

REPORT ON OIL ENGINE MACHINERY.

No 36002

Date of writing Report 19 1st April 1953 Port of Sunderland Received at London Office 18 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 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 Thorvald 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 + 980 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 730 in Thickness parallel to axis 290 in Semi built dia. of journals as fitted 520 in shrunk Thickness around eye hole 214 in

Flywheel Shaft, diameter as per Rule 520 in Intermediate Shafts, diameter as per Rule 450 in Thrust Shaft, diameter at collars as per Rule 520 in

Tube Shaft, diameter as per Rule 483 in Is the shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 21 in Thickness between bushes as per Rule 16.25 in 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 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 1/2 in 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. 1 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 Steam 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 ejector; 4" Coff 1-4" dia 1-3 ejector.

In Holds, &c. 2" p.s.; Total pump room 2"; two main pump rooms 2-4" p.s. IN EACH; 4" p.s. tank top 2"; 4" Coff 1-3 ejector; 4" Coff 1-4" dia 1-3 ejector.

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 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 Diameters None Stroke None Driven by None

Small Auxiliary Air Compressors, No. None No. of stages None Diameters None Stroke None Driven by None

What provision is made for first Charging the Air Receivers One Diameter 1480 in Stroke 1380 in Driven by M. Eng Crank shaft

Scavenging Air Pumps, No. One Position Is a report sent herewith

Auxiliary Engines crank shafts, diameter as per Rule 1480 in Position Is a report sent herewith

Have the Auxiliary Engines been constructed under special survey 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 *Yes.* *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 *✓*
Starting Air Receivers, No. *Two* Total cubic capacity *350 Cuft.* Internal diameter *4 1/2"* thickness *1 1/2"*
Seamless, lap welded or riveted longitudinal joint *Fusion welded.* Material *Stm Steel* Range of tensile strength *Shell 28-32 T.T. Sides 26-30 T.T.* Working pressure by Rules *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. 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, & sight glasses, 2 filling glasses; 30 assorted nuton 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 of Vessel while building
During progress of work in shops - *25th Dec. 1951* Director. 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 - 16, 17, 18, 19, 20, 24, 25, 26, 27, 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 *95*
Dates of Examination of principal parts - Cylinders *24/4/52* Covers *✓* Pistons *21/8/52* Rods *12/3/53* Connecting rods *12/9/52*
Crank shaft, Material *S.M. Steel* Flywheel shaft *as crank* Thrust shaft *as crank* Intermediate shafts *17/12/52* Tube shaft *✓*
Screw shaft *W 11/12/52 S 15/10/52* Propeller *8/4/52* Stern tube *13/10/52* Engine seatings *15/6/52* Engines holding down bolts *Shop. 24/9/52. 16.*
Completion of fitting sea connections *15/10/52* Completion of pumping arrangements *25/3/53.* Engines tried under working conditions *Sea trial 25, 26/3/53.*
Crank shaft, Material *S.M. Steel* Identification Mark *283. 4th Section 10/7/52 RJB* Flywheel shaft, Material *S.M. Steel* Identification Mark *as crank*
Thrust shaft, Material *Stm Steel* Identification Mark *as crank* Intermediate shafts, Material *Stm Steel* Identification Marks *25109-674 J.L. 25109-680 J.L.*
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Stm Steel* Identification Mark *Working 25109-682 BB J.L. Spare 25109. 285. J.L.*
Identification Marks on Air Receivers *1142 & 1143 LR TEST. 950 lbs. WP. 600 lbs. H.W. 11/9/52*

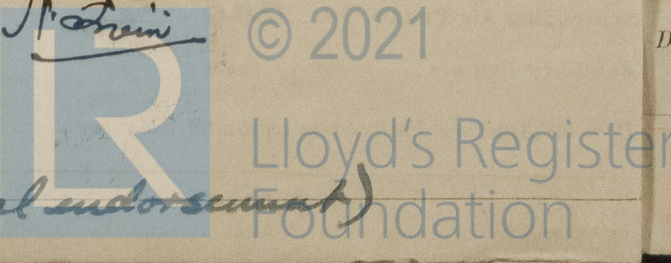
Is the flash point of the oil to be used over 150° F.
Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with *6-2 Gall - 1-10 Gall foam, with spare charges ER. 2-2 Gall + 1-10 Gall foam with spare charges B.R.R.*
Description of fire extinguishing apparatus fitted *Bulge pump 100 tons H. G.S. pump 100 tons H. 2-hoses 30 ft x 2 1/2" hose jet & spray. 2 Valves in ERB.R's. 1 1/2" Steam to 2-10 Galt Sand bins. Haps in funnel & tanks cont. from d.k. 6B unit. Trans pump. FD fan. 4 Kent 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
Special INSTN. £ 122.0.0
Donkey Boiler Fee £ 20.0.0
Travelling Expenses (if any) £ : :
When applied for, APR - 7 1953
When received, 19

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



Committee's Minute
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.