

## REPORT ON OIL ENGINE MACHINERY.

No. 16561.

Received at London Office 29 MAR 1949

Date of writing Report 7th March 1949. When handed in at Local Office 28th March 1949. Port of Gothenburg

Survey held at Trollhättan

Date, First Survey 24th February, 1948 Last Survey 23rd October 1948.

Number of Visits 7

Gross 601 Tons Net 329

Single on the 1300 Screw vessel "T E N J A"

appd. 25 kg/cm<sup>2</sup> by 1000

Kalmar By whom built Kalmar Varv

Trollhättan By whom made Nydqvist & Holm A-B.

Donkey Boilers made at --- By whom made ---

Brake Horse Power 510 Owners Rederi A-B. Eystrasalt

I.N. Power as per Rule 136 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Trade for which vessel is intended General

Heavy oil, trunk engine (9.8/16") 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 45 kg/cm<sup>2</sup> Diameter of cylinders 250 mm. Length of stroke 420 mm. No. of cylinders 8 No. of cranks 8

Mean Indicated Pressure 5.4 kg/cm<sup>2</sup> Ahead Firing Order in Cylinders 1-8-2-6-4-5-3-7 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 350 mm. Is there a bearing between each crank Yes

Revolutions per minute 325

Weight 260 kgs. Moment of inertia of flywheel 344 Kg.cm.sec.<sup>2</sup> Means of ignition Compr. Kind of fuel used Diesel oil

Crank Shaft, (Solid forged) dia. of journals as appd. 160 mm. as fitted 160 mm. Crank pin dia. 160 mm. Crank webs Mid. length breadth 230 mm. Mid. length thickness 86 mm. Thickness parallel to axis --- Thickness around eyehole ---

Flywheel Shaft, diameter as per Rule --- as fitted --- Intermediate Shafts, diameter as per Rule --- as fitted --- Thrust Shaft, diameter at collars as fitted 140 mm. as appd. 140 mm.

Tube Shaft, diameter as per Rule --- as fitted --- Screw Shaft, diameter as fitted 145 mm. Is the (screw) shaft fitted with a continuous liner No

Bronze Liners, thickness in way of bushes as per Rule --- as fitted --- Thickness between bushes as per Rule --- as fitted --- Is the after end of the liner made watertight in the propeller boss --- If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner ---

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive --- If two liners are fitted, is the shaft lapped or protected between the liners --- Is an approved Oil Gland or other appliance fitted at the after end of tube shaft Yes If so, state type Cedervall's oil gland Length of bearing in Stern Bush next to and supporting propeller 780 mm.

Propeller, dia. 1900 mm. Pitch 1170 mm. No. of blades 3 Material Cast steel whether moveable --- Total developed surface 1.35 sq. Metr.

Moment of inertia of propeller 1140 Kg.cm.sec.<sup>2</sup> Kind of damper, if fitted ---

Method of Reversing Engines compr. air Is a governor or other arrangement fitted to prevent racing of the engine Yes Means of lubrication Forced Thickness of cylinder liners 22 mm. Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine --- Cooling Water Pumps, No. 1 x 320 lit/min. Is the sea suction provided with an efficient strainer which can be cleared within the vessel ---

Bilge Pumps worked from the Main Engines, No. 1 Diameter 100 mm. Stroke 70 mm. Can one be overhauled while the other is at work ---

Pumps connected to the Main Bilge Line No. and size --- How driven ---

Is the cooling water led to the bilges --- If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements ---

Ballast Pumps, No. and size --- Power Driven Lubricating Oil Pumps, including spare pump, No. and size 2 x 80 litres/minute

Are two independent means arranged for circulating water through the Oil Cooler --- Suctions, connected to both main bilge pumps and auxiliary bilge pumps, No. and size:—In machinery spaces --- In pump room ---

Dagny", "In holds, &c. ---

Independent Power Pump Direct Suctions to the engine room bilges, No. and size ---

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes --- Are the bilge suction in the machinery spaces led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges ---

Are all Sea Connections fitted direct on the skin of the Ship --- Are they fitted with valves or cocks --- Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates --- Are the overboard discharges above or below the deep water line ---

Are they each fitted with a discharge valve always accessible on the plating of the vessel --- Are the blow off cocks fitted with a spigot and brass covering plate ---

What pipes pass through the bunkers --- How are they protected ---

What pipes pass through the deep tanks --- Have they been tested as per Rule ---

Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times ---

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another --- Is the shaft tunnel watertight --- Is it fitted with a watertight door --- worked from ---

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ---

Air Compressors, No. 1 No. of stages 2 diameters 60/150 mm. stroke 160 mm. driven by the engine

Auxiliary Air Compressors, No. --- No. of stages --- diameters --- stroke --- driven by ---

Small Auxiliary Air Compressors, No. --- No. of stages --- diameters --- stroke --- driven by ---

What provision is made for first charging the air receivers ---

Scavenging Air Pumps, No. 1 (Double Acting) diameter 610 mm. stroke 420 mm. driven by the engine

Auxiliary Engines crank shafts, diameter as per Rule --- as fitted --- No --- Position ---

Have the auxiliary engines been constructed under special survey --- Is a report sent herewith ---



AIR RECEIVERS:—Have they been made under survey..... Yes State No. of ~~XXXXXX~~ certificate 9210 - 9211  
Is each receiver, which can be isolated, fitted with a safety valve as per Rule..... Fusible plug  
Can the internal surfaces of the receivers be examined and cleaned..... Yes Is a drain fitted at the lowest part of each receiver..... Yes  
Injection Air Receivers, No..... Cubic capacity of each..... Internal diameter..... thickness.....  
Seamless, welded or riveted longitudinal joint..... Material..... Range of tensile strength..... Working pressure by Rules.....  
Starting Air Receivers, No..... 2 Total cubic capacity 2 x 400 lit Internal diameter 480 mm. thickness 11 mm. Actual.....  
Seamless, welded or riveted longitudinal joint..... E.W. Material S.M.Steel Range of tensile strength 41.0-47.0 Working pressure appd. 25 kg/cm<sup>2</sup> Actual. 25 kg/cm<sup>2</sup>

IS A DONKEY BOILER FITTED..... If so, is a report now forwarded.....  
Is the donkey boiler intended to be used for domestic purposes only.....  
PLANS. Are approved plans forwarded herewith for shafting..... 22.12.1948 Receivers..... 22.12.1948 Separate fuel tanks.....  
(If not, state date of approval)  
Donkey boilers..... General pumping arrangements..... Pumping arrangements in machinery space.....  
Oil fuel burning arrangements.....  
Have Torsional Vibration characteristics been approved..... Yes Date of approval 4. 22.12.1948. for 325 rpm with lower speed range 7 120-145 rpm  
SPARE GEAR.  
Has the spare gear required by the Rules been supplied..... Yes. To be checked on board.  
State the principal additional spare gear supplied.....

The foregoing is a correct description, and the particulars of the installation as fitted are as approved for torsional vibration characteristics.

NYDQVIST & HOLM AB TROLLHÄTTAN

Manufacturer.

Dates of Survey while building  
During progress of work in shops - 24th February - 23rd October, 1948.  
During erection on board vessel -  
Total No. of visits 7  
Dates of examination of principal parts—Cylinders 22.6.1948 Covers 22.6.1948 Pistons 16.9.1948 Rods..... Connecting rods 16.8.1948  
Crank shaft 16.8.1948 Flywheel shaft..... Thrust shaft 25.8.1948 Intermediate shafts..... Tube shaft.....  
Screw shaft 16.8.1948 Propeller 16.8.1948 Stern tube 16.8.1948 Engine seatings..... Engine holding down bolts.....  
Completion of fitting sea connections..... Completion of pumping arrangements..... Engines tried under working conditions 1.10.1948.  
Crank shaft, material Elect.steel Identification mark LLOYDS No. 338 SJ 24.2.48 Flywheel shaft, material..... Identification mark.....  
Thrust shaft, material Elect.steel Identification mark LLOYDS No. 688 OS 25.8.48 Intermediate shafts, material..... Identification mark.....  
Tube shaft, material..... Identification mark..... Screw shaft, material Electro Steel Identification mark LLOYDS No. 580 OS 16.8.48  
Identification marks on air receivers Nos. 1767 - 1768 LLOYDS TEST 41 KGS. WP 25 KGS. OS 1.10.48

Welded receivers, state Makers' Name Nydqvist & Holm A-B., Trollhättan.  
Is the flash point of the oil to be used over 150°F Yes  
Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with.....  
Description of fire extinguishing apparatus fitted.....  
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo..... If so, have the requirements of the Rules been complied with.....  
If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with.....  
Is this machinery duplicate of a previous case Yes If so, state name of vessel M.S. "DAGNY", Gothenburg F.E.Rpt. 15755.

General Remarks (State quality of workmanship, opinions as to class, &c.)  
This main engine has been built under special survey in accordance with the Rules and approved plans. The workmanship and materials used are good and test sheets in respect of the shafting and the air receivers are attached. A notice board has been fitted at the control station stating that the engine is not to be run continuously between 120 and 145 revolutions per minute.  
The engine has been examined under full working power conditions in the shop and found in order and will be eligible, in my opinion, to be classed +LMC with date when it has been securely fitted on board the vessel to the Surveyor's satisfaction.

The amount of Entry Fee ... £ -- : -- :  
Special ... £ 520:00 : When applied for 28th March 19 49.  
Donkey Boiler Fee... £ -- : -- : When received 19 --  
Travelling Expenses (if any) £ 55:75 :  
Committee's Minute FRI 29 APR 1949  
Assigned See F.E. mchly opt.

Engineer Surveyor to Lloyd's Register of Shipping.