

REPORT ON OIL ENGINE MACHINERY.

No 8391

Received at London Office AUG 21 1939

Date of writing Report 11th July 1939 When handed in at Local Office 11th July 1939 Port of Hongkong
 Date, First Survey May 10th 1938 Last Survey 7th July 1939
 Number of Visits 73

No. in Survey held at Hongkong
 No. of Book. 0267 on the Single Screw vessel "TULAGI" Tons {Gross 2280.94
 {Net 1679.79

Built at Hongkong By whom built H.K. Whampoa Dock Co. Ltd Yard No. 804 When built 1939
 Engines made at - do - By whom made - do - Engine No. When made 1939
 Monkey Boilers made at Annan By whom made Cochran + Co Annan Ltd Boiler No 14124 When made 1938
 Brake Horse Power Total 2420 Owners Burns Philp (South Sea) Co Ltd Port belonging to Hongkong
 Nom. Horse Power as per Rule 396 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
 Trade for which vessel is intended South Sea Islands

MAIN ENGINES, &c.—Type of Engines Direct Reversing, Solid injection, 2 or 4 stroke cycle 2 Single or double acting Single
 Maximum pressure in cylinders 500/700 lbs Diameter of cylinders 350 mm Length of stroke 620 mm No. of cylinders 12 No. of cranks 12
 Mean Indicated Pressure 110 lbs. ^{13 3/4"} Flywheel dia. 518 mm + 530 mm Is there a bearing between each crank Yes
 Number of bearings, adjacent to the Crank, measured from inner edge to inner edge 4.75
 Revolutions per minute 280 Means of ignition Compression Kind of fuel used Diesel oil
 Crank Shaft, { Solid forged
 { Semi built dia. of journals as per Rule Crank pin dia. 240 mm Crank Webs { Mid. length breadth 320 mm Thickness parallel to axis shrunk
 { All built as fitted 270 mm { Mid. length thickness 134 mm Thickness around eye-hole shrunk
 Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule 6.6" Thrust Shaft, diameter at collars as per Rule as approved
as fitted as fitted 6.75" as fitted 270 mm
 Main Shaft, diameter as per Rule Screw Shaft, diameter as per Rule 7.56" Is the { tube } shaft fitted with a continuous liner { Yes
as fitted as fitted 8" { screw } in way of stern tube

Bronze 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
as fitted 1/2, 9/16, 17/32 as fitted 17/32
 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 Yes
 Does the liner do 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 fits tightly
 If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube Yes
 Propeller, dia. 7'-3" Pitch 6'-0" No. of blades 4 Material Ston's Bronze whether Moveable No Total Developed Surface 23 1/2 sq. feet
 Method of reversing Engines Discot Is a governor or other arrangement fitted to prevent racing of the engine when detached Yes Means of lubrication forced

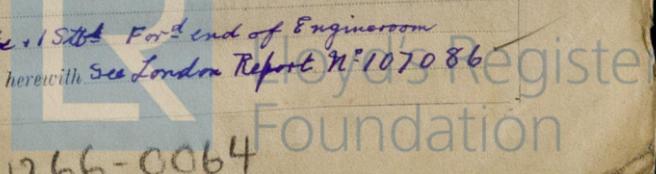
Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with lagged
 Non-conducting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine fed up funnel
 Cooling Water Pumps, No. one F.W. - one S.W. per engine Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes
 Bilge Pumps worked from the Main Engines, No. one each engine Diameter 162 mm Stroke 160 mm Can one be overhauled while the other is at work Yes
 Pumps connected to the Main Bilge Line { No. and Size 2 @ 162 mm x 160 mm | one Vertical self Priming, 60 Tons/Hour.
 { How driven Main engines | Electric Motor
 Are the cooling water led to the bilges No If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements Yes

Ballast Pumps, No. and size 1 - Vertical 160 Tons/hr. Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 - main Engines 40 Tons/hr.
1 - Spare 35 Tons/hr.
 Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
 Pumps, No. and size:—In Machinery Spaces 1 - 2 1/4" in Cofferdam Fr. 8-9, 1 - 3" in Cofferdam Fr. 13+14, 1 - 3" + 1 - 2 1/4" in Pump Room compartment.
 Holds, &c. Fore Hold 2 - 2 3/4", Cofferdam Fr. 71-72, 1 - 2", Main Hold 2 - 3", Main Hold bilge well 2 - 2" 1 - 2" dia.
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 - 4" dia
 Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces Yes

Are they fitted with Valves or Cocks Valves
 Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the Overboard Discharges above or below the deep water line Above
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes
 How are they protected Yes
 Have they been tested as per Rule Yes
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

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 Yes Is the Shaft compartment watertight Yes Is it fitted with a watertight door Manhole door worked from Yes
 If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Yes
 Main Air Compressors, No. Two No. of stages Two Diameters 220/195 mm Stroke 200 mm Driven by Main engines
 Auxiliary Air Compressors, No. One No. of stages Two Diameters 3 1/8" + 7 1/4" Stroke 6" Driven by Electric Motor
 Small Auxiliary Air Compressors, No. one No. of stages Two Diameters 3 1/4" + 2 1/4" Stroke 2 1/4" Driven by Steam Engine

What provision is made for first Charging the Air Receivers Steam driven small auxiliary air compressor Driven by Main Engines
 Scavenging Air Pumps, No. One on each engine Diameter Rotary Stroke Yes
 Auxiliary Engines crank shafts, diameter as per Rule No. Three Position 1 Port, 1 Center, 1 Star For End of Engine room
as fitted 140 mm 160 mm 150 mm Is a report sent herewith See London Report No. 107086
 Have the Auxiliary Engines been constructed under special survey Yes



W266-0064

AIR RECEIVERS:—Have they been made under survey *yes* State No. of Report or Certificate *Dated 19th Jan. 1938*
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule *yes* *copy enclosed.*
 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. *None* Cubic capacity of each *✓* Internal diameter *✓* thickness *✓*
 Seamless, lap welded or riveted longitudinal joint *✓* Material *✓* Range of tensile strength *✓* Working pressure *by Rules*
Starting Air Receivers, No. *Two* Total cubic capacity *250 cub. ft.* Internal diameter *52"* thickness *3/4"*
 Seamless, lap welded or riveted longitudinal joint *✓* Material *Steel* Range of tensile strength *28/32 Tons* Working pressure *by Rules 373 lbs.*
 Actual *350 lbs.*

IS A DONKEY BOILER FITTED? *yes* If so, is a report now forwarded? *yes*
 Is the donkey boiler intended to be used for domestic purposes only *yes, except for steam driven air compressor.*
PLANS. Are approved plans forwarded herewith for Shafting *Kobe 21/4/38, 17/5/38* Receivers *Kobe 4/7/38* Separate Fuel Tanks *Kobe 10/11/38*
 (If not, state date of approval) *15/11/38*
 Donkey Boilers *See Glasgow Report No. 60352* General Pumping Arrangements *Kobe 30/12/30, 29/12/38* Pumping Arrangements in Machinery Space *Kobe 30/12/38*
 Oil Fuel Burning Arrangements *Kobe 10/1/39*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *yes*
 State the principal additional spare gear supplied *See List attached.*

The foregoing is a correct description, HONGKONG & WHAMPOA DOCK Co., Ltd.

Lloyd.
 CHIEF MANAGER Manufacturer.

1938
 Dates of Survey while building
 During progress of work in shops-- *May 10, 13, June 8, 14, 17, 22, July 26, Aug 29, Sept 23, 29 Oct 5, 17, 31, Nov 5, 9, 12, 14, 16, 22, 24, 28, 30. Dec 12, 13, 17, 22, 24, 28, 30. 1939 Jan 9, 10, 13, 16, 19, 20, 23, 24, 27. Feb 6, 8, 9, 16, 23, 25, 27, Mar 8, 17, 20, 21, 25.*
 During erection on board vessel-- *April 4, 14, 18, 21, 24, 29, May 4, 9, 15, 19, 25, 30. June 2, 7, 13, 21, 22, July 5-7.*
 Total No. of visits *73*

Dates of Examination of principal parts—Cylinders *27-12-38 to 22-12-38 to 10-1-39 to 9-11-38 to* Covers *29-4-39* Pistons *29-4-39* Rods *✓* Connecting rods *10-5-38 to 20-3-39*
 Crank shaft *23-2-39* Flywheel shaft *✓* Thrust shaft *9-11-38 to 23-2-39* Intermediate shafts *23-2-39* Tube shaft *✓*
 Screw shaft *20-3-39* Propeller *21-3-39* Stern tube *24-11-38* Engine seatings *15-3-39* Engines holding down bolts *19-5-39 + 2*
 Completion of fitting sea connections *25-3-39* Completion of pumping arrangements *22-6-39* Engines tried under working conditions *9-5-39, 25-5-39 and 5-7-39*
 Crank shaft, Material *Steel* Identification Mark *LLOYD'S N° 5-22-3* Flywheel shaft, Material *✓* Identification Mark *✓*
 Thrust shaft, Material *✓* Identification Mark *T.S.M. 23-2-39* Intermediate shafts, Material *Steel* Identification Marks *LLOYD'S N° 5*
 Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Steel* Identification Marks *T.S.M. 23-2-39*
 Identification Marks on Air Receivers *LLOYD'S N° 81*
 Identification Mark *T.S.M. 20-3-39*

N° 369
LLOYD'S TEST
550 lbs.
W.P. 350 lbs.
T.S.M. 19-1-39

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 *yes*
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *No* 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.) *These engines have been built under special survey in accordance with the approved plans + the Rules of this Society + the materials and workmanship are good. They were tested under full load + 10% overload on the Makers test bed + all working parts were afterwards opened up + examined + found satisfactory.*
The three auxiliary engines were constructed under special survey at Bedford + have now been installed in accordance with the Rules. (See London Report N° 107086).
Forging reports enclosed. Copies of certificates for air receivers, pumps + cylinder covers enclosed.
Plan of piping arrangements as fitted herewith.
The machinery was tested under full working conditions + found satisfactory + it is recommended that the vessel be classed with Lloyd's Machinery Certificate + the record of + LMC 7-39 C.L. be made in the Register Book.

The amount of Entry Fee .. £10 = 163
 Special £168-14 = 2747
 Installation of Donkey Boiler Fee 50
 " Air Receivers £12-12/ = 205
 Travelling Expenses (if any) £ 170
 Total \$ 3335

When applied for, *7th July 1939*
 When received, *1.9.39*

J.S. Morrison
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *FRI. 1 SEP 1939*
 Assigned *+ LMC 7.39*
DB 100th



Certificate (if required) to be sent to
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)