

# REPORT ON OIL ENGINE MACHINERY.

DEC 1950

Received at London Office 12 DEC 1950

of writing Report 19 When handed in at Local Office 11 DEC 1950 19 Port of NEWCASTLE-on-TYNE  
Survey held at Date, First Survey 10/1/50 Last Survey 12/10/50 19  
Book. Number of Visits 40

Single on the Main Triple Quadruple Screw vessel "M.V. 'ATHEL SULTAN'" Tons Gross Net  
at SOUTH BANK By whom built SMITHS DOCK CO. LD. Yard No. 1210 When built 1950  
Engines made at NEWCASTLE By whom made R & W. HAWTHORN LESLIE & CO. LD. Engine No. 4063 When made 1950  
Boilers made at WALLSEND ON TYNE By whom made NORTH EASTERN MARINE ENG. CO. (1938) LTD. Boiler No. 3200 When made 1950  
Horse Power 4450 Owners ATHEL LINE LTD. Port belonging to LIVERPOOL  
Power as per Rule 902 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES  
Service for which vessel is intended OPEN SEA SERVICE

ENGINES, &c. — Type of Engines HAWTHORN DOXFORD OPPOSED PISTON or 4 stroke cycle 2 Single or double acting SINGLE  
Maximum pressure in cylinders 640 LBS/SQ IN Diameter of cylinders 26 3/8" combined 91 5/16" Length of stroke 2320 mm No. of cylinders 4 No. of cranks 4 THREE-THROW  
Indicated Pressure 89 LBS/SQ IN Ahead Firing Order in Cylinders 1-3-4-2 Span of bearings, adjacent to the crank, measured BETWEEN EACH  
Inner edge to inner edge 2020 mm. Is there a bearing between each crank 3-THROW. Revolutions per minute 112  
Crank pin dia. 2493 mm Weight 1.15 TNS Moment of inertia of flywheel (LBS IN<sup>2</sup> OR KG CM<sup>2</sup>) 0.497 Means of ignition COMPRESSOR Kind of fuel used HEAVY OIL  
Crank pin dia. of journals as per Rule APPROVED as fitted 500 mm Crank pin dia. 500 mm Crank webs Mid. length breadth 710 mm Thickness parallel to axis 285 mm  
Crank pin dia. as fitted 500 mm Crank webs Mid. length thickness 285 mm Thickness around eye-hole 219 mm

Propeller Shaft, diameter as per Rule 23" REDUCED Intermediate Shafts, diameter as per Rule 22 3/4" REDUCED Thrust Shaft, diameter at collars as fitted 500 mm  
Main Shaft, diameter as per Rule as fitted 20" Is the (tube) shaft fitted with a continuous liner YES  
Liner thickness in way of bushes as per Rule 13/16" Thickness between bushes as fitted 5/8" Is the after end of the liner made watertight in the  
propeller boss YES. If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner IN ONE LENGTH

Propeller, dia. 17'-0" Pitch 12.90 FT. No. of blades 4 Material M. BRONZE whether moveable NO Total developed surface 102.5 sq. feet  
Moment of inertia of propeller (LBS IN<sup>2</sup> OR KG CM<sup>2</sup>) 5.01 INCLUDING 25% ENTRAINED WATER Kind of damper, if fitted DOXFORD-BIBBY DETUNER (SEE OVERLEAF)  
Method of reversing Engines HAND LEVER AND COMP. AIR Is a governor or other arrangement fitted to prevent racing of the engine when declutched YES Means of  
lubrication FORCED Thickness of cylinder liners 25 mm Are the cylinders fitted with safety valves YES Are the exhaust pipes and silencers water cooled

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  
to the engine Cooling Water Pumps (I.M.E. DRIVEN F.W. 200 TNS/HR + 1 Ind. standby) Is the sea suction provided with an efficient strainer which can be cleared within the vessel  
Cooling Water 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  
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

Oil Pumps, No. and size Power Driven Lubricating Oil Pumps, including spare pump, No. and size I.M.E. DRIVEN 45 TNS/HR  
Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both main bilge pumps and auxiliary  
oil pumps, No. and size: — In machinery spaces In pump room

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  
efficiently 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

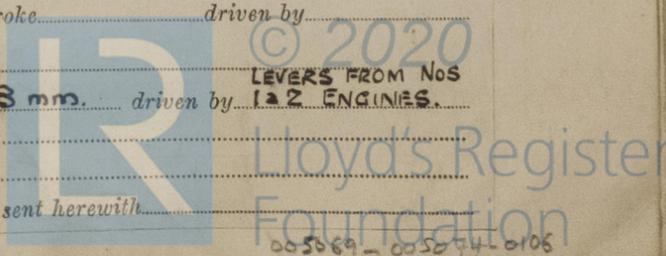
Are all pipes pass through the bunkers How are they protected  
Are all pipes pass through the deep tanks Have they been tested as per Rule  
Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times

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

Auxiliary Air Compressors, No. NONE No. of stages - diameters - stroke - driven by -  
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  
Revolving Air Pumps, No. TWO diameter 1700 mm stroke 548 mm driven by LEVERS FROM Nos 1 & 2 ENGINES

Auxiliary Engines crank shafts, diameter as per Rule No. Position  
Have the auxiliary engines been constructed under special survey Is a report sent herewith

JM  
9/1/51



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LEVERS FROM Nos  
1 & 2 ENGINES

**AIR RECEIVERS:**—Have they been made under survey Yes. State No. of report or certificate -  
 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. Two. Total cubic capacity. 300 cu. ft. Internal diameter. 4'-6" thickness. 1 3/8" Actual. -  
 Seamless, welded or riveted longitudinal joint. ELECT. WELDED Material. M. STEEL. Range of tensile strength. SHELL 28/32. Working pressure by Rules.  
ENDS 26/30. Actual. 600

**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 Yes. Receivers. SEE LETTER DATED 13.1.50. Separate fuel tanks. -  
 Donkey boilers. - General pumping arrangements. - Pumping arrangements in machinery space. -  
 Oil fuel burning arrangements. -  
 Have Torsional Vibration characteristics been approved. Yes. Date of approval. 6  
1 3.50 for 120y  
provided for use to prevent speed exceeding 128y.  
 Has the spare gear required by the Rules been supplied. Yes.  
 State the principal additional spare gear supplied. AS PER ATTACHED LISTS. (To come)

**DOXFORD - BIBBY DETUNER FITTED:**— 4.5  
 FIXED MEMBER  $WK^2 = \text{---} \text{ TNS.FT}^2$   
 FLOATING. "  $WK^2 = 10.0 \text{ TNS.FT}^2$

For R. & W. HAWTHORN LESLIE & Co. LTD.  
 The foregoing is correct description, and the Particulars of the installation as fitted are as Approved for the TORSIONAL VIBRATION CHARACTERISTICS.  
J. McLean Manufacturer.

**DATES OF SURVEY**  
 During progress of work in shops - 11.9.50 JAN 10, 12, FEB 10, 24, MAR 2, 28, APR 3, 18, 24, MAY 2, 8, 24, 26, JUNE 7, 9, 13, 15, 19, 21, 23, 27, 29, JULY 3, 5, 7, 13, 21, 26, AUG 4, 18, SEPT 1, 5, 11, 19, 27  
 During erection on board vessel - 8, 11, 13, 21, OCT 3, 12  
 Total No. of visits. NEWCASTLE-ON-TYNE = 40  
**DATES OF EXAMINATION OF PRINCIPAL PARTS**  
 Cylinders. 10.2.50 etc Covers. - Pistons. 21.6.50 etc Rods. 21.6.50 etc Connecting rods. 19.6.50  
 Crank shaft. 27.3.50 etc. Flywheel shaft. - Thrust shaft. IN CRANKSHAFT. Intermediate shafts. 7.7.50 Tube shaft. -  
 Screw shaft. 24.8.50/5.7.50. Propeller. 8.7.50. Stern tube. 12.10.50 Engine seatings. - Engine holding down bolts. -  
 Completion of fitting sea connections. - Completion of pumping arrangements. - Engines tried under working conditions. -  
 Crank shaft, material. F.O.H.I.S. Identification mark. 21634. AB. Flywheel shaft, material. - Identification mark. -  
 Thrust shaft, material. F.O.H.I.S. Identification mark. IN CRANKSHAFT Intermediate shafts, material. F.O.H.I.S. Identification marks. LL No. 21258 20  
 Tube shaft, material. - Identification mark. - Screw shaft, material. F.O.H.I.S. Identification mark. KMS. 16-12.49 4A1  
 Identification marks on air receivers. " LLOYDS TEST. T.P. 950 LBS : WP. 600 LBS : AB. 7.9.50."  
LL No. 21261. 4A1. 17.12.49  
AB. 8.7.50.

Welded receivers, state Makers' Name. R & W. HAWTHORN LESLIE & Co. LD. NEWCASTLE ON TYNE.  
 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, &c.)  
The machinery referred to herein has been constructed under Special Survey in accordance with the Society's Rules, Approved Plans, & Secretary's letters. The workmanship and materials are good. The machinery has been despatched to South Bank for installation in Messrs Smiths Dock Co. Ltd. Ship No. 1210.  
A notice board to be fitted at the control station stating maximum revs 128 RPM. Engine governor to be adjusted accordingly.

**2/3<sup>rd</sup> FEE (CONSTRUCTION ONLY.)** £ 170 : 5 : 0  
**EW. CONSTRUCTION** £ 17 : 15 : 0  
**2 AIR RESERVOIRS** £ 8 : 0 : 0  
 Donkey Boiler Fee... £ : : :  
 Travelling Expenses (if any) £ : : :  
 When applied for 11 DEC 1950  
 When received 19

Committee's Minute FRI. 13 APR 1951  
 Assigned See F.E. Macky. rpt.

J. Butler  
 Engineer Surveyor to Lloyd's Register of Shipping.  
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NEWCASTLE-ON-TYNE  
 Certificate (if required) to be sent to  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)