

REPORT ON OIL ENGINE MACHINERY.

No. 12128
APR 12 1938

Received at London Office

When handed in at Local Office 8th April 1938 Port of Belfast
Date, First Survey 1st Sept, 1936 Last Survey 2nd April 1938
Number of Visits 308

Survey held at Belfast
on the Single Twin Triple Quadruple Screw vessel "CAPETOWN CASTLE"
Tons { Gross 26850
Net 16500

By whom built Harland & Wolff L^{td} Yard No. 956 When built 1935
By whom made Harland & Wolff L^{td} Engine No. 956 When made 1935
By whom made Harland & Wolff L^{td} Cochran & Co Annan L^{td} Boiler No. 13614/5 When made 1935
Owners Union Castle Mail S.S. Co. L^{td} Port belonging to London
Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

Type of Engines Harland 30W airless injection 2 or 4 stroke cycle 2 Single or double acting double
Maximum pressure in cylinders 49 Kg/cm² Diameter of cylinders 660 mm Length of stroke 1500 mm No. of cylinders 20 No. of cranks 20
Is there a bearing between each crank Yes
Revolutions per minute 102 Flywheel dia. 2122 mm Weight 3000 Kg Means of ignition Compression Kind of fuel used Diesel oil
Crank Shaft, dia. of journals as per Rule Crank pin dia. 590 mm Crank Webs as per Rule Mid. length breadth 1500 mm Thickness parallel to axis 330 mm
Intermediate Shafts, diameter as per Rule 21 1/8" Thrust Shaft, diameter at collars as per Rule 590 mm
Screw Shaft, diameter as per Rule 23" Is the tube screw shaft fitted with a continuous liner Yes
Thickness between bushes as per Rule 1 1/2" Thickness around eyehole as per Rule 260 mm
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

Is 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
Is an approved Oil Gland or other appliance fitted at the after end of the tube Yes
Length of Bearing in Stern Bush next to and supporting propeller 8'-3"
Propeller, dia. 21'-0" Pitch 23'-8" No. of blades 3 Material M.B. whether Moveable Solid Total Developed Surface 115 sq. feet
Method of reversing Engines Hand gear Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication Hand
Thickness of cylinder liners 45 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Yes

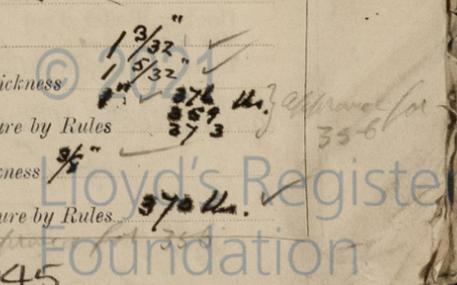
Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes
Bilge Pumps worked from the Main Engines, No. 4 Diameter as per Rule Stroke as per Rule Can one be overhauled while the other is at work Yes
Pumps connected to the Main Bilge Line { No. and Size Four all 200 tons/hr
How driven Motors
Ballast Pumps, No. and size Two 200 tons/hr Lubricating Oil Pumps, including Spare Pump, No. and size 4 - 500 tons/hr
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 1st tunnel 1-4" 2-2 1/2" 3-2 1/2" 4-2 1/2" 5-2 1/2" 6-2 1/2" 7-2 1/2" 8-2 1/2" 9-2 1/2" 10-2 1/2"
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size Aux ER 1-7" Main ER 2-7" 1st tunnel 1-7"

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes 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 Valves
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
How are they protected 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 Yes Is it fitted with a watertight door Yes worked from Upper deck
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Each compressor has 3 two stage cylinders
Main Air Compressors, No. 3 No. of stages two Diameters 240/250 Stroke 160 Driven by El Motor
Auxiliary Air Compressors, No. 1 No. of stages two Diameters 180/54 Stroke 115 Driven by Steam engine
Scavenging Air Pumps, No. 4 Capacity each 800 m³ at 1.24 kg/cm² abs, 2200 rpm. Driven by El motor

Auxiliary Engines crank shafts, diameter as per Rule 270 mm journal 240 mm pins
Are all Receivers:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes Flexible plugs & safety valves on line P.S.S.
Can the internal surfaces of the receivers be examined Yes What means are provided for cleaning their inner surfaces Mankate
Is there a drain arrangement fitted at the lowest part of each receiver Yes
High Pressure Air Receivers, No. 4 Cubic capacity of each 3 at 800cf, 1 at 350cf Internal diameter 2-6-4 3/8" thickness 1-6-11 3/8"
Seamless, lap welded or riveted longitudinal joint riveted Material S Range of tensile strength 25/32 tons Working pressure by Rules 276 lbs.
Emergency Air Receivers, No. 2 Total cubic capacity 360 litres Internal diameter 1-6" thickness 3/8" Working pressure by Rules 370 lbs.

Seamless, lap welded or riveted longitudinal joint riveted Material S Range of tensile strength 25/32 Working pressure by Rules 370 lbs.
015348-015354-0045



IS A DONKEY BOILER FITTED? *Yes* ✓

If so, is a report now forwarded? *Yes* ✓

PLANS. Are approved plans forwarded herewith for Shafting *Yes* 24-7-36 ✓
(If not, state date of approval)

Receivers *Yes* ✓

Separate Tanks *Yes* ✓

Donkey Boilers *Yes* ✓

General Pumping Arrangements *Yes* ✓

Oil Fuel Burning Arrangements *Yes* ✓

SPARE GEAR

See attached sheet

The foregoing is a correct description,
For HARLAND AND WOLFF, LIMITED,

as Marshall *Manufacturers.*

Sept 1. 2. 3. 4. 6. 7. 8. 9. 10. 11. 13. 14. 15. 16. 17. 18. 20. 21

22. 23. 24. 27. 28. 29. 30 Oct 1. 4. 5. 6. 7. 8. 11. 12. 18. 19

22. 25. 27. 28. 29 Nov 1. 2. 4. 5. 8. 9. 11. 12. 15. 18. 20. 24

26. 29. 30 Dec 2. 3. 6. 8. 13. 14. 20. 22. 23. 24 Jan 5. 6. 5

6. 7. 8. 10. 12. 13. 18. 19. 20. 24. 25. 26. 28. 31 Feb 1. 2.

3. 7. 9. 11. 14. 16. 18. 21. 22. 25. 28. Mar 4. 7. 8. 9. 10

11. 15. 17. 18. 21. 22. 23. 24. 25. 26. 28. 29. 30. 31

Apr 1. 2. 308

1936 Sept. 1. 8. 25 Oct. 2. 5. 7. 8. 15. 16. 20 Secretary. 23. 26. 27. 28. 31 Nov 5. 17. 18. 24. 26. 27. 28. 30 Dec 1. 2. 7. 8. 9. 10. 11. 12. 15. 16. 17. 18. 23 1937 Jan. 5. 6. 7. 8. 11. 12. 13. 14. 15. 16. 18. 19. 20. 21. 22. 25. 26. 27. 28. 29. 30 Feb. 1. 3. 4. 5. 6. 8. 9. 10. 12. 13. 15. 16. 17. 18. 19. 22. 23. 24. 25. 26. 27 Mar. 1. 2. 5. 10. 11. 12. 16. 17. 18. 19. 23. 24. 31 Apr. 1. 2. 6. 7. 8. 12. 13. 14. 19. 20. 21. 23. 26. 28. 29. 30 May 5. 6. 7. 8. 10. 11. 13. 14. 15. 17. 18. 19. 20. 21. 24. 27. 28. 31 June 1. 2. 3. 4. 7. 8. 9. 10. 11. 14. 15. 16. 17. 18. 19. 21. 22. 23. 24. 25. 26. 28. 29. 30 July 1. 2. 3. 5. 6. 7. 10. 11. 12. 13. 14. 16. 17. 18. 19. 20. 21. 24. 25. 26. 27. 30. 31 Aug 2. 3. 4. 5. 6. 7. 11. 12. 13. 14. 16. 17. 18. 19. 20. 21. 24. 25. 26. 27. 30. 31

of principal parts—Cylinders 1/8/37 12/9/37 Covers 1/8/37 4/10/37 Pistons 27/4/37 1/11/37 Rods 1/4/37 6/11/37 Connecting rods 5 7/8/37
Crank shaft S 4/7/37 Flywheel shaft ✓ Thrust shaft P S 14/6/37 Intermediate shafts 6/4/37 3/9/37 Tube shaft ✓
Screw shaft 31/8/37 Propellers 7/3/38 Stern tube S 8/7/37 Engine seatings 16/8/37 Engines holding down bolts 3/11/37 15/5/37
Completion of fitting sea connections 16/8/37 Completion of pumping arrangements 17/3/38 Engines tried under working conditions 21/4/37 3/8/37
Crank shaft, Material S Identification Mark LLOYDS 258 Flywheel shaft, Material ✓ Identification Mark ✓
Thrust shaft, Material S Identification Mark LLOYDS 258 Intermediate shafts, Material S Identification Marks S LLOYDS 258
Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material S Identification Mark LLOYDS 258

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* ✓
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 ✓

Is this machinery duplicate of a previous case *Yes* ✓ If so, state name of vessel *STIRLING CASTLE* ✓

General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery of this vessel has been constructed under special survey. The workmanship & materials are good. The main engines and auxiliaries have been efficiently installed & tried out under working conditions. In our opinion the vessel is eligible for notation in the Society Register Book
+ LMC 4-38, CL. 4DBs 100lbs OIL ENGINES.

Certificate (if required) to be sent to
(The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee ... £ 6 : 0 :
Special ... £ 216 : 5 :
Donkey Boiler Fee ... £ 24 : 0 :
AIR RECEIVERS 21 : 0 :
Travelling Expenses (if any) £ : :
When applied for, 11. 4. 1938
When received, 21. 5. 1938

Committee's Minute **FRI. 22 APR 1938**
Assigned *+ Lamb. H. 38 oil eng.*
4 DB-100lbs
Ch

Charles J. Hunter. Rhee Amner.
Engineer Surveyor to Lloyd's Register of Shipping.



IS A DONKEY BOILER FITTED?

PLANS. Are approved plans forwarded herewith for Shafting *Yes* 24.7.36 If so, is a report now forwarded? *Yes*
 Donkey Boilers *Yes* Receivers *Yes* Separate Tanks *Yes*
 General Pumping Arrangements *Yes* Oil Fuel Burning Arrangements *Yes*

SPARE GEAR

See attached list

The foregoing is a correct description,
 For HARLAND AND WOLFF, LIMITED,
as Marshall *Manufacturer.*

| | | | |
|--------------------------------|-------------------------------------|--|---|
| Dates of Survey while building | During progress of work in shops -- | 1936 Sept. 1, 8, 25 Oct. 2, 5, 7, 8, 15, 16, 20 | Secretary 23, 26, 27, 28, 31 Nov 5, 17, 18, 24, 26, 27, 28, 30 Dec 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 25, 26, 27, 28 |
| | During erection on board vessel -- | 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 23 1937 Jan. 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 25, 26, 27, 28 | Feb. 1, 3, 4, 5, 6, 8, 9, 10, 12, 13, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 27 Mar. 1, 2, 3, 10, 11, 12, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 30 |
| | Total No. of visits | 19, 20, 21, 22, 23, 26, 27, 29, 30, 31 | Apr. 1, 2, 6, 7, 8, 12, 13, 14, 19, 20, 21, 23, 26, 28, 29, 30 May 5, 6, 7, 8, 10, 11, 13, 14, 15, 17, 18, 19, 20, 21, 24, 27, 28, 29, 30 June 1, 2, 3, 4, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 28, 29, 30 July 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24, 25, 26, 27, 30 Aug 2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 24, 25, 26, 27, 30 |

Dates of Examination of principal parts—Cylinders 15/4/37 17/9/37 Covers 11/8/37 11/10/37 Pistons 27/4/37 21/11/35 Rods 1/4/37 11/10/37 Connecting rods 5 7/8/37
 Crank shaft S 4/7/37 Flywheel shaft ✓ Thrust shaft P S 16/4/37 Intermediate shafts 4/4/37 3/9/37 Tube shaft ✓
 Screw shaft 31/8/37 Propellers 7/3/38 Stern tube S 5/7/37 Engine seatings 16/8/37 Engines holding down bolts 5/11/37 15/11/37
 Completion of fitting sea connections 16/8/37 Completion of pumping arrangements 17/3/38 Engines tried under working conditions 21/4/37 25/8/37

Crank shaft, Material S Identification Mark LL0405 258 Flywheel shaft, Material ✓ Identification Mark ✓
 Thrust shaft, Material S Identification Mark LL0405 258 Intermediate shafts, Material S Identification Mark S LL0405 258
 Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material S Identification Mark LL0405 258

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*
 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

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *STIRLING CASTLE*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery of this vessel has been constructed under special survey. The workmanship & materials are good. The main engines and auxiliaries have been efficiently installed & tried out under working conditions. In our opinion the vessel is eligible for notation in the Society Register Book
+ LMC 4-38, CL. 4DBs 100lbs. OIL ENGINES

| | | | |
|----------------------------------|-----------|-------------------|--------------|
| The amount of Entry Fee ... | £ 6 : 0 | When applied for, | 11. 4. 19 38 |
| Special ... | £ 216 : 5 | When received, | 21. 5. 19 38 |
| Donkey Boiler Fee ... | £ 24 : 0 | | |
| AIR RECEIVERS ... | 21 : 0 | | |
| Travelling Expenses (if any) ... | £ : | | |

Committee's Minute **FRI. 22 APR 1938**
 Assigned *+ Lmb. H. 38 oil eng. CL*
4 DB-100lb

Charles J. Hunter, R. Lee Arneer
 Engineer Surveyor to Lloyd's Register of Shipping.



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Certificate (if required) to be sent to
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