge Operation

No: 86/15/03/NAS  
Ref:  
Issue: 1  
Date: 12/05/03

### AFFECTED VEHICLE RANGE:

Discovery Series II (LT) 1A290237 onward

### SITUATION:

#### INTERMITTENT OPERATION OF FUEL GAUGE

One or more of the following symptoms may be experienced often as the result of damage, contamination or improper adjustment of the fuel sender:

- Fuel gauge reads zero regardless of fuel level in tank
- Gauge shows a constant reading with various levels of fuel level in tank
- The fuel gauge consistently indicates inaccurate fuel levels
- A MIL illumination is possible

### RESOLUTION:

#### SENDER UNIT INSPECTION AND TROUBLE SHOOTING

Should a customer express concern consistent with any of the above symptoms, use the procedure below to ensure the correct operation of the fuel gauge sender unit. After the specified VIN vehicles equipped with fuel pump assembly WFX101060 do not required replacement of the fuel pump assembly for a sender-related problem detailed above to be repaired.

### PARTS INFORMATION:

YAD500010 .....Sender unit - fuel tank gauge Qty 1  
ESR3806.....Seal - fuel pump to tank Qty 1

### AS400 WARRANTY CLAIMS (CANADA ONLY)

88.25.32 .....Time 1/20 hrs.  
Remove and install fuel tank sender  
88.25.89/32 .....Time 0.10 hrs.  
Check and adjust fuel tank sender. Add to R&R time.

**FAULT CODE: U**

### DDW WARRANTY CLAIMS

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

Job Description	SRO	Time (Hours)	Condition Code	Causal Part
Remove & install fuel tank sender	88.25.32	1.20	42	WFX101060
Check and adjust fuel tank sender. Add to R&R time.	88.25.89/32	0.10	42	WFX101060

Normal warranty policy and procedures apply.  
Material allowance is included in labor operation.

TIB 86/15/03/NAS	CIRCULATE: TO	Service Mgr X	Warranty X	Workshop X	Body Shop X	Parts X
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## REPAIR PROCEDURE

### CONSTANT INACCURATE FUEL GAUGE READING

**WARNING:** Fuel vapor is highly flammable and in confined spaces is also explosive and toxic. Always have a fire extinguisher containing foam, CO<sub>2</sub>, gas or powder close at hand when handling or draining fuel.

1. If the fuel gauge is constantly reading empty or consistently reads another level, replace the unit as follows:
  - Refer to RAVE section 19.45.08 and remove the fuel pump assembly..
  - Disconnect two red wires from the top of the fuel pump assembly. (Arrowed in Figure 1).
  - Release two spring clips securing the sender unit to the fuel pump assembly. (Figure 2)
  - Remove the sender unit.

**CAUTION:** Both spring clips must be securely engaged on the sender unit in the fuel pump assembly.

2. Position the new sender unit (YAD500010) into the location slots and engage the spring clips.
3. Connect the two red wires to the top of the fuel pump assembly.
4. Refer to RAVE section 19.45.08 and install the fuel pump assembly to the tank using a new seal (ESR3806).

### RANDOM INACCURATE FUEL GAUGE READINGS

1. Refer to RAVE section 19.45.08 and remove the fuel pump assembly.
2. Inspect the fuel pump assembly for external damage, such as a distorted sender unit float arm.
3. If no visual defects can be seen, disconnect two red wires from the top of the fuel pump assembly. (Arrowed in Figure 1)
4. Connect a DVOM set to the "1K ohm" or "auto-range" scale to the "red" sender terminals.
5. Place the fuel pump assembly upright on a flat level surface.
6. With the float in the rest position, measure the distance from the surface to the base of the float. ('A' in Figure 3)
7. With the float arm still in the rest position, note the resistance at the sender unit connectors.
8. With the meter still connected, raise the float arm slowly to its highest position, and monitor the meter for a smooth fall in resistance.

Figure 1

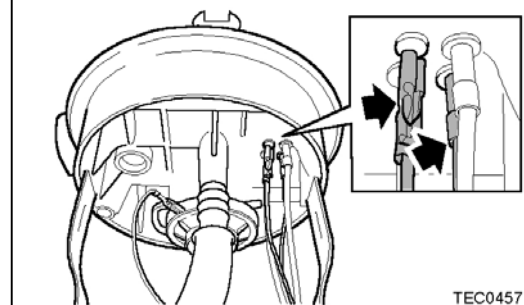


Figure 2

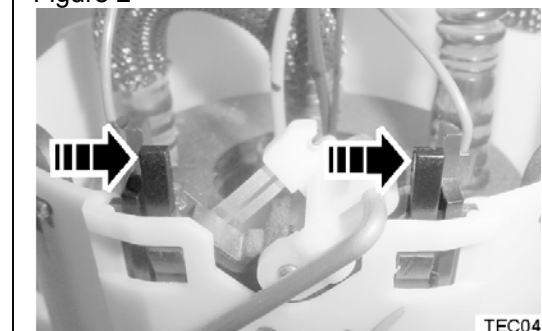
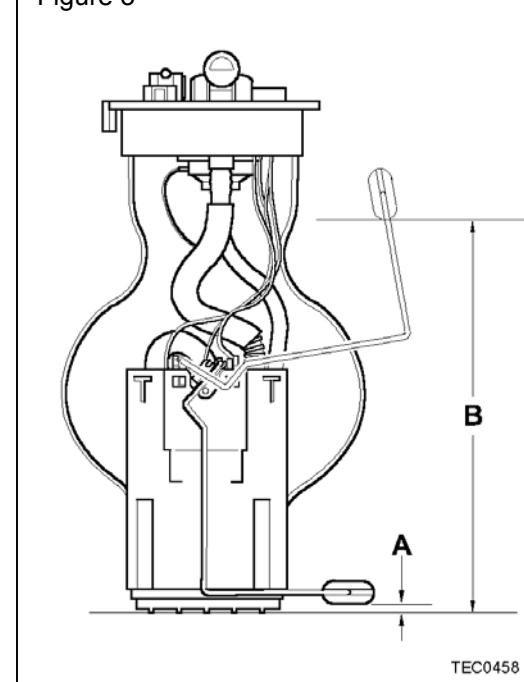


Figure 3





- If the meter detects an "open circuit" condition at any point in the float arm travel, replace the sender unit.
- Measure and note the resistance at the highest level
- With the float arm in its highest position, measure the distance from the surface to the base of the float. ('B' in Figure 3)
- Compare the measurements and resistance values obtained in steps 6 through 11 with the following chart:

Float position	Sender resistance
<b>A</b> (Empty fuel tank): 14mm (0.551in) MAX	242 to 248 ohms
<b>B</b> (Full fuel tank): 222mm (8.740 in) MIN	14 to 16 ohms



**NOTE: Minor adjustments can be made to the position of the float by carefully bending the float arm.**

- If resistance and dimensional measurements are slightly out of tolerance, gently bend the float arm in the required direction to obtain measurements within tolerance.
- Repeat the measurement process to verify that the corrective action was successful.
- If the measured resistance remains outside the specified range, install a replacement sender unit (YAD500010).
- Install the fuel pump assembly to the tank using a new seal (ESR3806).