

## REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Date of writing Report 23<sup>rd</sup> April 1927 When handed in at Local Office 2.5.27 Port of West Hartlepool  
 No. in Survey held at West Hartlepool Date, First Survey 9<sup>th</sup> April 1926 Last Survey 22<sup>nd</sup> Apr. 1927  
 Reg. Book. 88358 on the S.S. "HARTBRIDGE" (Number of Visits 182)  
 Built at West Hartlepool By whom built Wm Gray & Co. Ltd. Yard No. 983 Tons { Gross 5080  
 Engines made at West Hartlepool By whom made Central Marine Engine No. 983 when made 1927  
 Boilers made at do By whom made Engine Works Boiler No. 983 when made 1927  
 Registered Horse Power 472 Owners Brookby & Co. Ltd. Port belonging to W. Hartlepool  
 Nom. Horse Power as per Rule 472 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes  
 Trade for which Vessel is intended Ocean going

ENGINES, &c.—Description of Engines Triple expansion Revs. per minute 67½  
 Dia. of Cylinders 26"-43"-71" Length of Stroke 48" No. of Cylinders 3 No. of Cranks 3  
 Crank shaft, dia. of journals as per Rule 13.54 as fitted 14" Crank pin dia. 14" Crank webs Mid. length breadth 21½" Thickness parallel to axis 8½"  
 Intermediate Shafts, diameter as per Rule 12.9" as fitted 13½" Thrust shaft, diameter at collars as per Rule 13.54" as fitted 14"  
 Tube Shafts, diameter as per Rule ✓ as fitted ✓ Screw Shaft, diameter as per Rule 14.4" as fitted 15" Is the { tube } shaft fitted with a continuous liner { yes }  
 Bronze Liners, thickness in way of bushes as per Rule .74" as fitted ¾" Thickness between bushes as per Rule .555" as fitted 96" 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 ✓  
 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 ✓ Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft no  
 Length of Bearing in Stern Bush next to and supporting propeller 5'-0"  
 Propeller, dia. 18'-0" Pitch 17'-0" No. of Blades 4 Material Cast iron whether Moveable no Total Developed Surface 103 sq. feet  
 Feed Pumps worked from the Main Engines, No. 2 Diameter 3¾" Stroke 28" Can one be overhauled while the other is at work yes  
 Bilge Pumps worked from the Main Engines, No. 2 Diameter 4½" Stroke 28" Can one be overhauled while the other is at work yes  
 Feed Pumps { No. and size 2 main 9½" 7x21" simplex Pumps connected to the { No. and size 2 main 1-9x10½x10" duplex }  
 How driven Steam Main Bilge Line How driven Steam  
 Ballast Pumps, No. and size 1. 9x10½x10" duplex 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 3 of 2¾"  
 In Holds, &c. No 1 2 of 3" No 2 2 of 3½" No 3 2 of 3" No 4 2 of 3"  
 Tunnel 1 of 2¾"

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 of 6" Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1 of 4¾"  
 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 run 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 yes  
 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 above  
 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 ✓  
 What pipes pass through the deep tanks none Have they been tested as per Rule ✓  
 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 see ship report Is it fitted with a watertight door yes worked from above upper deck.

MAIN BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 8542 sq. ft.  
 Is Forced Draft fitted no No. and Description of Boilers 3 single ended Working Pressure 180 lbs  
 IS A REPORT ON MAIN BOILERS NOW FORWARDED? yes  
 IS A DONKEY BOILER FITTED? no If so, is a report now forwarded? ✓

PLANS. Are approved plans forwarded herewith for Shafting ✓ Main Boilers yes Auxiliary Boilers yes Donkey Boilers ✓  
 (If not state date of approval)  
 Superheaters ✓ General Pumping Arrangements yes Oil fuel Burning Piping Arrangements ✓

SPARE GEAR. State the articles supplied:—2 Bolts & Nuts for Connec. Rod top ends. 2 ditto for bottom ends. 2 Main bearing bolts & nuts. 1 set coupling bolts & nuts. 1 set of valves for feed, hotwell & bilge pumps. 1 set of springs for H.P. piston. 1 tail shaft. 1 propeller. 12 condenser tubes. 12 main boiler tubes. 6 aux. boiler tubes. Bolts, nuts & iron assorted. ✓

The foregoing is a correct description,  
 FOR THE CENTRAL MARINE ENGINE WORKS,

(W. Gray & Co. Ltd.)

*W. Gray*  
 MANAGING DIRECTOR, C.M.E.W.

Manufacturer.



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 Foundation

003487-003494-0116



1926. April 9. 19. 20. 22. 23. 26. 28. 28. May. 20. June 2. 4. July 28. Aug. 12. 24. 27. Sept. 22. 23. 27. 29. Oct. 1. 11. 13. 26. 30. Dec. 7. 9. 14. 15. 16. 17. 20. 22. 23. 28. 29. 30. 31. - 1927 - Jan. 4. 6. 10. 11. 12. 13. 14. 17. 18. 19. 20. 21. 24. 25. 26. 27. 28. 31. Feb. 3. 4. 7. 8. 9. 11. 14. 15. 16. 17. 18. 21. 22. 23. 24. 25. 28. Mar. 1. 2. 3. 4. 7. 8. 9. 10. 11. 14. 22. 24. 25. 28. 29. 30. 31. April 4. 5. 7. 8. 13. 14. 19. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. May 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. June 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. July 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Aug. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Sept. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Oct. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Nov. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. Dec. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31.

Dates of Survey while building

During progress of work in shops - -

During erection on board vessel - - -

Total No. of visits 102

Dates of Examination of principal parts—Cylinders 28.4.26-8.2.27 Slides 30.12.26-4.3.27 Covers 19.4.26-4.3.27

Pistons 20.4.26-4.3.27 Piston Rods 22.4.26-28.2.27 Connecting rods 14.12.26-28.2.27

Crank shaft 12.1.27-24.2.27 Thrust shaft 22.9.26-24.2.27 Intermediate shafts 29-9.26-14.3.27

Tube shaft — Screw shaft 6.1.27-14.3.27 Propeller 14.2.27-4.3.27

Stern tube 4.1.27-16-2.27 Engine and boiler seatings 24.3.27 Engines holding down bolts 31.3.27-8.4.27

Completion of fitting sea connections 8.3.27

Completion of pumping arrangements 22.4.27. Boilers fixed 28.3.27 Engines tried under steam 21.4.27

Main boiler safety valves adjusted 21.4.27 Thickness of adjusting washers FP  $\frac{3}{8}$  S  $\frac{3}{8}$  TP  $\frac{5}{16}$  S  $\frac{5}{16}$  SP  $\frac{3}{8}$  S  $\frac{1}{2}$

Crank shaft material S.M. Ingot Steel Identification Mark 6392H. Thrust shaft material S.M. Ingot S. Identification Mark 6742.M

Intermediate shafts, material S.M. Ingot S Identification Marks 4.6.6.7.9-23 V.S. Tube shaft, material — Identification Mark —

Screw shaft, material S.M. Ingot S. Identification Mark 24 V.S. Steam Pipes, material L.W. Steel Test pressure 600 lb. Date of Test 8.3.27

Is an installation fitted for burning oil fuel no spare 3 V.S. Is the flash point of the oil to be used over 150°F. 14.4.27

Have the requirements of the Rules for carrying and burning oil fuel 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 boiler TR 279 made in 1916 and kept in stock (see Hartlepool report No 15896) has been examined inside and outside and found not to have suffered deterioration. It has been retested to 320 lbs on 8<sup>th</sup> Feb. 1927 and a new certificate made No 3691. See Secretary's Letter 1.3.27. It has been fitted on board as an auxiliary boiler. A feed heater and an evaporator fitted, the shells of which were tested to 50 lbs and the coils of the latter to 400 lbs.

This vessel's machinery has been built and installed under Special Survey. The materials and workmanship are good. On completion it was tried under full steam and found satisfactory, and is now eligible to have the notation L.M.C. 4.27.

It is submitted that this vessel is eligible for THE RECORD + LMC 4.27. CL.

4/5/27

The amount of Entry Fee ... £ 5 : 0 : 0

Special £ 90 : 2 : 0

Donkey Boiler Fee £ 15896

Travelling Expenses (if any) £ :

When applied for, 2.5.27

When received, 11.5.27

R.D. Shilston & Robert Rae

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 6 MAY 1927

Assigned

Time 4.27 cc



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