

AUXILIARY
REPORT ON OIL ENGINE MACHINERY.

MDR.RPT. 17965

No 16109.

Received at London Office

27 JUN 1945

Port of BRISTOL

4th June 1945 When handed in at Local Office

Date, First Survey 29th March, Last Survey 30th May, 1945

Number of Visits 3

Single
Twin
Triple
Quadruple
Screw vessel

NORHYAL

Tons Gross 13830
Net 7401

By whom built Furness S.B. Co. Yard No. 388 When built
By whom made R.A. Lister & Co., Ltd. Engine No. 360662 When made 1945
By whom made Boiler No. When made
Owners Port belonging to
Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
rade for which vessel is intended

L ENGINES, &c.—Type of Engines Heavy Oil, airless injection 2 or 4 stroke cycle 4 Single or double acting single

Maximum pressure in cylinders 800lbs sq.inch
Mean Indicated Pressure 109.6lbs sq.inch
Diameter of cylinders 4.5" Length of stroke 4.375" No. of cylinders one No. of cranks one

Distance of bearings, adjacent to the Crank, measured from inner edge to inner edge 4.875 Is there a bearing between each crank - -

Revolutions per minute 1000 Flywheel dia. 18.75 Weight (2) 300lbs Means of ignition compression Kind of fuel used Diesel oil

Crank Shaft, { Solid forged
Semi built dia. of journals as per Rule
All built as fitted 2.375" Crank pin dia. 2.75" Crank Webs Mid. length breadth 3.5" Thickness parallel to axis
Mid. length thickness 1.3125" shrunk Thickness around eyehole

Flywheel Shaft, diameter as per Rule
as fitted 2.25" Intermediate Shafts, diameter as per Rule
fitted Thrust Shaft, diameter at collars as per Rule
as fitted

Tube Shaft, diameter as per Rule
as fitted Screw Shaft, diameter as per Rule
as fitted Is the tube shaft fitted with a continuous liner {

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 the tube

Length of Bearing in Stern Bush next to and supporting propeller

Propeller, dia. Pitch No. of blades Material whether Moveable Total Developed Surface sq. feet

Method of reversing Engines Is a governor fitted to prevent racing of the engine when declutched Yes Means of lubrication

forced Thickness of cylinder liners .3125" Are the cylinders fitted with safety valves No Are the exhaust pipes and silencers water cooled or lagged with

non-conducting material No 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. Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Bilge Pumps worked from the Main Engines, No. Diameter Stroke 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

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

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 Suctions 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

Main Air Compressors, No. No. of stages Diameters Stroke Driven by

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. Diameter Stroke Driven by

Auxiliary Engines crank shafts, diameter as per Rule
as fitted Position

Have the Auxiliary Engines been constructed under special survey Is a report sent herewith

AIR RECEIVERS: — Have they been made under survey

State No. of Report or Certificate

Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined and cleaned

Is a drain fitted at the lowest part of each receiver

Injection Air Receivers, No.

Cubic capacity of each

Internal diameter

thickness

Seamless, lap welded or riveted longitudinal joint

Material

Range of tensile strength

Working pressure

by Rules
Actual

Starting Air Receivers, No.

Total cubic capacity

Internal diameter

thickness

Seamless, lap welded or riveted longitudinal joint

Material

Range of tensile strength

Working pressure

by Rules
Actual

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 **No(24.10.34)**

(If not, state date of approval)

Receivers

Separate Fuel Tanks

Donkey Boilers

General Pumping Arrangements

Pumping Arrangements in Machinery Space

Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied **Yes**

State the principal additional spare gear supplied

The foregoing is a correct description.

R. A. LISTER (MARINE SALES) LTD.

Manufacturer.

Dates of Survey while building
During progress of work in shops - - **29.3.45 4.5.45 30.5.45**
During erection on board vessel - -
Total No. of visits **3**

Dates of Examination of principal parts—Cylinders **4.5.45** Covers **4.5.45** Pistons **4.5.45** Rods - - Connecting rods **4.5.45**
Crank shaft **29.3.45** Flywheel shaft **29.3.45** Thrust shaft Intermediate shafts Tube shaft
Screw shaft Propeller Stern tube Engine sealings Engines holding down bolts
Completion of fitting sea connections Completion of pumping arrangements Engines tried under working conditions **30.5.45**
Crank shaft, Material **steel** Identification Mark **Lloyd's 78** Flywheel shaft, Material **part crank shaft.** 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

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

General Remarks (State quality of workmanship, opinions as to class, &c.)

This Auxiliary Oil Engine has been built under Special Survey. Waterjackets tested with hydraulic pressure 100 lbs. per sq. inch and found sound and tight. The workmanship and materials have been found good. Crankshaft taken from Maker's stock, test pieces proved satisfactory. After assembly the engine examined during a full load test bed running trial of several hours duration; governor tried and found satisfactory.

Identification marks **M.1453** Engine made to the order of the Hamworthy Engineering Co., Ltd., Poole. This engine has been coupled to a two stage two crank air Compressor, makers Messrs. The Hamworthy Engineering Co. Ltd, Compressor No. 66789. Made under the inspection of the Society's Surveyors for Messrs. W.H. Allen Sons & Co. Ltd, Bedford.

The amount of Entry Fee .. £ **4 : 0** : When applied for,
MS Special £ : : 19
Donkey Boiler Fee £ : : When received,
Travelling Expenses (if any) £ **: 15** : 19

Committee's Minute **FRI. 15 FEB 1946**

Assigned **Su F.E. Macky. rpt.**

J. Brooke Smith
Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation