

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Date of writing Report 19 1945 When handed in at Local Office 19 SEP 1945 Port of Hull Received at London Office 19 SEP 1945

No. in Survey held at Hull & Selby Date, First Survey 15.9.44 Last Survey 28.8.1945

Reg. Book 1078 (Number of Visits 32) Tons {Gross 292.15 Net NIL

on the Steam Single Screw Tug "EMPIRE FLORA" A/MS

Built at Selby Hull By whom built Cochrane Sons Ltd. Yard No. 1297 When built 1945

Engines made at Providence Rhode I USA By whom made Franklin Machine & Foundry Co. Engine No. 1015 When made 1943

Boilers made at Stockton on Tees By whom made Stockton Chemical Eng & Boiler Co. Boiler No. 6617 When made 1945

Registered Horse Power 109 Owners Ministry of War Transport Port belonging to Hull

Nom. Horse Power as per Rule 109 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES

Trade for which vessel is intended Towing Services

ENGINES, &c.—Description of Engines Triple expansion Revs. per minute 130

Dia. of Cylinders 12" 20" 33" Length of Stroke 24" No. of Cylinders 3 No. of Cranks 3

as per Rule 7 3/4" Crank pin dia. 7 3/4" Crank webs Mid. length breadth 15 1/2" Thickness parallel to axis shrunk

as fitted 7 3/4" Crank pin dia. 7 3/4" Crank webs Mid. length thickness 5 1/8" Thickness around eye-hole shrunk

Intermediate Shafts, diameter as per Rule 6 5/8" Thrust shaft, diameter at collars as per Rule 8 1/2"

as fitted 6 5/8" Thrust shaft, diameter at collars as fitted 8 1/2"

Tube Shafts, diameter as per Rule As per Rule Screw Shaft, diameter as per Rule 8" Is the {tube screw} shaft fitted with a continuous liner No

as fitted As per Rule Screw Shaft, diameter as fitted 8" Is the {tube screw} shaft fitted with a continuous liner No

Bronze Liners, thickness in way of bushes as per Rule As per Rule Thickness between bushes as per Rule As per Rule 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. 9'0" Pitch 9'6" No. of Blades 4 Material Cast Iron whether Moveable No Length of Bearing in Stern Bush next to and supporting propeller 2' 7 1/2"

Total Developed Surface 31.5 sq. feet

Feed Pumps worked from the Main Engines, No. None Diameter As per Rule Stroke As per Rule Can one be overhauled while the other is at work Yes

Bilge Pumps worked from the Main Engines, No. None Diameter As per Rule Stroke As per Rule Can one be overhauled while the other is at work Yes

Feed Pumps {No. and size Two 7" x 5" x 12" Pumps connected to the Main Bilge Line {No. and size One 7 1/2" x 5" x 6" One 12" x 9" x 12" How driven Ind. Stm. Ind. Stm. Ind. Stm. Stm.

Ballast Pumps, No. and size As above 1 - 7 1/2" x 5" x 6" Lubricating Oil Pumps, including Spare Pump, No. and size 1 - 2 1/2" {2 semi-retary hand in sculls

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary

Bilge Pumps:—In Engine and Boiler Room ER: 3 - 2 1/2", 1 - 3" BR 2 - 2 1/2"

In Pump Room Yes In Holds, &c. 1 - 2"

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 - 4" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 - 3"

Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes Yes

Are the Bilge Suctions in the Machinery Space 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 Both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Overboard Discharges above or below the deep water line Yes

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 As per Rule

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 Part of ER Is it fitted with a watertight door Yes worked from Yes

IN BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 1786 sq. ft.

Which Boilers are fitted with Forced Draft SOLE BOILER Which Boilers are fitted with Superheaters NONE

No. and Description of Boilers 1 SB Working Pressure 220 lb.

IS A REPORT ON MAIN BOILERS NOW FORWARDED? YES

IS A DONKEY BOILER FITTED? Yes If so, is a report now forwarded? Yes

Is the donkey boiler be used for domestic purposes only Yes

PLANS. Are approved plans forwarded herewith for Shafting 25.7.44 Main Boilers 21.10.41 Auxiliary Boilers Yes Donkey Boilers Yes

(If not state date of approval)

Superheaters Yes General Pumping Arrangements 19.7.44 Oil fuel Burning Piping Arrangements 11.5.45.

SPARE GEAR.

Is the spare gear required by the Rules been supplied As per specification

Is the principal additional spare gear supplied As per specification

The foregoing is a correct description.

Manufacturer.

009570-009579-0073



"E. FLORA"

Main Engine built in Providence, Rhode Island, USA by Franklin Machine & Foundry Co. supplied to installers by Admiralty

Dates of Survey while building
 During progress of work in shops --
 During erection on board vessel ---
 Total No. of visits

1944 Dec 15, 1945 Jan 15, 23; Feb 5; Mar 8, 21; Apr 16; Jly 3, 4, 5, 6, 9, 11, 13, 16, 18, 24, 25,
 1945 Jly 30, 31 Aug 1, 3, 4, 7, 8, 14, 17, 20, 21, 23, 24, 25
 32.

Ammerican *Bureau of Shipping* *Certificate No*

Dates of Examination of principal parts—Cylinders _____ Slides _____ Covers **B-605**
 Pistons _____ Piston Rods _____ Connecting rods _____
 Crank shaft *See* Thrust shaft _____ Intermediate shafts **16.4.45**
 Tube shaft _____ Screw shaft **5.2.45** Propeller **8.3.45**
 Stern tube **23.1.45** Engine and boiler seatings **16.4.45** Engines holding down bolts **3.7.45**
 Completion of fitting sea connections **8.3.45** Boilers fixed **3.7.45** Engines tried under steam **16/7/45 14/8/45 25/8/45**
 Completion of pumping arrangements **9.7.45** Thickness of adjusting washers **P 7/16" S 1/32"**
 Main boiler safety valves adjusted **9.7.45** Thrust shaft material *Cert No* Identification Mark **B-605**
 Crank shaft material *Sa American* Identification Mark *Queen* L.R. 159, FW, 29.9.44
 Intermediate shafts, material *Forging steel* Identification Marks **15.12.44 15** Tube shaft, material _____ Identification Mark _____
 Screw shaft, material *Steel* Identification Mark **16.12.44** Steam Pipes, material *Steel* Test pressure **660 #** Date of Test **6.7.45**
 Is an installation fitted for burning oil fuel **YES** Is the flash point of the oil to be used over 150° F. **YES**
 Have the requirements of the Rules for the use of oil as fuel 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.)
 The main engines and boiler for this vessel supplied by Admiralty from reserve stock and installed by Amos & Smith of Hull.
 The oil lubrication system of the main engines and the HP piston and rings had to re-designed. The HP piston rod and metallic packing had to be renewed due to scoring of the rod.

After several run trials had been carried out and various improvements made the machinery worked satisfactory.

Eligible to be classed LMC (R) 8,45 O.G. T 3 Cy. 12", 20", 33" - 24"

15B 220ts 3cf HS 1786 φ
 Fitted for oil fuel 8,45. FP above 150°F.
 L P d

NHP 109 @ 5% = 27-5-0
 FE 3-0-0

One fifth for fitting-out 5-9-0
 25% for Specification 1-2-0
 F.E. 3-0-0
 25% for Boilers at mab 2-19-6 not yet charged.

The amount of Entry Fee	£ 3 : 0 : 0	When applied for,	19
Special Specification	£ 5 : 9 : 0	When received,	19
Donkey Boiler Fee	£ 1 : 2 : 0		
Travelling Expenses (if any)	£ :		19

W. Shields & J. Dobbie
 Engineer Surveyors to Lloyd's Register of Shipping

Committee's Minute **FRI 5 OCT 1945**

Assigned **LMC (R) 8,45**
 FITTED FOR OIL FUEL 8,45 FLASH POINT ABOVE 100° F. **F.D. O.G**

