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## REPORT ON OIL ENGINE MACHINERY.

No. 17212

17 MAY 1956

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Survey held at Date, First Survey Last Survey 19  
Book. Number of Visitson the ~~Twin~~ ~~Triple~~ ~~Quadruple~~ ~~Single~~ vessel Irrawaddy Flotilla Quarter Wheeler - Classed Vessel. Tons Gross 200 Net -  
at Scotstoun, Glasgow By whom built Yarrow & Co. Ltd. Job No. 635 Order No. 2108 When built 6.56.  
Engines made at Ashton-U-Lyne By whom made The National Gas & O.E. Co. Ltd. Engine No. 80660 When made 1955-6  
Boilers made at By whom made Boiler No. When made  
Horse Power 440 Owners The Burma Inland Water Transport Organisation. Port belonging to Rangoon  
Power as per Rule 88 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes  
for which vessel is intended Service on the River Irrawaddy, Burma.

ENGINES, &c. — Type of Engines National R4AM8 2 or 4 stroke cycle 4 Single or double acting Single  
Maximum pressure in cylinders 850 psi Diameter of cylinders 9" Length of stroke 12" No. of cylinders 8 No. of cranks 8  
Indicated Pressure 115 psi Ahead Firing Order in Cylinders 1, 5, 2, 6, 8, 4, 7, 3 Span of bearings, adjacent to the crank, measured  
inner edge to inner edge 10 1/2" Is there a bearing between each crank Yes Revolutions per minute 600  
Flywheel dia. 55 1/2" Weight 2,840 lbs. Moment of inertia of flywheel (lbs. in<sup>2</sup> or Kg. cm.<sup>2</sup>) 1433 lb. in. sec.<sup>2</sup> Means of ignition Comp. Kind of fuel used Diesel  
Crank (Solid forged) dia. of journals 6.622" Crank pin dia. 6.372" Crank webs Mid. length breadth 8 1/2" Thickness parallel to axis -  
Mid. length thickness 2 1/2" shrunk Thickness around eyehole -  
Wheel Shaft, diameter as per Rule Intermediate Shafts, diameter as fitted Thrust Shaft, diameter at collars as fitted  
Screw Shaft, diameter as fitted Is the tube screw shaft fitted with a continuous liner  
Liners, thickness in way of bushes as per Rule Thickness between bushes 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  
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. If so, state type 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  
Moment of inertia of propeller (lbs. in<sup>2</sup> or Kg. cm.<sup>2</sup>) Kind of damper, if fitted "Holset" Viscous Type  
Method of reversing Engines R/R Gearbox Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of  
lubrication Forced Thickness of cylinder liners 19/32" Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled  
Exhaust Manifold Water Cooled  
Lagged with non-conducting material If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned  
led to the engine 1 FW Pump 5280 GPH Capacity, 1 SW Pump 8000 GPH Capacity.  
Cooling Water Pumps, No. Is the sea suction provided with an efficient strainer which can be cleared within the vessel  
Gear 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  
Power Driven Lubricating Oil Pumps, including spare pump, No. and size Two 1000 GPH each  
Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both main bilge pumps and auxiliary  
pumps, No. and size:—In machinery spaces In pump room  
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 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  
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  
Do all pipes pass through the bunkers How are they protected  
Do all 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 on 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. One CS2 Reavell No. of stages Two diameters LP 3 1/2" dia. HP 1 1/2" dia. stroke 3" driven by Vee Belt from Bobbin Coupling  
Auxiliary Air Compressors, No. No. of stages diameters stroke driven by  
All Auxiliary Air Compressors, No. No. of stages diameters stroke driven by  
Is provision made for first charging the air receivers  
Serving 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

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AIR RECEIVERS:—Have they been made under survey..... Yes..... State No. of report or certificate 8:25441  
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. Two..... Total cubic capacity 10 cu.ft. Internal diameter 17 1/2" thickness 3/8"  
Longitudinal and circumferential joints..... Cylindrical plates 28 to 30 tons tensile strength.....  
Seamless, welded or riveted longitudinal joint..... Material Steel..... Range of tensile strength..... Working pressure.....  
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..... Approved 23/6/55. Receivers..... 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 26th July, 1955.

SPARE GEAR.

Has the spare gear required by the Rules been supplied..... Yes.....  
State the principal additional spare gear supplied..... As required by Rules.....  
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The foregoing is a correct description, and the particulars of the engine, as supplied, are as approved for Torsional Vibration Characteristics by Lloyd's Register of Shipping.

Dates of Survey while building..... During progress of work in shops - - - 1955 November 28th, 29th, 30th. December 2nd, 5th, 16th. 1956. April 24th, 25th.  
During erection on board vessel - - -  
Total No. of visits.....  
Dates of examination of principal parts..... Column 30.11.55 Covers 2.12.55 Pistons 24.3.56 Rods..... Connecting rods 2.12.56  
Crank shaft 29.11.55 Crank-Gearbox 25.3.56 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.....  
Crank shaft, material..... Identification mark 31.12.56. Flywheel shaft, material, OH Steel 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..... 5/4243 Lloyd's Test 700 lbs WP 350 lbs. 8.12.55 ATR LDS  
5/4244 Lloyd's Test 700 lbs WP 350 lbs. 8.12.55 ATR LDS  
Welded receivers, state Makers' Name..... J & H. McLaren Ltd., Leeds.  
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..... No..... If so, state name of vessel.....

General Remarks (State quality of workmanship, opinions as to class, Speed restrictions, &c. This machinery has been constructed under special survey of tested materials in accordance with the Secretary's letters, approved plans and Requirements of the Rules. Crankcase explosion devices are fitted. The Torsional Vibration Characteristics of the shafting installation of this main machinery have been examined in conjunction with the Engine Builder's calculations and will be approved for engine speed of 600 R.P.M. and the corresponding paddle speed of 43.6 R.P.M. 3594  
The materials and workmanship are good and the engine, when tested in the builder's works under full load conditions for 4 hours, 10% overload for 1 hour, 75% load and 50% load for 1/2 hour each Ahead, and 1 hour on 2/3 load and 3/4 speed, astern, showed satisfactory results. In the opinion of the undersigned this machinery is suitable for installation in a vessel to be classed with this Society for the purpose intended. Attached are:-

Manchester Report F548 covering Crankshaft No. 2668.  
Leeds Certificates C25441, C25442 covering Air Receivers 4243, 4244. Manchester Cert. No.C.8903 covering Engine No.80660.  
to be credited through Glasgow Office.  
The amount of Entry Fee... £ 31 : - :  
Special ... £ : : When applied for 16.5.55 19 569  
Donkey Boiler Fee... £ : : When received 19  
Travelling Expenses (if any) £ 1 : 15 :  
Committee's Minute..... GLASGOW 7 AUG 1956  
Assigned..... SEE ACCOMPANYING MACHINERY REPORT

This engine has been efficiently installed on board listed under full working conditions and found satisfactory.  
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