

REPORT ON OIL ENGINE MACHINERY.

No. 15506.

30th April, 1953.

Received at London Office

27 MAY 1953

of writing Report 19 When handed in at Local Office 25th May, 19 53 Port of Manchester.

Survey held at Manchester. Date, First Survey 3rd December, 1952. Last Survey 4th May, 19 53.

g. Book. Number of Visits 11.

Single on the Twin Triple Quadruple Screw vessel 250 Ton Coaster Classed Vessel. INSUMAR. Contract No. 10005. Tons Gross Net

uilt at Trieste By whom built Cantieri Navale Giuliano. Yard No. 36. When built

Engines made at Openshaw. By whom made Messrs. Crossley Bros. Ltd., Engine No. 146643. When made

onkey Boilers made at By whom made Boiler No. When made

ake Horse Power 300 Owners Indonesian Republic Port belonging to

N. Power as per Rule 60 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

ade for which vessel is intended

L ENGINES, &c. Type of Engines Crossley HRN4 - Vertical Heavy / 2 or 4 stroke cycle 2 Single or double acting Single

aximum pressure in cylinders 950 lbs/sq. in. Diameter of cylinders 10 1/2" Length of stroke 13 1/2" No. of cylinders 4 No. of cranks 4

ean Indicated Pressure 100 lbs/sq. in. Ahead Firing Order in Cylinders 1, 4, 2, 3. Span of bearings, adjacent to the crank, measured

om inner edge to inner edge 14.11/16" Is there a bearing between each crank Yes Revolutions per minute 300

Wheel dia. 37 1/2" Weight 2166 Moment of inertia of flywheel (lbs. in² or Kg. cm.²) 500,000 lbs in. sec² Compression

rank Solid forged dia. of journals as per Rule Approved Crank pin dia. 7 1/2" Crank webs Mid. length breadth 9 1/2" Kind of fuel used Diesel

haft, Semi built dia. of journals as fitted 7 1/2" Crank webs Mid. length thickness 3.23/32 shrunk Thickness parallel to axis

Wheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule Thrust Shaft, diameter at collars as fitted 4 3/4" Approved

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

ronze Liners, 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

opeller 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-

orrosive 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

d of tube shaft If so, state type Length of bearing in Stern Bush next to and supporting propeller

opeller, dia. Pitch No. of blades Material whether moveable Total developed surface sq. feet

oment of inertia of propeller (lbs. in² or Kg. cm.²) Kind of damper, if fitted

ethod of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of

abrication Forced Thickness of cylinder liners 7/8" Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled

agged with non-conducting material If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned

ck to the engine Cooling Water Pumps, No. 1 4 1/2 x 3" 2520 G.P.H. Is the sea suction provided with an efficient strainer which can be cleared within the vessel

lge Pumps worked from the Main Engines, No. 1 Diameter 4 1/2" Stroke 3" Can one be overhauled while the other is at work Yes

umps 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

rangements

allast Pumps, No. and size Power Driven Lubricating Oil Pumps, including spare pump, No. and size 1 - 882 G.P.H. 1 - 1440 G.P.H.

re two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both main bilge pumps and auxiliary

lge pumps, No. and size: In machinery spaces In pump room

holds, &c.

dependent Power Pump Direct Suctions to the engine room bilges, No. and size

re 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

cessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

re 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

re 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

hat pipes pass through the bunkers How are they protected

hat pipes pass through the deep tanks Have they been tested as per Rule

re all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times

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

aces, 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

ain Air Compressors, No. One No. of stages Two diameters 5 3/4" & 2 1/2" stroke 4" driven by Main Engine

uxiliary Air Compressors, No. No. of stages diameters stroke driven by

all Auxiliary Air Compressors, No. No. of stages diameters stroke driven by

hat provision is made for first charging the air receivers

avenging Air Pumps, No. 1 - D.A. Tandem diameter 20 1/2" stroke 6 1/2" driven by Main Engine

uxiliary Engines crank shafts, diameter as per Rule as fitted No. Position

ve the auxiliary engines been constructed under special survey Is a report sent herewith

4B. 15506.

AIR RECEIVERS:—Have they been made under survey.....Yes.....State No. of report or certificate C.15653 and C.15657.

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, welded or riveted longitudinal joint.....Material.....Range of tensile strength.....Working pressure by Rules.....Actual.....

Starting Air Receivers, No. Two.....Total cubic capacity. 30 ft³.....Internal diameter. 24".....thickness.....

Seamless, welded or riveted longitudinal joint Welded.....Material. Steel.....Range of tensile strength.....Working pressure by Rules.....Actual.....350 P.S.

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 28th August, 1952.....Receivers.....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 26th September, 1952.....

SPARE GEAR.

Has the spare gear required by the Rules been supplied.....

State the principal additional spare gear supplied.....

The foregoing is a correct description, and the particulars of the Engine, as supplied, are as approved.....Manufacturer the Torsional Vibration Characteristics.

Dates of Survey while building.....During progress of work in shops - - 1952. Dec. 3rd. 1953. Feb. 18th, 23rd. Mar. 11th, 13th, 24th, April 22nd, 23rd, 29th. May 4th(2)

Dates of examination of principal parts—Cylinders. 18.2.53. Covers. 18.2.53. Pistons. 6.3.53. Rods 13.2.53. Connecting rods 17.9.52.

Crank shaft. 6.2.53. Flywheel shaft.....Thrust shaft. 18.2.53. 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 O.H. Steel. Identification mark LLOYD'S 4724. 6.2.53. W.T.M. 51 EBT.117. Flywheel shaft, material.....Identification mark.....

Thrust shaft, material O.H. Steel. Identification mark LLOYD'S 4619. 18.2.53. N.W.T. 50 EBT.16. Intermediate shafts, material.....Identification marks.....

Tube shaft, material.....Identification mark.....Screw shaft, material.....Identification mark.....

Identification marks on air receivers.....No. 9501/51. LLOYD'S TEST. 575 lbs. W. P. 350 lbs. J.B.T. E.W. 16.9.52.

Welded receivers, state Makers' Name.....Messrs. Whiteley-Read Engineers Ltd.

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.....If so, state name of vessel.....

General Remarks (State quality of workmanship, opinions as to class, Speed restrictions, &c. This engine has been constructed under spec

survey in accordance with the Society's Rules and the approved plans. The materials and workmanship are good, and the

engine, when tested under working conditions on the test bed, coupled to a dynamometer and developing full load for

6 hours followed by 1 hour at 10% overload, was found satisfactory. The Torsional Vibration Characteristics of the

shafting installation have been approved for a service speed of 300 R.P.M., provided a notice board be fitted at the

control station, stating that engine is not to be operated continuously between 220 and 255 R.P.M, and the engine

tachometer be marked accordingly, or alternatively, provided torsionographs records taken from the completed installation

indicate that stresses in the straight shafting arising from the 1-node 4th order critical speed calculated to occur

at 236 R.P.M. are satisfactory for continuous operation. The engine is in my opinion suitable for installation in a

vessel classed with this Society.

ATTACHED HERETO:-

Manchester Report No. F.7807, - covering Thrust Shaft.
Manchester Report No. F.8140 - covering Crankshaft.
Nottingham Reports Nos. C.15653 - covering Air Receivers
C.15657

The amount of Entry Fee ... £ 22 : - : -

Special ... £ : : : When applied for 19

Donkey Boiler Fee... £ : : : When received 19

Travelling Expenses (if any) £ 2 : 16 : -

Committee's Minute

Assigned See Rpt. 46.

TUESDAY - 1 DEC 1953

Engineer Surveyor to Lloyd's Register of Shipping.



Lloyd's Register Foundation