Locate and repair leak

Does this solve the problem?

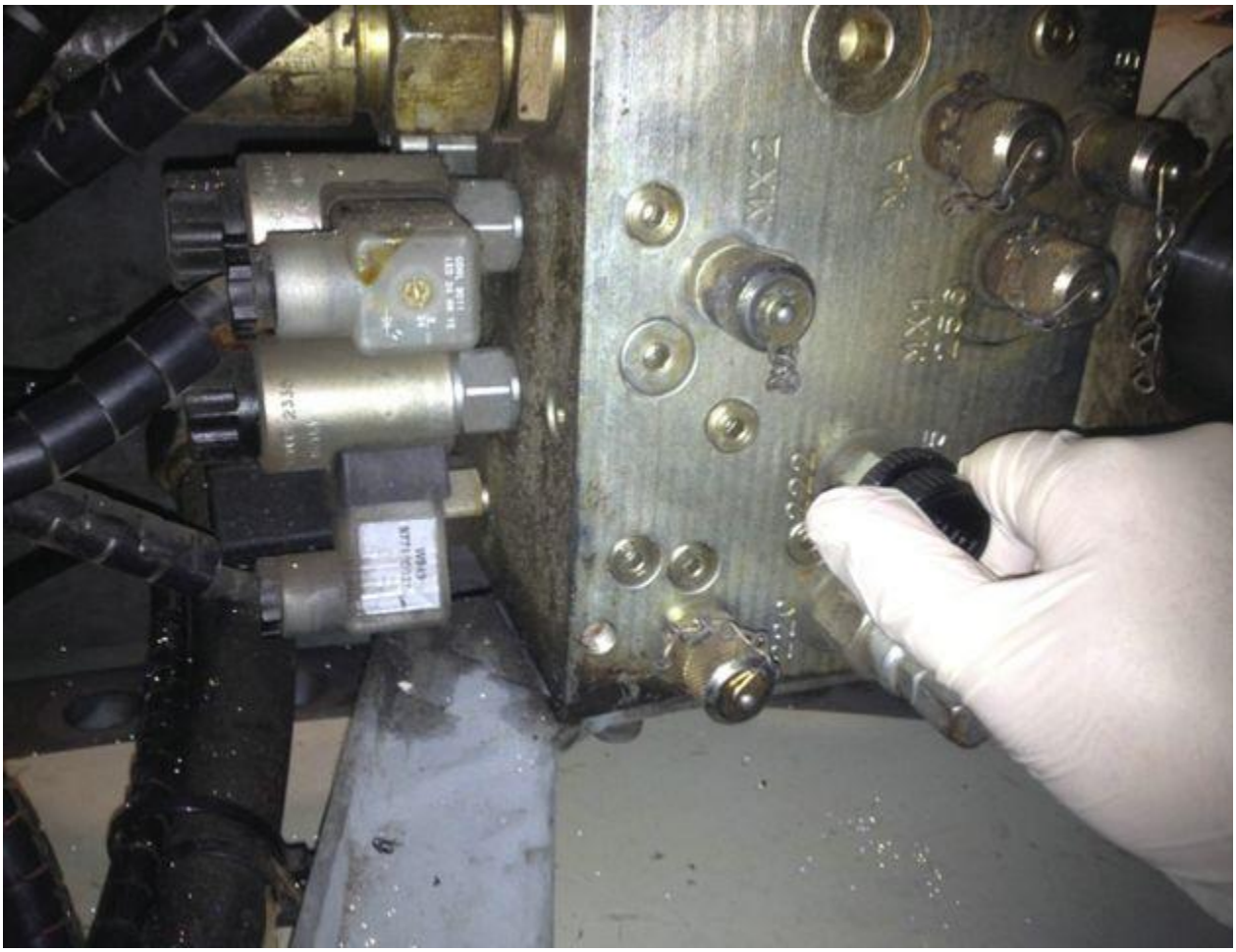
1] Yes

2] No

3] I don't know

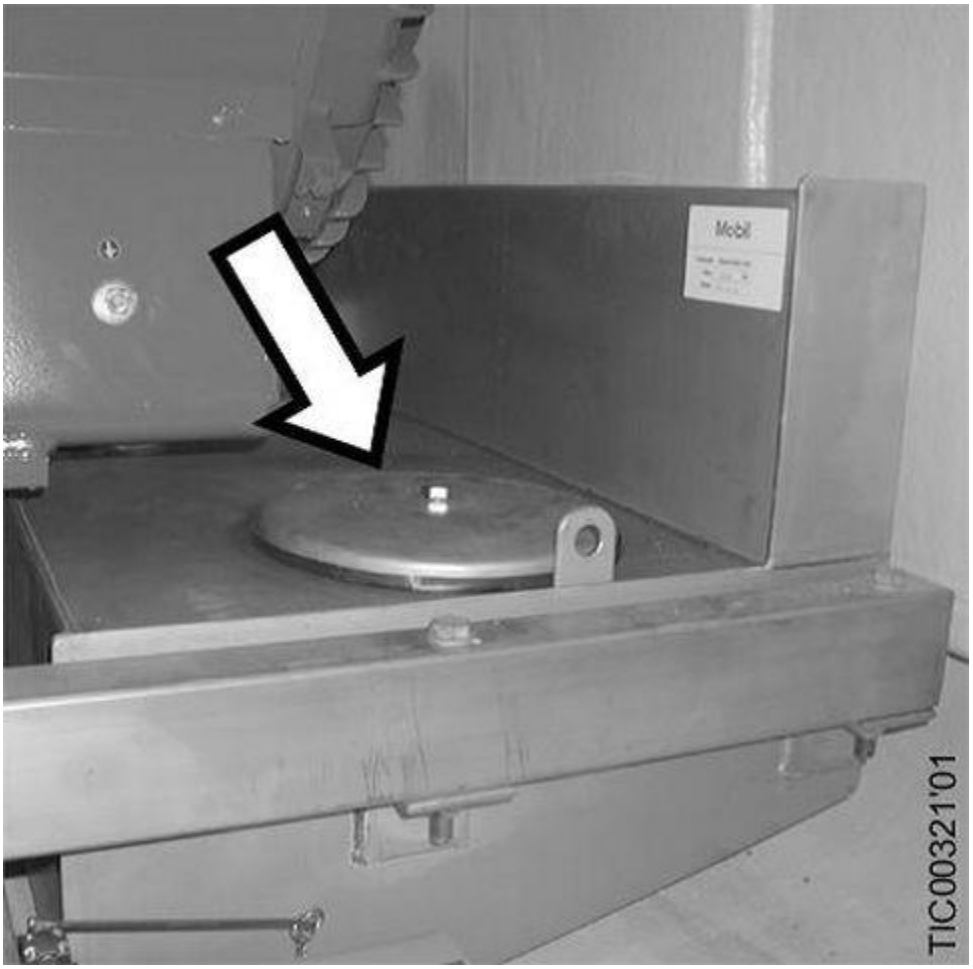
- **Explanation**

Check for external leakage in nacelle and hub.
Check level of oil in tank after opening 222 needle valves on blade manifolds in hub. Note: open valves slowly to prevent hydraulic oil from being trapped in accumulators.



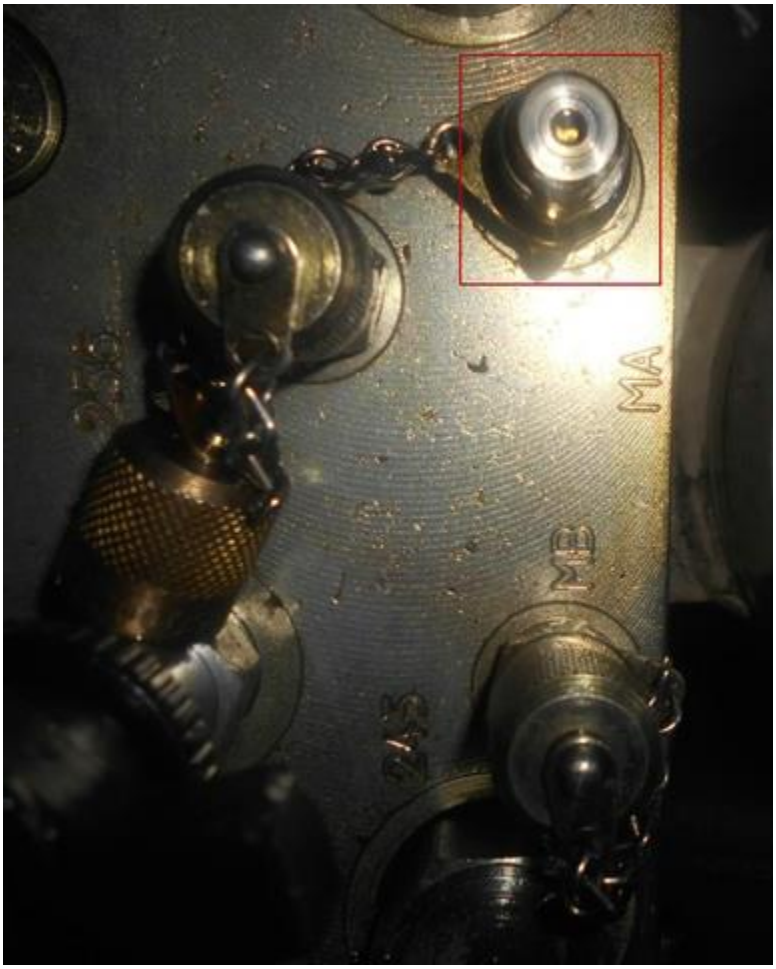
Mk3-5 turbines: Ensure the oil level is between the marks on the dip stick:

Mk1-2 turbines: Ensure the oil level is ~5cm from the lip on the tank.



Likely sources of leaks:

1. Parker system 410 Valve O-Ring (O-Ring replacement is usually a short term fix and the valve should be replaced to permanently alleviate the issue). 60111616-CHECK VALVE, 0,3 BAR, 375L
2. Valve 225 on Blade manifold might have O-ring failure. Replace the Valve. 60111613-CHECK VALVE, 0,3 BAR, 82L(Picture of damaged O-ring below)
3. Actuator seals. Replace actuator seals in accordance with 0009-1962 "Replacement of Actuator End Seal".
4. Proportional valve O-Rings. Usually a slow leak. If affected, valve should be replaced (Confirm that it is in the population for CIM2303. O-ring seats may have burs so replacing O-ring will only be a temporary repair).
5. Compensator valve O-Rings. (Also a temporary repair, replacing the compensator is a permanent repair).
6. Filter housing O-Rings.
7. Filter housing manifold connection to main manifold loose (usually RexRoth).
8. Hoses and fittings.
9. Test nipple in blade manifold- MA position



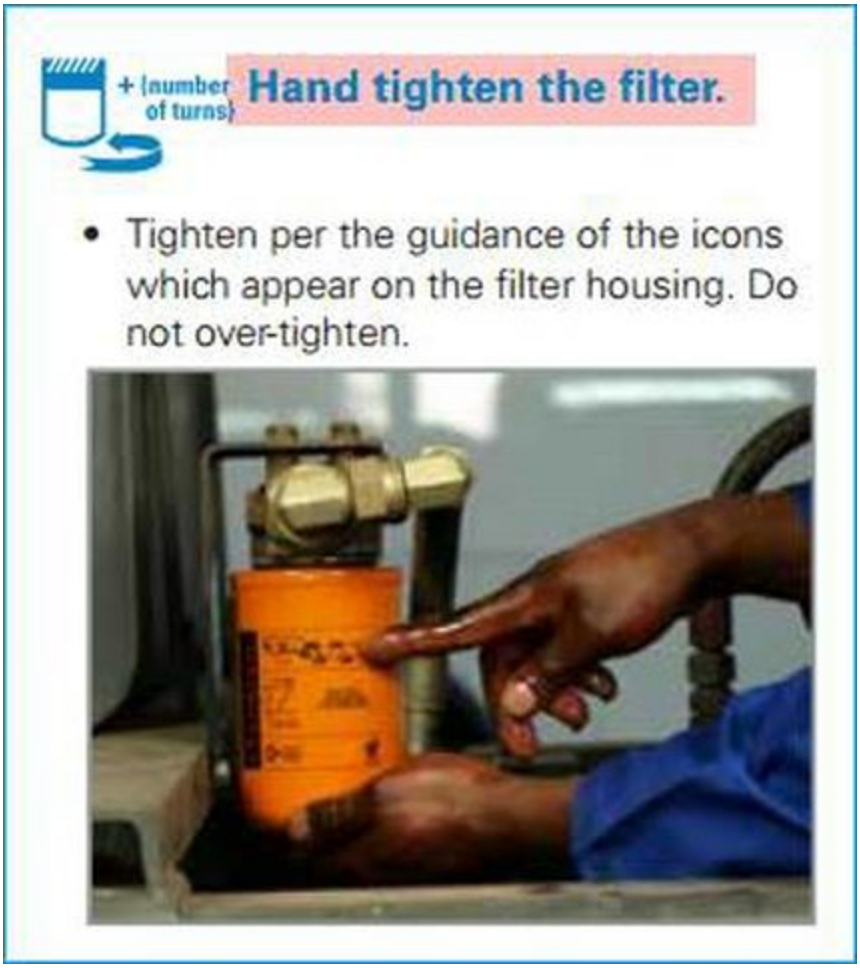
Relevant spare parts	
Description	**Item No.**
TEST COUPLING 1/4"BSP FOR M16-	60037889

- Check low pressure filter at nacelle for ‘O’ ring dislocate or damage which might cause the oil leakage. Ensure the filter is assembled as per supplier recommendations. Failure seal to be replaced and filter to be assembled as per below guidelines.

Relevant spare parts	
Description	**Item No.**
FLTR ELEMENT DONALDSON K513/01	60067838

- few important installation instructions which mentioned in the filter housing as shown below;

- As per OEM as well as Vestas recommendation, these filters to be tighten with hand. Hence do not use ratchet or any type of tools for tightening which might cause over tightening issue which will damage the seal (O ring).



- “Apply thin film of clean hydraulic oil on the O rings to lubricate” before start assembly, this will give smooth pressure across the entire O ring while tightening as shown below;

- Also lubricate the threads of filter assembly area with clean system oil

Replace level switch

Does this solve the problem?

1] Yes

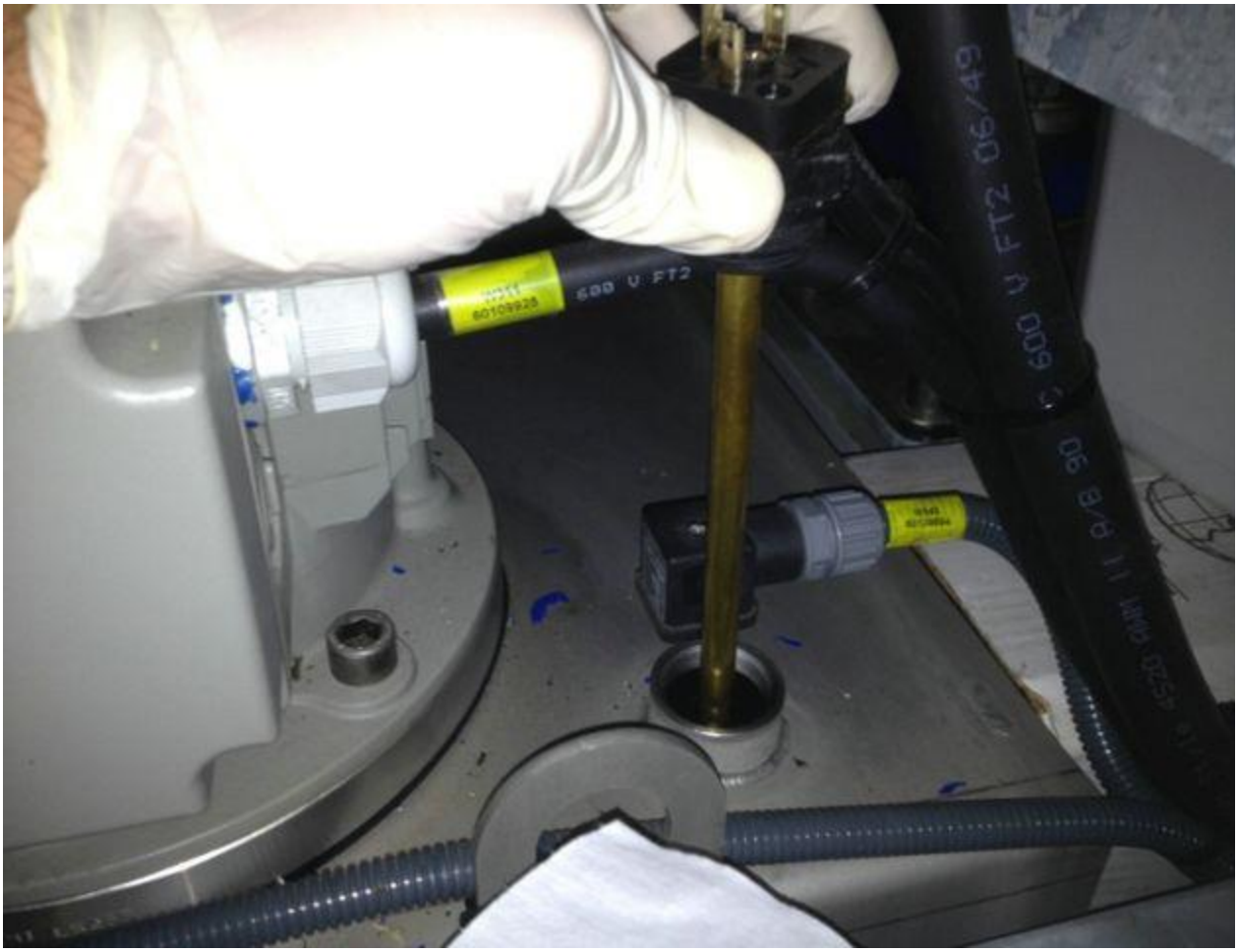
2] No

3] I don't know

- **Explanation**

If oil level in tank is ok, check cable to level sensor and the level sensor itself. Remove level sensor from tank by disconnecting the electrical plug and turning the sensor counter clockwise

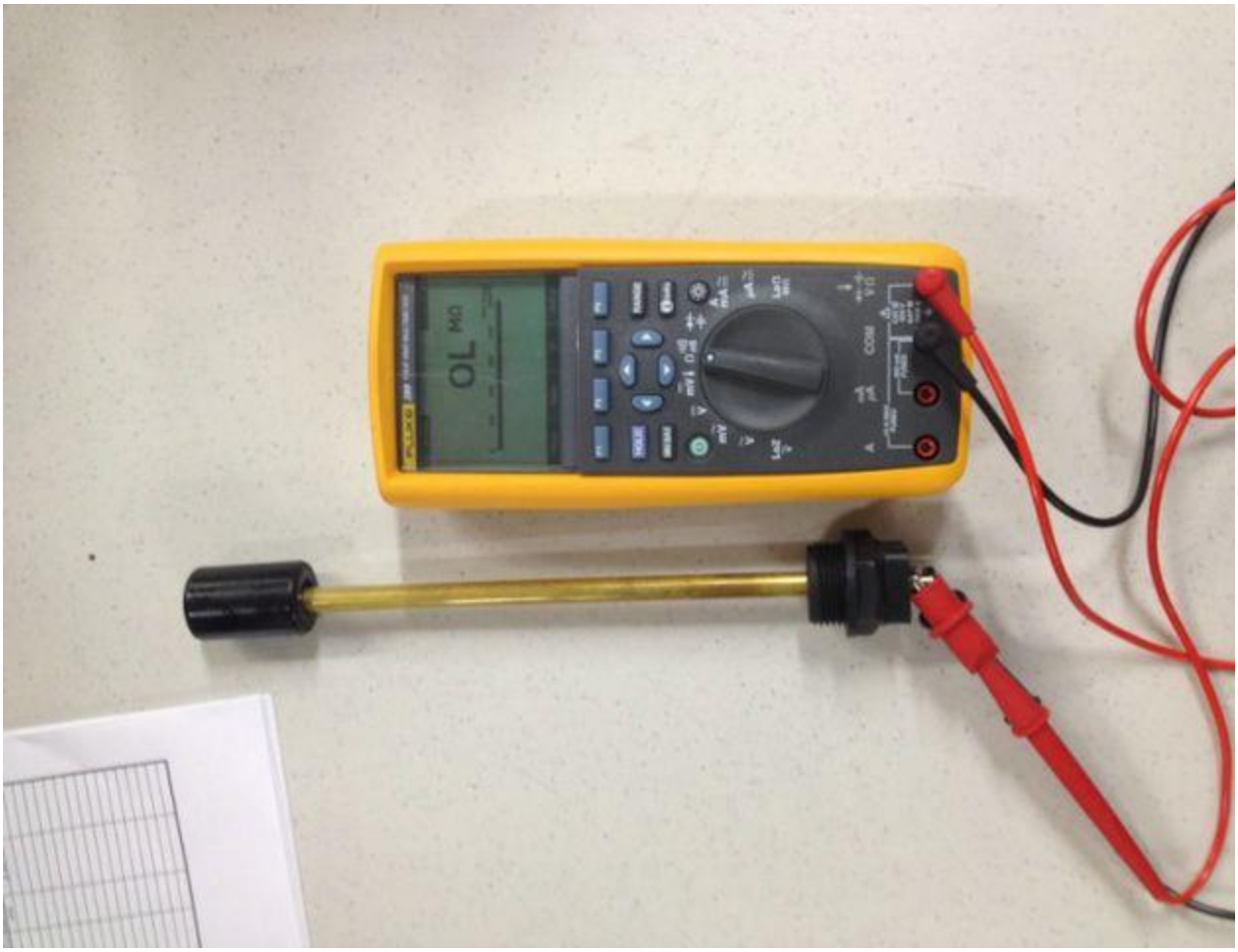
OLD STYLE FLOAT SENSOR:


600 V FT2
600 V FT2 06/49

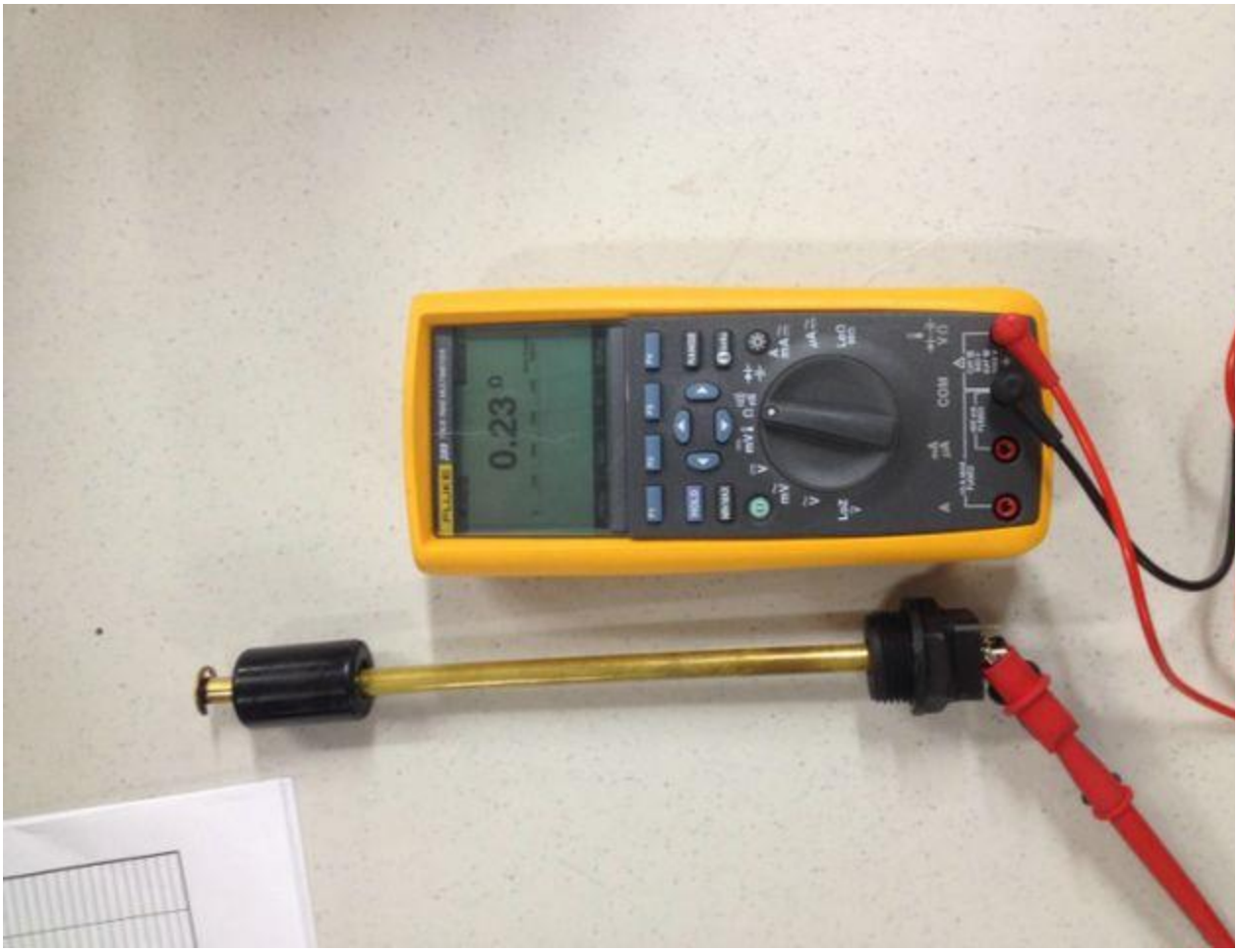
NEW STYLE FLOAT SENSOR:

NOTE: Older plastic versions of the sensor should be replaced with the new version whenever removed from the tank as the old sensor floats are susceptible to deterioration and can come off into the tank when attempting to remove.

Test the level sensor using a multi-meter (unless you have three hands, use alligator clip probes on the multi-meter). Set the multi-meter to read Ω.



Slide the float up the sensor shaft a few centimetres



Watch the resistance value on the multi-meter.

The value should change from OL to a low Ohm value when the float is in the position pictured.

If the value does not changed or is unrealistic, replace the float sensor.


60073714

Relevant spare parts	
Description	**Item No.**
NIVEAUCONTROL HMFB-VT = 250 MM	60073714 (Screw Type)
LEVEL CONTROL LM1CTPA260 NA	60112817 (Thread Type)

Install CIM 1902 CIM upgrade

Does this solve the problem?

1] Yes

2] No

3] I don't know

- **Explanation**

Relevant CIM case		
CIM case	**Task list**	**SWI**
1902	13447	See Doc.Table

Relevant documentation	
Description	**DMS No.**
SM CIM 1902 (Information on hydraulic oil tank shim instillation and background).	SM 0014-2424
Instructions on installing hydraulic oil tank shims. (Solution only applies to the Mk 3-5 V82).	WKI 0010-7662

Pre-charge Accumulators

Does this solve the problem?

1] Yes

2] No

3] I don't know

- **Explanation**

If oil level is not ok, and no external leakage is found, check pre-charge of accumulators in hub.

Relevant documentation	
Description	**DMS No.**
Relevant item numbers for tools and nitrogen	941918
Replacement failed accumulators	0001-2871

(Failed accumulators will consume much of the system volume of oil, as the nitrogen is not present in the bladders and cannot push the oil back to tank).

Replace proportional valve if leaking

Does this solve the problem?

1] Yes

2] No

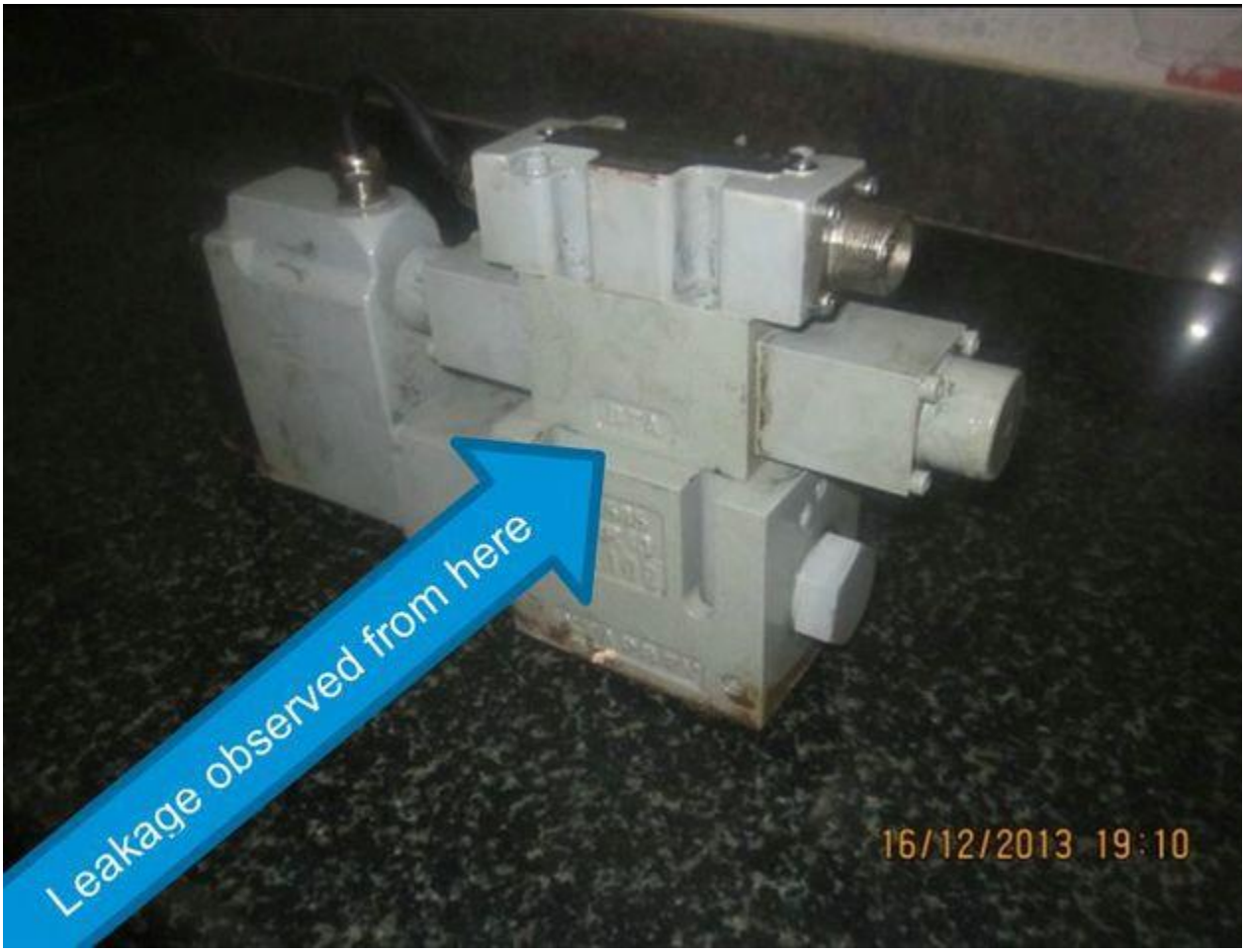
3] I don't know

- **Explanation**

Proportional Valve leakage observed not from the port but at the joints.

Replace the Proportional valve this is the case.

Relevant spare parts	
Description	**Item No.**
PROP. VALVE D31FHE01C (Parker)	60112621
PROP VAL 4WREE 10R75-2X/G24K31	60078979



Below picture shows damaged O-ring.

Repair/ Replace the Rotating Union

Does this solve the problem?

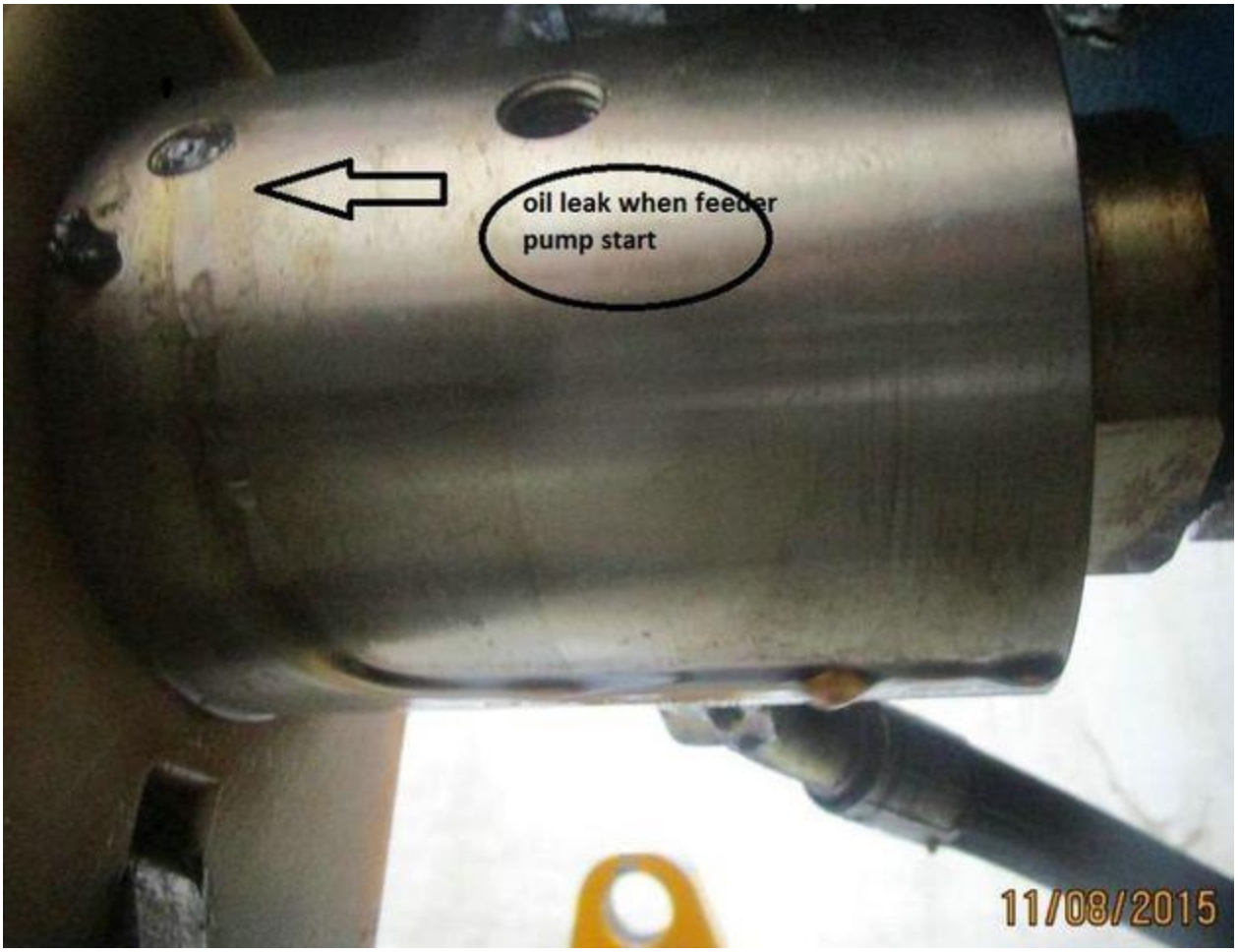
1] Yes

2] No

3] I don't know

- **Explanation**

  Check and repair/ replace Rotating Union, if found oil leakage.



Relevant spare parts	
Description	**Item No.**
ROTATING UNION 1760-1" K	60065484