

# REPORT ON OIL ENGINE MACHINERY.

No. 6735.

Received at London Office **15 FEB 1951**

of writing Report *Various* 19... When handed in at Local Office *12-2* 19*51* Port of *Oslo*.  
 Survey held at *Seon & Oslo*. Date, First Survey *16-9-50*. Last Survey *30-12-50*. 19...  
 Book. Number of Visits  
 241 on the *Single* *M* Screw vessel. "SANTO" ex *MMS III* Tons Gross *163* Net *56*  
 at *Godport* By whom built *J. Morris* Yard No. When built *1942*  
 Engines made at *Manchester* By whom made *Crossley Bros* Engine No. When made  
 Boilers made at *home* By whom made Boiler No. When made  
 Horse Power *480* Owners *All Mortensen* Port belonging to *Oslo*  
 Power as per Rule *155 NHP* Is Refrigerating Machinery fitted for cargo purposes *None* Is Electric Light fitted *Yes*  
 for which vessel is intended *Towing Purposes*

ENGINES, &c. — Type of Engines *Vertical trunk type* 2 or 4 stroke cycle *2* Single or double acting *Single*  
 Maximum pressure in cylinders *950* Diameter of cylinders *10 1/2* Length of stroke *13 1/2* No. of cylinders *8* No. of cranks *8*  
 Indicated Pressure Ahead Firing Order in Cylinders Span of bearings, adjacent to the crank, measured inner edge to inner edge *14 1/16* Is there a bearing between each crank *Yes* Revolutions per minute *325*  
 Wheel dia. Weight Moment of inertia of flywheel (lbs. in<sup>2</sup> or Kg. cm.<sup>2</sup>) Means of ignition *Compass* Kind of fuel used *Diesel*  
 dia. of journals as per Rule *Approved* Crank pin dia. *7 1/2* Crank webs Mid. length breadth *9 1/4* Thickness parallel to axis  
 as fitted *7 1/2* Mid. length thickness *3 23/32* shrunk Thickness around eye-hole  
 Wheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule *Approved* Thrust Shaft, diameter at collars as fitted *3.699*  
 as fitted *5 7/16* Is the (tube) shaft fitted with a continuous liner *no*  
 Shaft, diameter as per Rule Screw Shaft, diameter as per Rule *Approved* as fitted *5 3/4*

Liner thickness in way of bushes as per Rule Thickness between bushes as per Rule Is the after end of the liner made watertight in the collar boss *Yes*  
 If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner *Yes*  
 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-soluble *Yes*  
 If two liners are fitted, is the shaft lapped or protected between the liners *Approved* Is an approved Oil Gland or other appliance fitted at the after tube shaft *Yes* If so, state type *Not OG. See Oslo 21/4/51* Length of bearing in Stern Bush next to and supporting propeller *25"*  
 Propeller, dia. *3'-10"* Pitch *4'-0"* No. of blades *3* Material *Bronze* whether moveable *no* Total developed surface *120 sq. feet*  
 Moment of inertia of propeller (lbs. in<sup>2</sup> or Kg. cm.<sup>2</sup>) Kind of damper, if fitted

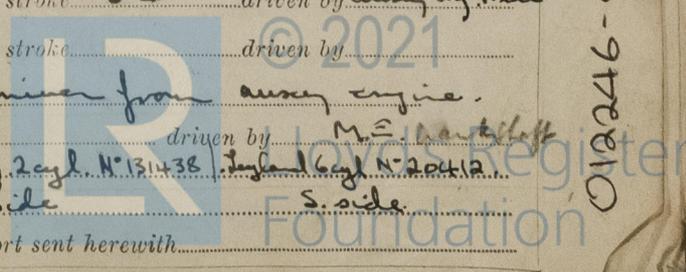
Method of reversing Engines *Direct* Is a governor or other arrangement fitted to prevent racing of the engine when declutched *Yes* Means of operation *Forward* Thickness of cylinder liners Are the cylinders fitted with safety valves *Yes* Are the exhaust pipes and silencers water cooled  
 lined with non-conducting material *Water ball* If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned to the engine  
 Cooling Water Pumps, No. *3 = 1 ME, 1 ME bilge + G.S. Pump* Is the sea suction provided with an efficient strainer which can be cleared within the vessel *Yes*  
 Pumps worked from the Main Engines, No. *One* Diameter *2 1/16* Stroke Can one be overhauled while the other is at work *Yes*  
 Pumps connected to the Main Bilge Line (No. and size) *One 2 1/16 Suction* *One 2" centrifugal Hammerhead*  
 How driven *from ME* *clutch drive from Auxiliary*  
 Is cooling water led to the bilges *no* If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements

Oil Pumps, No. and size *Integral* Power Driven Lubricating Oil Pumps, including spare pump, No. and size *Integral*  
 Are there independent means arranged for circulating water through the Oil Cooler *no* Crossly situated *Yes* Suctions, connected to both main bilge pumps and auxiliary pumps, No. and size:—In machinery spaces *2 @ 2 1/2* In pump room *Yes*  
 Oil Cooled, &c. *2 Lead @ 2 1/2* *2 aft @ 2 1/2*

Independent Power Pump Direct Suctions to the engine room bilges, No. and size *One @ 2 1/2*  
 Are the bilge suction pipes in holds and tunnel well fitted with strum-boxes *Yes* Are the bilge suction pipes 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 *Yes*  
 Sea Connections fitted direct on the skin of the Ship *Yes* Are they fitted with valves or cocks *Cocks* Are they fixed permanently high on the ship's side to be seen without lifting the platform plates *no* Are the overboard discharges above or below the deep water line *above*  
 Are they each fitted with a discharge valve always accessible on the plating of the vessel *Yes* Are the blow off cocks fitted with a spigot and brass covering plate *Yes*  
 Are pipes pass through the bunkers *home* How are they protected *Yes*  
 Are pipes pass through the deep tanks *home* Have they been tested as per Rule *Yes*  
 Are pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times *Yes*  
 Are arrangements 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 or from one compartment to another *Yes* Is the shaft tunnel watertight *home* Is it fitted with a watertight door *home* worked from *Yes*  
 On a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork *Drip trays*

Air Compressors, No. *1* No. of stages *2* diameters *5* stroke driven by *ME*  
 Auxiliary Air Compressors, No. *1 Hammerhead* No. of stages *2* diameters *4 1/2 x 1 1/2* stroke *3 1/4* driven by *Auxiliary side*  
 Auxiliary Air Compressors, No. No. of stages diameters stroke driven by *2021*  
 Provision is made for first charging the air receivers *Auxiliary compressor* *Hand starting* *clutch driven from auxy engine*  
 Charging Air Pumps, No. *1 Tandem* diameter stroke driven by *ME*  
 Auxiliary Engines crank shafts, diameter as per Rule No. *Crossley 2 cyl. N° 131438* *Englund 6 cyl. N° 20412* Position *P. side* *S. side*  
 Have the auxiliary engines been constructed under special survey *no* Is a report sent herewith

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**AIR RECEIVERS:**—Have they been made under survey... no ✓ State No. of report or certificate... ✓  
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule... yes ✓  
 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...  
 Starting Air Receivers, No. 2 ✓ Total cubic capacity 30 cu ft Internal diameter... ✓ thickness... as per Rules  
 Seamless, welded or riveted longitudinal joint... ✓ Material Steel Range of tensile strength... Working pressure... 350

**IS A DONKEY BOILER FITTED**... no ✓ 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... yes ✓ Receivers... yes ✓ Separate fuel tanks...  
 Donkey boilers... ✓ General pumping arrangements... 2 Pumping arrangements in machinery space... yes ✓  
 Oil fuel burning arrangements... ✓  
 Have Torsional Vibration characteristics been approved... no ✓ Date of approval... ✓

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied... no, ordered ✓  
 State the principal additional spare gear supplied...

The foregoing is a correct description, \_\_\_\_\_ Manufacturer.

Dates of Survey while building { During progress of work in shops - - }  
 { During erection on board vessel - - }  
 Total No. of visits...  
 Dates of examination of principal parts—Cylinders... Covers... Pistons... Rods... Connecting rods...  
 Crank shaft... Flywheel shaft... Thrust shaft... Intermediate shafts... Tube shaft...  
 Screw shaft... Propeller... Stern tube... Engine seatings... Engine holding down bolts...  
 Completion of fitting sea connections... Completion of pumping arrangements... Engines tried under working conditions 30-12-  
 Crank shaft, material Steel Identification mark WFC 12-5-42 Flywheel shaft, material... Identification mark...  
 Thrust shaft, material... Identification mark... Intermediate shafts, material... Identification marks...  
 Tube shaft, material... Identification mark... Screw shaft, material... Identification mark...  
 Identification marks on air receivers...

Welded receivers, state Makers' Name...  
 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... yes ✓  
 Description of fire extinguishing apparatus fitted... Chemical extinguisher  
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo... no ✓ 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... ✓ If so, state name of vessel... ✓

**General Remarks** (State quality of workmanship, opinions as to class, &c...)  
 The machinery of this vessel has been opened up and examined and found in good order. Modifications have been made to the general arrangements in accordance with the Rules and the Secretary's letters. The machinery is eligible in our opinion to receive as was closed with fresh record of LMC 12.50 when the spare gear has been brought up to Rule Requirements.

The amount of Entry Fee... } ... Rs 480.00 When applied for 12-2 1951  
 Special ... } ...  
 Donkey Boiler Fee... } ...  
 Travelling Expenses (if any) Rs 80.00 When received... 19...  
 E. Butler for L. Luit & Self  
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute... **FRL 5 OCT 1951**  
 Assigned LMC 12,50 Oil Eng Subject  
S (not OG) 12,50 (with torsional endorsement)  
 CERTIFICATE WRITTEN. (8.10.51)



Certificate (if required) to be sent to the Surveyors are requested not to write on or below the space for Committee's Minute.

Rpt. No. in Reg. B. 25 Built Own Inst. Is-yes Plans Heat Prim with if no in pe test Posi is th dam are steer mate per for and Are am prot Cat Swi mak over Join Cab stat are cab high ade or s Are bul effe