

REPORT ON OIL ENGINE MACHINERY.

No 36002

Date of writing Report 19 53 When handed in at Local Office 1st April 1953 Port of Sunderland Received at London Office 58 APR 1953
 No. in Survey held at Sunderland Date, First Survey 29 February 1953 Last Survey 1st April 1953
 Reg. Book. "MARICOPA" Number of Visits 98

on the Single Screw vessel "MARICOPA" Tons Gross 11342 Net 6656
 Built at Sunderland By whom built Sir James Lang & Sons Ltd. Yard No. 494 When built 1953
 Engines made at Sunderland By whom made W. Daxford & Sons Ltd. Engine No. 283 When made 1952
 Donkey Boilers made at Sunderland By whom made North Eastern Marine Eng'g (1938) - Ltd. Boiler No. 4270 When made 1953
 Brake Horse Power 5150 Owners Thorwald Berg. Port belonging to Tonsberg
 Nom. Horse Power as per Rule MN. 1030 Is Refrigerating Machinery fitted for cargo purposes no. Is Electric Light fitted yes.
 Trade for which vessel is intended Tanker.

OIL ENGINES, &c.—Type of Engines opp. piston Airless injection 2 or 4 stroke cycle 2 Single or double acting Single
 Maximum pressure in cylinders 640 lbs. Diameter of cylinders 6 7/8 in Length of stroke 1340 + 480 No. of cylinders 5 No. of cranks 5
 Mean Indicated Pressure 86 lbs. Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1030 in Is there a bearing between each crank Between each three throw.
 Revolutions per minute 108 Flywheel dia. 2499 in Weight 20 Cwt Means of ignition Compression Kind of fuel used Between each three throw.
 Crank Shaft, Solid forged dia. of journals as per Rule Crank pin dia. 520 in Crank Webs Mid. length breadth 430 in Thickness parallel to axis 290 in
Semi built dia. of journals as fitted 520 in All built Mid. length thickness 290 in shrunk Thickness around eye hole 214 in
 Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule Thrust Shaft, diameter at collars as per Rule
as fitted 520 in fitted 450 in as fitted 520 in
 Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule Is the main shaft fitted with a continuous liner yes.
as fitted as fitted 483 in as fitted

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 propeller boss yes.
as fitted 21 in as fitted 16.25 in If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner yes.
 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 yes.
 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. 14 1/2 in Pitch 13-9 MAX. No. of blades 4 Material M. Bronze whether Moveable NO. Total Developed Surface 114.3 sq. feet
 Method of reversing Engines Hand Lever. Is a governor or other arrangement fitted to prevent racing of the engine yes. Means of lubrication forced.
 Thickness of cylinder liners 25 in Are the cylinders fitted with safety valves yes. Are the exhaust pipes and silencers water cooled or lagged 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 yes.

Cooling Water Pumps, No. 2 225 TH (Ramont). 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. yes. Diameter Stroke Can one be overhauled while the other is at work yes.
 Pumps connected to the Main Bilge Line { No. and Size Ballast Pump 300 TH; Bilge Pump 110 TH; Gen Serv 100 TH How driven Steam.
 Is 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. Ramont 300 TH Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2-Weiss, 50 TH
 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 2-3 1/2 p.s. ft.; 1-6" direct aft; 1-2 1/2 Cofferdam; In Pump Room:—
1-4" direct; 1-10" direct; 2-4" p.s. IN EACH; 4" p.s. tank top 2"; 4" Coff 1-3 injector; 4" Coff 1-4" dia 1-3 injector.
 Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-10"; 1-6"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes. Tanker. Are the Bilge Suctions 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 yes.
 Are all Sea Connections fitted direct on the skin of the ship yes. Are they fitted with Valves or Cocks yes.
 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 below.
 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.
 What pipes pass through the bunkers none. How are they protected yes.
 What pipes pass through the deep tanks none. 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 Tunnel watertight none Is it fitted with a watertight door yes. 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 Three Diameter 8 1/2, 5 1/2, 3" Stroke 8" Driven by Steam.
 Auxiliary Air Compressors, No. None. No. of stages None. Driven by None.
 Small Auxiliary Air Compressors, No. None. No. of stages None. Driven by None.
 What provision is made for first Charging the Air Receivers None.
 Scavenging Air Pumps, No. One. Diameter 1480 in Stroke 1380 in Driven by M. Eng Crank shaft.
 Auxiliary Engines crank shafts, diameter as per Rule Position as fitted
 Have the Auxiliary Engines been constructed under special survey yes. Is a report sent herewith yes.

AIR RECEIVERS: - Have they been made under survey *Yes.* State No. of Report or Certificate *C. 95320.*
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule *On Compressors.*
 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 Actual
Starting Air Receivers, No. *Two* Total cubic capacity *350 Cuft.* Internal diameter *4" 6"* thickness *1/4"*
 Seamless, lap welded or riveted longitudinal joint *Fusion welded.* Material *SM Steel* Range of tensile strength *Shell 28-32 T.T. Ruds 26-30 T.T.* Working pressure by Rules Actual *600 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 *No.*
PLANS. Are approved plans forwarded herewith for Shafting *Crank S. 6/12/38.* Receivers Separate Fuel Tanks *None*
 Donkey Boilers General Pumping Arrangements *Yes* Pumping Arrangements in Machinery Space *Yes*
 Oil Fuel Burning Arrangements *Yes*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes.*
 State the principal additional spare gear supplied *1. Cylinder Liner complete; 10 spray plugs; 3 pads for Int'l shaft bearings; 3 pads for prop shaft bearing; 1 bronze propeller; 1 prop shaft; 10 rubber hoses, upper PWS; 10 rubber hoses transverse lubrication; 2 piston water service hoses & two transverse lub hose. Complete with end fittings; 3 neck rings for PWS; 1 pump unit for cyl lubrication, 4 sight glasses, 2 filling glasses; 30 assorted rubber rings; gland packing as required. 1 piston head complete; 1 upper piston skirt; 1 lower piston skirt; 1 upper & 1 lower piston rod.*

The foregoing is a correct description.
 For and on behalf of
WILLIAM DOXFORD & SONS, LIMITED. Manufacturer.

Dates of Survey while building	During progress of work in shops - -	<i>25th Mr. Purdie Director.</i>	1952 Feb 29 Mar 6, 11, 20, 21 Apr 17, 21 May 2, 5, 12, 15, 16, 19, 21, 26, 27, 29, 30 Jun 3, 5.
	During erection on board vessel - - -		Jul 1, 10, 21, 22, 23, 24 Aug 11, 14, 18, 19, 21, 22, 25, 27, 29 Sep 2, 3, 5, 8, 9, 10, 11, 12, 18, 19(2), 23, 24, 25.
	Total No. of visits	<i>95</i>	Oct 2, 3, 6, 8, 9, 10, 13(2), 15, 16, Nov 3, 19, 26 Dec 2, 5, 10, 11, 14, 15(2), 17, 31, 1953 Jan 13, Feb 19 Mar 2, 4, 12, 13(2), 16(2), 20, 24(2).

Dates of Examination of principal parts - -	Cylinders <i>2/4/52 to 22/1/53</i>	Covers <input checked="" type="checkbox"/>	Pistons <i>2/8/52 to 12/3/53</i>	Rods <i>2/18/52 to 12/3/53</i>	Connecting rods <i>12/9/52</i>
Crank shaft	<i>24/4/52</i>	Flywheel shaft <i>as crank</i>	Thrust shaft <i>as crank.</i>	Intermediate shafts <i>17/12/52</i>	Tube shaft <input checked="" type="checkbox"/>
Screw shaft	<i>11/12/52</i>	Propeller <i>8/4/52</i>	Stern tube <i>13/10/52</i>	Engine sealings <i>15/10/52</i>	Engines holding down bolts <i>Shop. 24/9/52. 16.</i>
Completion of fitting sea connections	<i>15/10/52</i>	Completion of mopping arrangements	<i>25/3/53.</i>	Engines tried under working conditions	<i>Sea trial 25, 26/3/53.</i>
Crank shaft, Material	<i>S.M. Steel</i>	Identification Mark	<i>283. 4th Section 10/9/52 RJD</i>	Flywheel shaft, Material	<i>S.M. Steel</i>
Thrust shaft, Material	<i>SM Steel</i>	Identification Mark	<i>as crank.</i>	Intermediate shafts, Material	<i>SM Steel</i>
Tube shaft, Material	<input checked="" type="checkbox"/>	Identification Mark	<input checked="" type="checkbox"/>	Screw shaft, Material	<i>SM Steel</i>
Identification Marks on Air Receivers	<i>1142 & 1143</i>				
	<i>LR TEST.</i>				
	<i>950 lbs.</i>				
	<i>WP. 600 lbs</i>				
	<i>H.W. 11/9/52</i>				

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 *6-2 Gall - 1-10 Gall foam, with spare charges ER. 2-2 Gall 4-10 Gall foam with spare charges Bk R. Bilge pump 100 tons/H, G.S. pump 100 tons/H. 2 hoses 30 ft x 2 1/2" hose jet & spray, 2 valves in ERBK's. 1 1/2" steam jet. 2-10 Cuft Sand bins. Haps in funnel & hand's level from dk. 6B unit. Thru pump. FD fan. 4 hand motor cont.*
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *Tanker.* 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 *Not desired*
 Is this machinery duplicate of a previous case If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) *This machinery has been built under special survey in accordance with approved plans & the rules of the Society. The materials & workmanship are good. It has been recently fitted on board the vessel & tried under full working conditions with satisfactory results. The two donkey boilers have also been recently fixed on board & fitted to burn oil fuel (flash point above 150° F), & safety valves of boilers adjusted under steam to working pressure. The requirements of Chapter E-Section 3 have been complied with.*

The machinery is now eligible in our opinion to have notation
 * LMC 4-53 (oil engine); TS(CL); 2 DB 150 lbs. Note! Engines not to be worked continuously between 64 & 79 r.p.m. (Secty's letter 3/1/52).
 A notice to this effect has been fitted at control panel & tachometer marked accordingly.

The amount of Entry Fee	£ 214.0.0	When applied for,	
Special	£ 122.0.0	When received,	
Donkey Boiler Fee	£ 20.0.0		
Travelling Expenses (if any)	£ :		19

John Lundgren for W & F Fraser & Self.
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUES. 21 APR 1953**
 Assigned *+ LMC 4.53 Oil Eng. CL 2 DB 150 lb (with torsional endorsement)*



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