

Rpt. 4b

## REPORT ON OIL ENGINE MACHINERY.

No. 7461

Date of writing Report 29<sup>th</sup> Dec 1927 When handed in at Local Office 30<sup>th</sup> Dec 1927 Port of Glasgow  
 No. in Survey held at Glasgow Date, First Survey 26<sup>th</sup> Oct 27 Last Survey 28<sup>th</sup> Dec 1927  
 Reg. Book. 40019 on the Single Screw vessel Messrs S. W. G. Armstrong Whitworth & Co. Ltd Engine 67 Tons  
 Triple  
 Quadruple

Built at Newcastle By whom built S. W. G. Armstrong & Co. Yard No. When built  
 Engines made at CATHCART, GLASGOW By whom made G. & J. WEIR LTD Engine No. 67 When made 27-11-27  
 Donkey Boilers made at Amman By whom made Cochran & Co. Boiler No. 84578-4 When made 1928  
 Brake Horse Power 76 Owners S. W. G. Armstrong & Co. Port belonging to Oslo  
 Nom. Horse Power as per Rule Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 Trade for which vessel is intended Foreign

IL. ENGINES, &c.—Type of Engines SPID INJECTION 2 or 4 stroke cycle 2 Single or double acting SINGLE

Maximum pressure in cylinders 540 LBS Diameter of cylinders 10" Length of stroke 13 1/2" No. of cylinders 3 No. of cranks 4

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 11 3/4" Is there a bearing between each crank YES

Revolutions per minute 350 Flywheel dia. 4'-0" Weight 4160 LBS Means of ignition COMPRESSION Kind of fuel used DIESEL

Crank Shaft, dia. of journals as per Rule 5" as fitted 5 1/4" Crank pin dia. 5 1/4" Crank Webs Mid. length breadth 7" Mid. length thickness 3" Thickness parallel to axis — Thickness around eyebolt —

Flywheel Shaft, diameter as per Rule — as fitted — Intermediate Shafts, diameter as per Rule — as fitted — Thrust Shaft, diameter at collars as per Rule — as fitted —

Tube Shaft, diameter as per Rule — as fitted — Screw Shaft, diameter as per Rule — as fitted — Is the shaft fitted with a continuous liner —

Bronze Liners, thickness in way of bushes as per Rule — as fitted — Thickness between bushes as per Rule — as fitted — Is the after end of the liner made watertight in the

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 shaft — Length of Bearing in Stern Bush next to and supporting propeller —

Propeller, dia. — Pitch — No. of blades — Material — whether Movable — Total Developed Surface — sq. feet

Method of reversing Engines — Is a governor or other arrangement fitted to prevent racing of the engine — YES Means of lubrication

FORCE FEED Thickness of cylinder liners 1 1/8" max. 3/4" min. 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 —

Cooling Water Pumps, No. one 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. — Diameter — Stroke — Can one be overhauled while the other is at work —

Pumps connected to the Main Bilge Line No. and Size — How driven —

Ballast Pumps, No. and size — Lubricating Oil Pumps, including Spare Pump, No. and size one 2 1/2" bore x 2" stroke & disc. SPARE PLUNGER

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

in the Machinery Spaces —

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 strainers — Are the Bilge Suctions in the Machinery Spaces

front easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the Bilges —

Are all Sea Connections fitted direct on the skin of the ship — Are they fitted with Valves or Cocks —

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates — 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 — Are the Discharge Cocks fitted with a plug and brass covering plate —

Do pipes pass through the bunkers — How are they protected —

Do pipes pass through the deep tanks — Have they been tested as per Rule —

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery 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

apartment to another. — Is the Shaft Tunnel watertight — Is it fitted with a watertight door —

On 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 —

Exhausting Air Pumps, No. one Diameter 13 1/4" Stroke 13 1/2" Driven by Engine shaft

Auxiliary Engines crank shafts, diameter as per Rule — as fitted —

R. RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule —

Are the internal surfaces of the receivers be examined — What means are provided for cleaning their inner surfaces. —

Is there a drain arrangement fitted at the lowest part of each receiver —

High Pressure Air Receivers, No. — Cubic capacity of each — Internal diameter — thickness —

Unless, lap welded or riveted longitudinal joint. — Material — Range of tensile strength — Working pressure by Rules —

Working Air Receivers, No. — Total cubic capacity — Internal diameter — thickness —

Unless, lap welded or riveted longitudinal joint. — Material — Range of tensile strength — Working pressure by Rules —



IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

PLANS. Are approved plans forwarded herewith for Shifting (If not, state date of approval)

Receivers

Separate Tanks

Donkey Boilers

General Pumping Arrangements

Oil Fuel Burning Arrangements

SPARE GEAR

- 1 CYLINDER COVER
- 1 RELIEF VALVE
- 1 AIR START VALVE
- 1 FUEL INJECTION VALVE
- 3 FUEL VALVE NEEDLE, GUIDE, & SEAT
- 2 SET PISTON RINGS
- 8 CYLINDER COVER STUDS & NUTS
- 2 CONN. ROD BIG END BOLTS & NUTS
- 2 CONN. ROD SMALL END BOLTS & NUTS
- 2 MAIN BEARING STUDS & NUTS
- 1 GROUP SCAVENGE PUMP SUCTION VALVES

- 1 GROUP SCAVENGE PUMP DISCH. VALVES
- 3 EACH FUEL PUMP PLUNGER & BODY
- 3 EACH FUEL PUMP SUCTION & DISCH. VALVES
- 1 LUBRICATING PUMP PLUNGER & DISC
- 4 GOVERNOR SPRINGS
- 1 BIG END BEARING COMPLETE
- 1 SMALL END BEARING COMPLETE
- 2 MAIN BEARINGS COMPLETE
- 1 PISTON WITH RINGS
- 1 CYLINDER RELIEF VALVE
- 1 FUEL RELIEF VALVE
- 3 COPPER JOINTS FOR CYLINDER COVERS

- 1 SPECIAL JOINT FOR EACH FITTED
- 1 FUEL FILTER ELEMENT
- 2 DUPLEX OIL FILTER STRAINERS
- ASSORTED PIPING BOLTS & NUTS
- 3 GLASSES FOR WATER FLOW INDICATOR
- 6 RUBBER RINGS
- 1 SET IMPELLERS FOR COOLING WATER PUMP
- 1 SET BUSHES
- 1 LINE BRUSH HOLDERS
- 1 SET CONTACT SPRINGS
- GENERATOR SPARES
- 1 FIELD COIL, 1 INTERPOLE COIL, 2 BRUSH HOLDERS
- 1 SET BRUSHES, 4 BRUSH SPRINGS, 4 BEARING BUSHES

The foregoing is a correct description.

For G. & J. Weir, Ltd.

*J. Vicker*

Manufacturer.

|   |                                    |                                   |
|---|------------------------------------|-----------------------------------|
| Dates of Survey while building            | During progress of work in shops - | 1927 Oct 24-28 Nov 28 Dec 2-23-28 |
|   | During erection on board vessel -  |                                   |
|   | Total No. of visits                | 6                                 |
| Dates of Examination of principal parts - | Cylinders                          | 28-10-27                          |
|   | Covers                             | 26-10-27                          |
|   | Pistons                            | 28-11-27                          |
|   | Rods                               | 28-11-27                          |
|   | Connecting rods                    | 28-11-27                          |
| Crank shaft                               | 28-11-27                           | ✓                                 |
| Flywheel shaft                            | ✓                                  | 28-10-27                          |
| Thrust shaft                              | ✓                                  | 28-10-27                          |
| Intermediate shafts                       | ✓                                  | 28-10-27                          |
| Tube shaft                                | ✓                                  | 28-10-27                          |
| Screw shaft                               | ✓                                  | 28-10-27                          |
| Propeller                                 | ✓                                  | 28-10-27                          |
| Stern tube                                | ✓                                  | 28-10-27                          |
| Engine seatings                           | ✓                                  | 28-10-27                          |
| Engines holding down bolts                | ✓                                  | 28-10-27                          |
| Completion of fitting sea connections     | ✓                                  | 28-10-27                          |
| Completion of pumping arrangements        | ✓                                  | 28-10-27                          |
| Engines tried under working conditions    | ✓                                  | 28-10-27                          |
| Crank shaft, Material                     | Steel                              | ✓                                 |
| Identification Mark                       | See below.                         | ✓                                 |
| Flywheel shaft, Material                  | ✓                                  | ✓                                 |
| Identification Mark                       | ✓                                  | ✓                                 |
| Thrust shaft, Material                    | ✓                                  | ✓                                 |
| Identification Mark                       | ✓                                  | ✓                                 |
| Intermediate shafts, Material             | ✓                                  | ✓                                 |
| Identification Mark                       | ✓                                  | ✓                                 |
| Tube shaft, Material                      | ✓                                  | ✓                                 |
| Identification Mark                       | ✓                                  | ✓                                 |
| Screw shaft, Material                     | ✓                                  | ✓                                 |
| Identification Mark                       | ✓                                  | ✓                                 |

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

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

Is this machinery duplicate of a previous case

If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, etc.) These auxiliary diesel engines have been built under special survey. The workmanship and materials are good. They were examined while working on the test bed and found satisfactory. The materials have been tested in accordance with the rules.

Identification marks on No. 84573 crank shaft.

M. 8040  
F. 6048  
LLOYD'S  
2141  
A.F.  
18-10-27

Identification marks on No. 84574 crank shaft.

M. 8040  
F. 6047  
LLOYD'S  
2141  
A.F.  
12-10-27

These engines to be fitted on board at Newcastle-on-Tyne.

|                              |         |                   |
|------------------------------|---------|-------------------|
| The amount of Entry Fee      | £14-0-0 | When applied for. |
| Special                      | £       | MONTHLY ACCOUNT   |
| Donkey Boiler Fee            | £       | When received.    |
| Travelling Expenses (if any) | £       | 19                |

G. E. Murdoch.  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 10 JAN 1928

Assigned Deforced.

TUES. 13 MAR 1928

*See No. 84573*