

REPORT ON OIL ENGINE MACHINERY.

No 33178

Received at London Office 21 AUG 1941

pt. 4b.

Date of writing Report

When handed in at Local Office 20 AUG 1941 Port of Sunderland.

Location in Survey held at Sunderland.

Date, First Survey 28 Feb. Last Survey 15 Aug 1941

Number of Visits 66

On the **Single** Screw vessel **"GREEN RANGER"**

Tons: Gross 3313 Net 1506

Engines made at **Sunderland**

By whom built **Caledon S. & Co. Ltd**
By whom made **Wm. Beard & Sons Ltd**

Yard No. **391** When built **1941**
Engine No. **219** When made **1941**

Monkey Boilers made at **Dundee**
Horse Power **2800**

By whom made **Caledon S. & Co. Ltd**
Owners **The Admiralty**

Boiler No. **591** When made **1942**
Port belonging to **London**

Nom. Horse Power as per Rule **598**

Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **yes**

Trade for which vessel is intended

Admiralty Oilers

ENGINES, &c.

Type of Engines

Opposed piston airless injection or 1/2 stroke cycle 2 Single or double acting **Single**

Maximum pressure in cylinders

568 lbs/sq in

Diameter of cylinders

560 in

Length of stroke

Upper 910 in

No. of cylinders

4

No. of cranks

4 (3 throws)

Mean Indicated Pressure

81 lbs/sq in

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge

F. 2120 in

F. 2280 in

Revolutions per minute

120

Crank Shaft

Solid forged

dia. of journals **400 in**

as fitted **420 in**

Weight **A. 5.25 tons**

Crank pin dia. **420 in**

Crank Webs

Mid. length breadth **610 in**

Mid. length thickness **240 in**

Thickness parallel to axis **240 in**

Thickness around a hole **193 in**

Flywheel Shaft, diameter

400 in

as fitted **420 in**

Intermediate Shafts, diameter

as per Rule

as fitted

Thrust Shaft, diameter at collars

as per Rule

as fitted **420 in**

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

Yes

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.

Hand lever

Pitch

No. of blades

Material

whether Movable

Total Developed Surface

sq. feet

Method of reversing Engines

Hand lever

Is a governor or other arrangement fitted to prevent racing of the engine when detached

Yes

Means of lubrication

Thickness of cylinder liners

25 in

Are the cylinders fitted with safety valves

Yes

Are the exhaust pipes and silencers water cooled or lugged with

Non-conducting material

Yes

If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

one engine driven

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.

none

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

one engine driven 120 in x 340 in

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

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

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

Is a drain fitted at the lowest part of each receiver

Can the internal surfaces of the receivers be examined and cleaned

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

23/9/39.

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 (No top & bottom end Conn. rod bearings Supplied)

State the principal additional spare gear supplied 1 Cylinder liner & jacket Complete, 1 main piston head & 24 rings.

4 Fuel valves Complete, 8 Spray Plugs, 1 N.R. air Starting Valve Complete, 1 Cyl. relief Valve, 2 Pump heads Complete with X.Hds. Stouts & Cappings, delivery Chambers & bell crank levers, 1 Set of thrust pads, 1 roller chain for Camshaft drive, 12 hoses for upper piston Cooling water, 12 hoses for lower end X.Hd lubricating, 1 Cyl. lubricator, 8 discs for Scavenge pump, 1 Set of valve discs for main Engine pumps.

The foregoing is a correct description,

WILLIAM DOXFORD & SONS, Limited.

J. W. Miller

Director

Manufacturer.

Dates of Survey while building: During progress of work in shops - 21 Feb, 28 Feb, 6, 7, 10, 11, 12, 13, 14, 20, 21, 24, 25, 26, 28, 21, April, 1, 3, 8, 9, 15, 16, 17, 18, 21, 28, 24, 25, 28, 30, May, 1. During erection on board vessel - 9, 12, 14, 26, 28, 29, June, 10, 11, 16, 19, 23, 25, July, 4, 7, 18, 21, 22, 23, 24, 25, 28, 29, 30, 31, Aug, 5, 6, 7, 8, 11, 12, 13. Total No. of visits 66

Dates of Examination of principal parts - Cylinders 21/3/41, 28/3/41, Covers 14/5/41, 14/5/41, Pistons 16/6/41, Rods 16/6/41, Connecting rods 30/7/41

Crank shaft GLS. 21/2/41, 13/3/41, Flywheel shaft as crank, Thrust shaft as crank, Intermediate shafts, Tube shaft

Screw shaft, Propeller, Stern tube, Engine seatings, Engines holding down bolts

Completion of fitting sea connections, Completion of pumping arrangements, Engines tried under working conditions (TEST BED) 15/8/41

Crank shaft, Material Ingot Steel, Identification Mark FOR Section S.O. 5244, No 9641C, Flywheel shaft, Material Scavenge crank L.C.D. 13/3/41, Identification Mark as crank, Intermediate shafts, Material L.C.D. 21/2/41, Identification Mark

Thrust shaft, Material as crank, Identification Mark as crank, 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.

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/V "GOLD RANGER"

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been built under Special Survey in accordance with the approved plans & the rules of the Society. The materials & workmanship are good.

The engine has been tried under full load conditions on the test-bed with satisfactory results & has been despatched to Messrs. Caledon Shipbuilding & Eng. Co. Ltd. for installation on board the vessel, after which it will be eligible in my opinion to have notation of 180 h.p. (with date) oil Eng. in the Register Book.

The amount of Entry Fee .. £ 6 : : When applied for, 2/3 Special ... £ 40 : : 20 AUG 1941, Donkey Boiler Fee £ 12 : 12 : : When received, Travelling Expenses (if any) £ : : 19

J. W. Fraser, Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 10 FEB 1942

Assigned SEE ACCOMPANYING MACHINERY REPORT



Vertical stamp: SUNDERLAND

Vertical stamp: Certificate (if required) to be sent to