

## REPORT ON STEAM RECIPROCATING ENGINE MACHINERY,

Received at London Office  
 Date of writing Report *18:2:1941* When handed in at Local Office *18:2:1941* Port of *GLASGOW*  
 No. in Survey held at *Glasgow* Date, First Survey *18:7:40* Last Survey *6th Dec. 1941*  
 Reg. Book. on the *S/S "EMPIRE STREAM"* (Number of Visits *45*)  
 Built at *Glasgow* By whom built *Lithgows' Ltd.* Yard No. *948* Tons { Gross *2922*  
 Engines made at *Glasgow* By whom made *David Rowan & Co. Ltd.* Engine No. *1073* Net *1638*  
 Boilers made at *-do-* By whom made *-do-* Boiler No. *1073* When built *1941*  
 Registered Horse Power *-* Owners *The Ministry of Shipping* Port belonging to *-*  
 Nom. Horse Power as per Rule *244 240* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *Yes*  
 Trade for which Vessel is intended *-*

ENGINES, &c.—Description of Engines *Triple Expansion* Revs. per minute  
 Dia. of Cylinders *18 1/2"-31"-52"* Length of Stroke *39"* No. of Cylinders *3* No. of Cranks *3*  
 Crank shaft, dia. of journals *as per Rule 10.45"* Crank pin dia. *10 3/4"* Crank webs *Mid. length breadth 20 1/2"* Thickness parallel to axis *6 3/4"*  
 Intermediate Shafts, diameter *as per Rule 9.97* Thrust shaft, diameter at collars *as per Rule 10.45"* Thickness around eye-hole *4 7/8"*  
 Tube Shafts, diameter *as per Rule 11.23"* Screw Shaft, diameter *as fitted 12"* Is the *tube* shaft fitted with a continuous liner *Yes*  
 Bronze Liners, thickness in way of bushes *as per Rule 6 1/4"* Thickness between bushes *as per Rule 4.8"* 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 *no* Is an approved Oil Gland or other appliance fitted at the after end of the tube  
 shaft *no* If so, state type *-* Length of Bearing in Stern Bush next to and supporting propeller *4'-0"*  
 Propeller, dia. *15'-3"* Pitch *14'-9 3/4"* No. of Blades *4* Material *C.I.* whether Moveable *no* Total Developed Surface *84* sq. feet  
 Feed Pumps worked from the Main Engines, No. *2* Diameter *3"* Stroke *21"* Can one be overhauled while the other is at work *Yes*  
 Bilge Pumps worked from the Main Engines, No. *2* Diameter *3 1/2"* Stroke *21"* Can one be overhauled while the other is at work *Yes*  
 Feed Pumps { No. and size *one 8"x6"x15"* Pumps connected to the { No. and size *Ballast Pump 4 1-8"x6"x15"*  
 How driven *steam* Main Bilge Line How driven *steam* steam  
 Ballast Pumps, No. and size *one 12"x14"x12"* Lubricating Oil Pumps, including Spare Pump, No. and size *-*  
 Are two independent means arranged for circulating water through the Oil Cooler *-* Suctions, connected to both Main Bilge Pumps and Auxiliary  
 Bilge Pumps;—In Engine and Boiler Room *2 @ 2 1/2" in E.R. 1 @ 2 1/2" in E.R. well*  
 In Pump Room *-* In Holds, &c. *Nos 1 & 2 Holds 2 @ 3" Nos 3 & 4 Holds 2 @ 3 1/2"*

Main Water Circulating Pump Direct Bilge Suctions, No. and size *one @ 6"* Independent Power Pump Direct Suctions to the Engine Room Bilges,  
 No. and size *one @ 4"* 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  
 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 *-* How are they protected *-*  
 What pipes pass through the deep tanks *-* 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 *Yes* Is it fitted with a watertight door *Yes* worked from *-*

MAIN BOILERS, &c.—(Letter for record *6*) Total Heating Surface of Boilers *3434* *sq. ft.*  
 Which Boilers are fitted with Forced Draft *2 main* Which Boilers are fitted with Superheaters *none*  
 No. and Description of Boilers *2 S.C.* Working Pressure *200 lb.*

IS A REPORT ON MAIN BOILERS NOW FORWARDED? *Yes*  
 IS A DONKEY BOILER FITTED? *no* If so, is a report now forwarded? *-*  
 Can the donkey boiler be used for domestic purposes only *Yes*

PLANS. Are approved plans forwarded herewith for Shafting *12-6-40* Main Boilers *18-4-40* Auxiliary Boilers *-* Donkey Boilers *-*  
 (If not state date of approval)  
 Superheaters *-* General Pumping Arrangements *-* Oil fuel Burning Piping Arrangements *-*

## SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*  
 State the principal additional spare gear supplied *List attached*

The foregoing is a correct description.

For David Rowan & Co. Ltd.  
 Arch. N. Grierson

Manufacturer.



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 Foundation



During progress of work in shops -- 1940 July: 18. 26. 30 Aug: 12. 16. 20<sup>28</sup> Sep: 6. 13. 16. 19. 25 Oct: 1. 9. 11. 15. 16. 18. 22. 28. 29 Nov: 1. 8. 12. 13. 19. 25. 26. 29 Dec: 4. 5. 10. 19. 21. 26. 30 (1941) Jan: 17. 20. 23 Feb: 6

Dates of Survey while building

During erection on board vessel --

Total No. of visits 145

Dates of Examination of principal parts—Cylinders 22-10-40 Slides 8-11-40 Covers 22-10-40  
Pistons 12-11-40 Piston Rods 12-11-40 Connecting rods 30-10-40  
Crank shaft 4-11-40 Thrust shaft 28-8-40 Intermediate shafts —  
Tube shaft — Screw shaft 31-10-40 Propeller 31-10-40  
Stern tube 9-10-40 Engine and boiler seatings 5-11-40 Engines holding down bolts 24-12-40  
Completion of fitting sea connections 5-11-40  
Completion of pumping arrangements 23-1-41 Boilers fixed 24-12-40 Engines tried under steam 6-2-41.  
Main boiler safety valves adjusted 20-1-41 Thickness of adjusting washers  $P 7/16^{\circ}$   $8/8^{\circ}$   $5 7/8^{\circ}$   $7/16^{\circ}$   
Crank shaft material *SM. Steel* Identification Mark *9724 ATB* Thrust shaft material *SM. Steel* Identification Mark *9724 ATB*  
Intermediate shafts, material — Identification Marks — Tube shaft, material — Identification Mark —  
Screw shaft, material *SM. Steel* Identification Mark *9724 ATB* Steam Pipes, material *Steel* Test pressure *600 lb.* Date of Test *Dec. 1941*  
Is an installation fitted for burning oil fuel *no* Is the flash point of the oil to be used over 150°F. —  
Have the requirements of the Rules for the use of oil as fuel been complied with —  
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo — 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 machinery of this vessel has been built under special survey in accordance with the Rules and approved plans, and the materials and workmanship are good. It has been satisfactorily installed in the vessel, tested under working conditions and found efficient and, in my opinion, is eligible to be classed in the Register Book with record + LMC 2, 41 and notation 6L. The requirements of the Ministry of Shipping specification have been carried out satisfactorily.*

*Job*  
*18/2/41*

GLASGOW

The amount of Entry Fee ... £ 5 : - :  
Special ... £ 60 : - :  
Donkey Boiler Fee ... £ 15 : - :  
Travelling Expenses (if any) £ : :  
When applied for, 18 FEB 1941  
When received, 19

Committee's Minute GLASGOW 18 FEB 1941

Assigned *1- LMC 2.41 2D.*

*W. Brown*  
Engineer Surveyor to Lloyd's Register of Shipping.



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