



**The U.K Independent Caterpillar Specialists.**

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**EMMA JANE**

**FOR THE ATTENTION OF** Kevin Favis  
Torr Quarry Industrial estate,  
Totnes  
TQ97QQ

**Reference:** Inspection report – Emma Jane

**Phone:** +447557025508

**Date:** 29/02/2022

**Email:** [andy@revolutionmarine.co.uk](mailto:andy@revolutionmarine.co.uk)

Tuesday, 29 March 2022

## 1. REFERENCE

**Contact person:**

K. Favis

**Company:**

Favis of salcombe

**Customer account number:**

N/A

**Customer reference:**

C18 Top end inspection

**Phone number:**

+

**E-mail:**

laura@favis-os.com

**Service location:**

C.TOMS Yard, Fowey

**Date of service:**

March 2021

## 2. WORK TO BE PERFORMED

**Maintenance.**

**Brand:**      **Type:**   **Serial number:**

Caterpillar    C18

**Perform:**

• **Inspection**

According to Caterpillar® instructions all engine valves and injectors must be recalibrated after a preset number of operating hours; the number of operating hours depends on the engine type. Also stipulated in daily checks and hour-based guidelines, the following checks must also be covered.

This inspection includes the following:

- Check / adjust valve clearance
- Check / adjust injector timing (when applicable)
- Check cooling water quality
- Check the turbo for excessive play
- Check for fuel / water / oil leaks
- Visually inspect bellows, hoses & clamps
- Visually inspect crankshaft vibration damper
- Visually inspect starting and charging system
- Test and adjust alarms and shutdowns
- Perform loaded test run of the engine (if possible)

A thorough report is formulated following this inspection. We will discuss any further steps with you, should any anomalies be found during the inspection.

According to CAT guidelines, a full overhaul should be performed every 10,000 hrs.

This can be adapted due to budget, time and conditional interpretation but ultimately at the customer's own risk.

**Additional scope of work:**

Clean, inspect and pressure test (via a local company):

- After cooler core – remove, clean and pressure test.

- Fuel cooler – remove clean and pressure test
- Replace cylinder head with service exchange head.
- condition report of cylinders

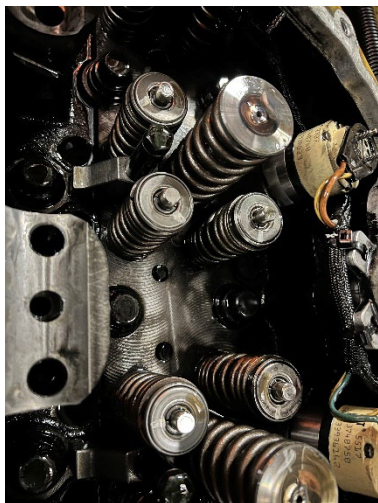
### 3. Summary of work completed.

Note: due to time available in yard vs availability of genuine CAT parts globally, it was going to be difficult to perform a top end service on this occasion. An informed decision was made with the client to complete a cylinder inspection with a borescope first to ascertain the condition of the cylinders and valves before pushing to keep the boat out of the water until parts arrive.

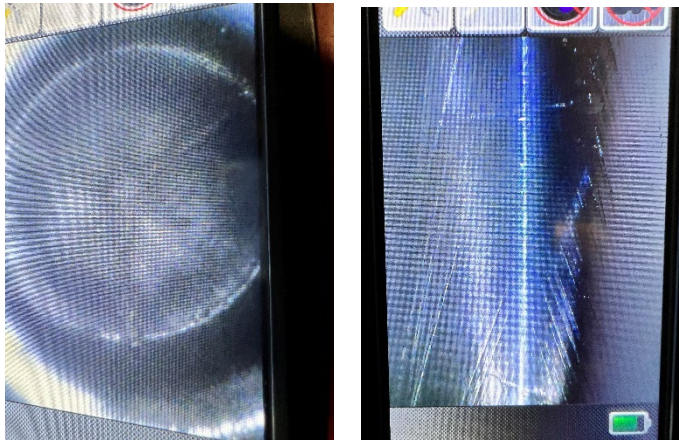
Oil sample results: These are performed every other service interval and to date have not shown any elevation in sample metals which would indicate a cause for concern or approach for action. Service intervals are carried out every 500hrs.

Upon initial inspection, the Charge air cooler was surprisingly clean for the total hours run. Typically, we can expect an element of wet stacking and residue to be found in the cooler and cylinder head air manifold. It is plausible that the addition of hydrogen is having a cleaning effect here.

Valve gear is surprisingly clean given the total hours run and despite regular oil changes we would typically see a higher carbon deposit here.

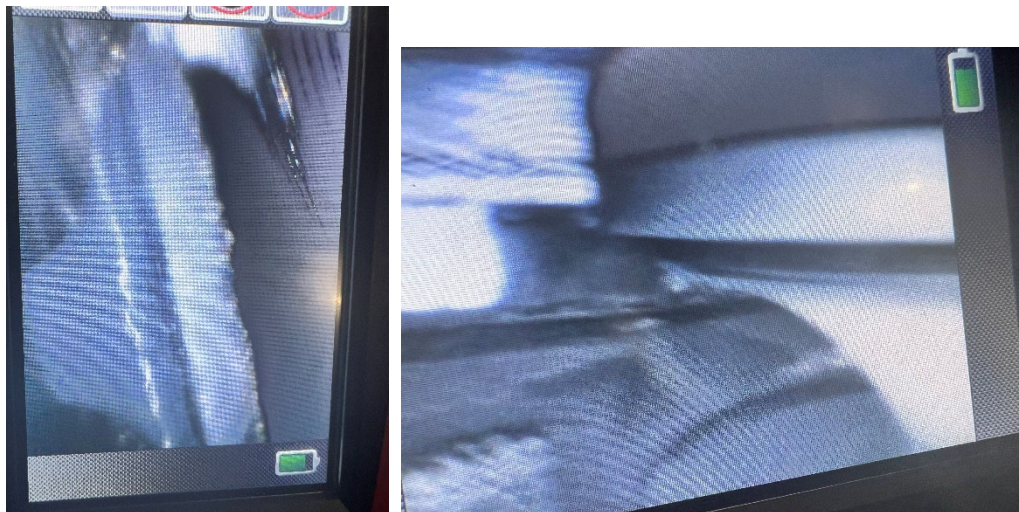


Borescope imaging found the cylinder liners to be in very good condition especially considering the total hours run and sustained periods of light loading on the engine.



Hatch marks are still clearly visible, and no signs of glazing have developed despite conditions of engine use. Piston crown is showing a nice clean burn pattern and minimal carbon deposits.

Valves are in good condition with minimal build up of carbon, despite hours of operation.



With the visual results coupled with the regular oil sampling carried out by the customer, we are satisfied with the condition of the engine and are happy to push the overhaul out for another year or until oil samples indicate a cause for alarm. From our findings, it is plausible that reduction in total diesel burnt by the introduction of hydrogen dosing, has created a cleaner burn over the engines lifespan and has not induced any evident risk for early failure.

