

REPORT ON OIL ENGINE MACHINERY.

No. 10,160

Received at London Office

-1 MAY 1929

of writing Report

19

When handed in at Local Office 30th April 1929 Port of Belfast

Date, First Survey 14th Feb'y 1928

Last Survey 19th April 1929

Number of Visits 130

in Survey held at Belfast

Book.

439 on the ^{Single} Twin ^{Triple} Screw vessel

HIGHLAND BRIGADE

Tons ^{Gross} _{Net}

ilt at Belfast

By whom built Harland & Wolff Ltd.

Yard No. 812 When built 1929

ines made at Belfast

By whom made Harland & Wolff Ltd.

Engine No. 812 When made 1929

key Boilers made at Lincoln

By whom made Babcock & Wilcox Ltd.

Boiler No. 4550 When made 1929

ake Horse Power

Owners Nelson Steam Nav. Co. Ltd. (H. & W. Nelson Ltd. Mgrs.) Port belonging to Belfast

m. Horse Power as per Rule 2190

Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

ade for which vessel is intended

Ocean-going

ENGINES, &c. Type of Engines Harland & Wolff B.M. diesel 2 or 4 stroke cycle 4 Single or double acting double

imum pressure in cylinders 500 lbs. Diameter of cylinders 26 3/4 680 mm. Length of stroke 1600 mm. No. of cylinders 16 No. of cranks 16

in of bearings, adjacent to the Crank, measured from inner edge to inner edge 950 mm. Is there a bearing between each crank Yes

olutions per minute 105 Flywheel dia. 2.8 metres Weight 3.1 tons Means of ignition Compression Kind of fuel used diesel oil

ank Shaft, dia. of journals as per Rule approved 515 mm. Crank pin dia. 515 mm. Crank Webs Mid. length breadth 834 mm. Thickness parallel to axis 300 mm.

as fitted 515 mm. Crank Webs Mid. length thickness 300 mm. Thickness around eyehole 234.5 mm.

Flywheel Shaft, diameter as per Rule approved Intermediate Shafts, diameter as per Rule approved 16 3/4 Thrust Shaft, diameter at collars as per Rule approved 18 1/4

as fitted for thrust shaft Screw Shaft, diameter as per Rule approved 18 1/4 Is the shaft fitted with a continuous liner Yes

as fitted 27 3/2 32 Thickness between bushes as per rule 6.35 25 3/2 Is the after end of the liner made watertight in the

ronze Liners, thickness in way of bushes as fitted 15 1/6 Thickness between bushes as fitted 25 3/2 Is the after end of the liner made watertight in the

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

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

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

d of the tube shaft no Length of Bearing in Stern Bush next to and supporting propeller 6'-11"

ropeller, dia. 17'-6" Pitch 17'-6" No. of blades 3 Material Man. Bronze whether Moveable Yes Total Developed Surface 84 sq. feet

ethod of reversing Engines direct-acting engine Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication

forced Thickness of cylinder liners 48 mm. Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

on-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 to funnel

ooling Water Pumps, No. 2 Vertical Centrif. 8" dia. Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Bilge Pumps, No. 2 Vertical Centrif. 8" dia. Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

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IS A DONKEY BOILER FITTED? *Yes* *Clarkson Waste Heat*. If so, is a report now forwarded? *Yes*.

PLANS. Are approved plans forwarded herewith for Shafting *22. 2. 27* Receivers *11. 5. 27* Separate Tanks *26. 9. 27*
(If not, state date of approval)

Donkey Boilers General Pumping Arrangements *20. 3. 28* Oil Fuel Burning Arrangements *11. 8. 28*

SPARE GEAR *see attached list - in excess of Rule requirements*

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

Zeitzbeck

Manufacturer.

1928
Dates of Survey while building
During progress of work in shops - *Feb. 14 Mar. 8. 19 Apr. 5. 11. 13. 18. 19 May 9. 14. 21. 25. 31 June 5. 7. 9. 11. 15. 20. 25 July 3. 4. 10. 26. 30. 31 Aug. 1. 4. 7. 9. 13. 14. 15. 16. 17. 20. 21. 22. 23. 24. 27. 28. 29. 30. 31 Sept. 1. 3. 4. 5. 6. 7. 10. 11. 12. 13. 14. 17. 18. 20. 21. 22. 24. 25. 26. 27. 28. 29 Oct. 1. 2. 3. 4. 5. 8. 9. 10. 11. 12. 15. 16. 17. 18. 19. 22. 23. 24. 25. 26. 29. 30. 31 Nov. 1. 2. 5. 6. 7. 8. 9. 15. 16. 19. 20. 21. 22. 23. 28. 30 Dec. 3. 12. 14. 17. 22. 23 1929 Jan. 17. 4. 26. 4. 15. 18. 21*
During erection on board vessel - *Mar. 2. 5. 18. 20. 25. 26 Apr. 3. 15. 16. 17. 18. 19 = 130*
Total No. of visits

Dates of Examination of principal parts—Cylinders *5. 11. 28* Covers *31. 8. 28 5. 11. 28* Pistons *9. 11. 28* Rods *19. 9. 28 24. 10. 28* Connecting rods *22. 8. 28 18. 10. 28*
Crank shafts *17. 9. 28 9. 10. 28* Flywheel shaft *✓* Thrust shafts *6. 9. 28* Intermediate shafts *16. 10. 28* Tube shaft *✓*
Screw shafts *12. 9. 28* Propellers *12. 9. 28* Stern tubes *14. 8. 28 21. 8. 28* Engine seatings *25. 10. 28* Engines holding down bolts *9. 1. 29*
Completion of fitting sea connections *25. 10. 28* Completion of pumping arrangements *11. 4. 29* Engines tried under working conditions *11. 4. 29*
Crank shaft, Material *S. M. Ingot Steel* Identification Mark *2212 R.L.A. 2219 A.Q.M.* Flywheel shaft, Material *✓* Identification Mark *✓*
Thrust shaft, Material *S. M. Ingot Steel* Identification Mark *441 R.L.A. 510 R.L.A.* Intermediate shafts, Material *S. M. Ingot Steel* Identification Marks *483. 525. 552. 565. 499.*
Tube shaft, Material *✓* Identification Mark *✓* Screw shafts, Material *S. M. Ingot Steel* Identification Mark *441. 387. 499. R.L.*

Is the flash point of the oil to be used over 150° F. *Yes*

Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *"Highland Chieftain" "Highland Monarch"*

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been constructed under special survey. The workmanship and materials are found and good. The main and auxiliary engines have been tried under working conditions at moored and sea trials with satisfactory results. In my opinion the vessel is now eligible for notation in the Society's Register Book. L.M.C. 4. 29. C.L. Waste Heat boiler pressure 100 lbs. Fitted for Oil Fuel 4. 29 F.P. at 100 lbs.

The amount of Entry Fee ... £ 6 : - : When applied for,
Special ... £ 154 : 15 : 30th April 1929.
AIR RESERVOIRS
Donkey Boiler Fee ... £ 16 : 16 : When received,
Travelling Expenses (if any) £ : : 9. 5. 29

Committee's Minute

Assigned

R. Lee Ames

Engineer Surveyor to Lloyd's Register of Shipping.



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Foundation