

REPORT ON OIL ENGINE MACHINERY.

No 34041

Date of writing Report

19

When handed in at Local Office

Oct 2 1944 Port of

Received at London Office

6 OCT 1944

No. in Survey held at
Reg. Book.Date, First Survey 14 Nov 43 Last Survey 29 Sep 1944
Number of Visits 53on the Single Double Triple Quadruple Screw vessel"EMPIRE CREST"Tons Gross 3738
Net 2002Built at SunderlandBy whom built Sir J. Laing & Sons Ld.Yard No. 460 When built 1944Engines made at SunderlandBy whom made Wm. Beard & Sons Ld.Engine No. 237 When made 1944Donkey Boilers made at StocktonBy whom made Stockton Chem. Eng. & Riley Bros Ld.Boiler No. 6818 When made 1944Brake Horse Power 2500Owners Ministry of War TransportPort belonging to SunderlandNom. Horse Power as per Rule 516Is Refrigerating Machinery fitted for cargo purposes No.Is Electric Light fitted Yes.

Trade for which vessel is intended

OIL ENGINES, &c.

Type of Engines

Opposed Piston airless injection 2 or 4 stroke cycle 2 Single or double acting Single.

Maximum pressure in cylinders

640 lbs/sq. in.

Diameter of cylinders

600 mm

Length of stroke

980 mm

No. of cylinders

3

No. of cranks

3 (3 throw)

Mean Indicated Pressure

88 lbs/sq. in.

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge

108

Revolutions per minute

108

Crank Shaft,

Solid forged

Semi built

All built

dia. of journals

as per Rule

as fitted

Crank pin dia.

as per Rule

as fitted

Intermediate Shafts, diameter

as per Rule

as fitted

Thrust Shaft, diameter at collars

as per Rule

as fitted

Flywheel Shaft, diameter

as per Rule

as fitted

Screw Shaft, diameter

as per Rule

as fitted

Tube Shaft, diameter

as per Rule

as fitted

Bronze Liners, thickness in way of bushes

as per Rule

as fitted

Propeller boss

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

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

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 end of the tube

Length of Bearing in Stern Bush next to and supporting propeller

Material

Whether Moveable

Total Developed Surface

sq. feet

Method of reversing Engines

Is a governor or other arrangement fitted to prevent racing of the engine when detached

Means of lubrication

Are the cylinders fitted with safety valves

Are the exhaust pipes and silencers water-cooled or lagged with non-conducting material

If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Can one be overhauled while the other is at work

Pumps connected to the Main Bilge Line

No. and Size

How driven

Is 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

Ballast Pumps, No. and size

Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size

Are two independent means arranged for circulating water through the Oil Cooler

Pumps, No. and size:—

In Machinery Spaces

In Holds, &c.

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 Suctions in the Machinery Spaces

Are all Sea Connections fitted direct on the skin of the ship

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plate

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel

What pipes pass through the bunkers

What pipes pass through the deep tanks

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

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

Main Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

Auxiliary Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

Small Auxiliary Air Compressors, No.

No. of stages

Diameters

Stroke

Driven by

What provision is made for first Charging the Air Receivers

Scavenging Air Pumps, No.

Diameter

Stroke

Driven by

Auxiliary Engines crank shafts, diameter

as per Rule

as fitted

Position

Have the Auxiliary Engines been constructed under special survey

Is a report sent herewith

Lloyd's Register Foundation

002457-002464-0236

AIR RECEIVERS: - Have they been made under survey...
Is each receiver, which can be isolated, fitted with a safety valve as per Rule 114? *Yes.*
Can the internal surfaces of the receivers be examined and cleaned? *Yes.*
Injection Air Receivers, No. *Two* Cubic capacity of each *220 cuft.* Internal diameter *3'-6"* thickness *1"*
Seamless, lap welded or riveted longitudinal joint *Riveted* Material *M. Steel* Range of tensile strength *28/32* Working pressure by Rules *603* Actual *600*
Starting Air Receivers, No. *Two* Total cubic capacity *220 cuft.* Internal diameter *3'-6"* thickness *1"*
Seamless, lap welded or riveted longitudinal joint *Riveted* Material *M. Steel* Range of tensile strength *28/32* Working pressure by Rules *603* Actual *600*
IS A DONKEY BOILER FITTED? *Yes.* If so, is a report now forwarded? *Yes.*

PLANS. Are approved plans forwarded herewith for Shafting (If not, state date of approval) *Yes.* Receivers *Yes.* Separate Fuel Tanks *Yes.*
Donkey Boilers *Yes.* 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 (except bearings for top & bottom ends of connecting rods)*
State the principal additional spare gear supplied *1 C.I. Propeller, 1 Cyl. liner & jacket complete, 1 main piston head & rings, 2 (each) side & centre top & bottom end bearing bolts & nuts, 2 main bearing studs & nuts, 1 set coupling bolts & nuts, 2 port & 2 back fuel valves complete, 8 spray pumps, 1 N.R. air starting valve, 1 relief valve, 4 scavenge pumps 1/2 sizes, 1 fuel pump body complete with chambers, valves, fuel crank lever &c. 1 set pads for Mitchell thrust, 3 pads for int. or tank shaft bearings, 3 rubbers for piston cooling system, 6 links of chain for camshaft drive.*

The foregoing is a correct description of the machinery.

Wm. H. Purdie Director

Manufacturer.

Dates of Survey while building
During progress of work in shops - *1943. Nov. 14, 24, 25, 29. 1944. Jan. 14, 17, 18, 22, Feb. 1, 2, 4, 7, 8, 9, 10, 14, 15, 17, 18, 21, 22, 24, 25, 28, 17, 23, 6.*
During erection on board vessel - *14, 15, 16, 17, 20, 30, June 2, 8, 19, 20, 21, 22, 23, July 14, Sept. 6, 8, 14, 18, 19, 20, 22, 29*
Total No. of visits *53*

Dates of Examination of principal parts - Cylinders *14/11/43, 24/11/43* Covers *25/11/43* Pistons *25/2/44* Rods *25/2/44* Connecting rods *3/3/44*
Crank shaft *25/2/44* Flywheel shaft *as crank* Thrust shaft *as crank* Intermediate shaft *14/4/44* Tube shaft *-*
Screw shaft *20/6/44* Propeller *29/3/44* Stern tube *19/6/44 & 21/6/44* Engine sealings *(Tank top)* Engines holding down bolts *1/9/44*
Completion of filling sea connections *19/6/44* Completion of pumping arrangements *14/9/44* Engines tried under working conditions *8/9/44*
Crank shaft, Material *Inf. Steel* Identification Mark *25/2/44* Flywheel shaft, Material *as crank* Identification Mark *as crank*
Thrust shaft, Material *as crank* Identification Mark *as crank* Intermediate shafts, Material *Inf. Steel* Identification Marks *Nº 23110 WH*
Tube shaft, Material *-* Identification Mark *-* Screw shaft, Material *Inf. Steel* Identification Mark *14/7/44*
Identification Marks on Air Receivers *K. 1568/9. L.R. 21593. L.E.D. 9/12/43.* *Nº 13694-36 W.H.F. 20/*

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.*
Description of fire extinguishing apparatus fitted *1 1/2" n.r. perforated pipe for steam led around E.R. & B.R. 8-2 ft. Thomas Cont.*
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo (Tanker)? *Yes.* If so, have the requirements of the Rules been complied with? *Yes.*
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? *Yes.* If so, state name of vessel *EMPIRE GAIN.*

General Remarks (State quality of workmanship, opinions as to class, etc.) *This machinery has been built under Special Survey in accordance with the approved plans, Specification & rules of the Society. The materials & workmanship are good. It has been securely fitted on the vessel & tried under working conditions along side quay with satisfactory results. The donkey boiler has also been securely fixed on board, fitted to burn oil fuel (F.P. above 150°F), Section 20 of the rules has been complied with & safety valves adjusted to working pressure in accordance with rule requirements. The machinery is eligible in our opinion to have notation D.M.C. 9.44 (oil Eng.), T.S. (C), 1 D.B. 150 lbs/ft.*

The amount of Entry Fee .. £ 6 : - :
Special Specification .. £ 100 : 16 : - 2 OCT 1944
Donkey Boiler Fee .. £ 25 : 4 : -
Travelling Expenses (if any) .. £ 12 : 12 : -
When applied for, 1944
When received, 1944

Committee's Minute

Assigned

Lee H. Mackay

W. H. Purdie & *L. H. Home*

Engineer Surveyor to Lloyd's Register of Shipping.

Lloyd's Register Foundation