

**Service report****197****Diesel engine**

**Date :** 11<sup>th</sup>. April 2017  
**Installation :** Vessel Sagasund at Smögen, Sweden  
**Engine :** Frichs 6.185BCU  
**Engine S/N :** 1468  
**Customer :** Koster Marin, Daniel Eriksson  
**Order no. :** 563  
**Subject :** Major engine overhaul.  
**Content :**

Engine overhaul according to quotation and description of 24-11-2016.

The engine is removed from the vessel in Smögen and transported to Frichs workshop in Horsens

**Overhaul/Inspection.**

Overhaul of cyl. heads

All cyl. heads disassembled. Cleaning of all parts. Pressure test of cooling water chambers at 7 bar, OK. Check of valves, valve seats, valve guides dimensions. Compare dimensions with tolerances, OK. Corrosion observed in Cooling water holes. Ovality in the cyl. head stud bolt holes observed. The cyl. heads machined on the combustion room sealing surface. The cyl. head stud bolt holes and the cooling water holes machined. Bushings mounted in the holes. Drilling and machining to production dimensions. Valves and valve seats grinded. The cyl. Heads assembled with new valve stem seals.

*Pistons & con-rods.*

6 pcs. Reconditioned oil cooled pistons and con rods mounted.  
New piston rings for oil cooled pistons mounted

*Cyl. block.*

The old cyl. block without removable cyl. liner bushings removed from the engine.  
Reconditioned cyl. block with reconditioned cyl. liner bushings mounted on the engine.

*Cyl. liners.*

All cyl. liners cleaned and measured, OK. Cyl. liners honed to correct liner surface roughness.

*Bearings.*

Alle bearings removed and checked. Change of Main thrust bearing 150 mm std. size and 2 pcs.  
Con rod bearings 139 mm 1. Step oversize. Crankshaft inspection/measurement, OK.



Sverigesvej 16, DK 8700 Horsens, Denmark

---

*Torsional vibration damper.*

New torsional vibration damper mounted.

*Flexible gear wheel.*

Overhaul of the flexible gear wheel. Change of springs and spring caps Fig 0514, 0515 & 0524.

*Cooling water pumps.*

Overhaul of cooling water pumps. The sea cooling water pump rotor and shaft was in a bad condition. New rotor and shaft mounted. FW/SW cooling water pumps assembled with new mechanical seals and O-rings/gaskets.

*LO pump.*

Overhaul of the LO. Pump. Rotors, shafts, end covers and bearings are worn out. New LO pump mounted.

*Camshaft & fuel pump/valve lifters*

Camshaft and camshaft cams checked, OK. Fuel pump/valve lifters, rollers & guides checked. 1 pcs. of worn fuel pump lifter changed. Assembled with new O-rings/gaskets.

*Turbocharger.*

VTR160 turbocharger overhaul. The turbine shaft and nozzle ring was worn out. Both parts changed. Turbine shaft/rotor balanced in dynamic balance bench. The turbocharger was assembled with new gaskets. Boost air cooler overhaul. Cleaning & pressure test, OK. New corrosion anodes.

*Fuel HP pump and fuel injector.*

Overhaul of all fuel HP pumps and fuel injectors. 1 pcs. of fuel pump check valve changed. Fuel nozzles tested in test bench. Injection performance tested. Opening pressure adjusted to 275 bar.

*Cooling water system.*

FW system. The loose flanges with cooling water injection pipe at the cyl. block inlet suffered from corrosion. 6 pcs. flanges changed.

*Starting air system.*

Overhaul of starting air distributor. Worn distributor changed.

*General.*

Screws, bolts, nuts & lock nuts changed if worn/corroded

---

**N/GATA**

**DRESSER Waukesha**

CVR no: 26218993  
Phone: +45 7564 7244 - Fax: +45 7564 7433  
Web: [www.frichs.com](http://www.frichs.com) - E-Mail: [frichs@frichs.com](mailto:frichs@frichs.com)  
Account no: 0001136479 - Registration no: 7258  
DKK: IBAN DK52 7258 0001 1364 79 SWIFT: JYBADKKK  
EURO: IBAN DK12 7258 0001 1685 30 SWIFT: JYBADKKK

**turbec**  
**TDI**



Sverigesvej 16, DK 8700 Horsens, Denmark

---

*Installation.*

The engine was ligned up on the engine bedframe onboard.

ChockFast material mounted under the engine frame by third company.

Check of the crankshaft deflection after tightening of the engine foundation bolts.

See the attached crankshaft deflection record.

Engine start-up and test running. See the attached engine performance record.

**Recommendation**

Check of cyl. head nut tightening after 500 hours

ServiceEngineer :

Lars Rode  
Morten Svenningsen  
Carsten Christensen

ServiceManager :

Palle Andersen



CVR no: 26218993  
Phone: +45 7564 7244 - Fax: +45 7564 7433  
Web: [www.frichs.com](http://www.frichs.com) - E-Mail: [frichs@frichs.com](mailto:frichs@frichs.com)  
Account no: 0001136479 - Registration no: 7258  
DKK: IBAN DK52 7258 0001 1364 79 SWIFT: JYBADKKK  
EURO: IBAN DK12 7258 0001 1685 30 SWIFT: JYBADKKK

