

# REPORT ON OIL ENGINE MACHINERY.

Received at London Office 3 SEP 1936

Date of writing Report 19... When handed in at Local Office 2<sup>nd</sup> Sept 1936 Port of BELFAST  
No. in Survey held at Belfast Date, First Survey 6<sup>th</sup> June 1935 Last Survey 31<sup>st</sup> Aug 1936  
Book. Number of Visits 145

80 on the <sup>Single</sup> Twin <sup>Triple</sup> Screw vessel DUNVEGAN CASTLE Tons <sup>Gross</sup> <sub>Net</sub>

at Belfast By whom built Harland & Wolff Ltd. Yard No. 960 When built 1936  
Lines made at Belfast By whom made Harland & Wolff Ltd. Engine No. 960 When made 1936  
Boilers made at Belfast By whom made Harland & Wolff Ltd. Boiler No. 960 When made 1936  
Horse Power 11900 Owners Union Castle Mail S.S. Co. Ltd. Port belonging to London  
Horse Power as per Rule 1931 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

Trade for which vessel is intended Ocean-going 17 1/2" 47 1/2"

ENGINES, &c.—Type of Engines Harland & Wolff - D.V.M. Sulzer Injection 2 or 4 stroke cycle 2 Single or double acting double  
Maximum pressure in cylinders 700 lbs/sq. in. Diameter of cylinders 450 mm. Length of stroke 1200 mm. No. of cylinders 18 No. of cranks 18  
Position of bearings, adjacent to the Crank, measured from inner edge to inner edge 734 mm. Is there a bearing between each crank Yes  
Revolutions per minute 128 Flywheel dia. 1949 mm. Weight 2040 Kgs. Means of ignition Compression Kind of fuel used Diesel oil  
Crank Shaft, dia. of journals as per Rule Approved Crank pin dia. 390 mm. Crank Webs Mid. length breadth 670 mm. Thickness parallel to axis 238 mm.  
as fitted 390 mm. 115 mm. Mid. length thickness 238 mm. shrunk Thickness around eye-hole 175 mm.  
Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule Approved Thrust Shaft, diameter at collars as per Rule Approved  
as fitted Screw Shaft, diameter as per Rule Approved Is the shaft fitted with a continuous liner Yes  
as fitted 16" 14 1/2" 390 mm

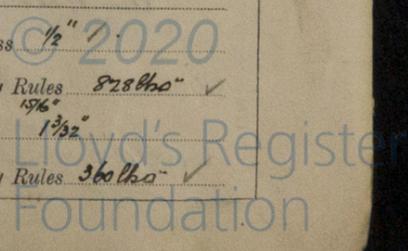
Copper Liners, thickness in way of bushes as per Rule Approved Thickness between bushes as per rule Approved Is the after end of the liner made watertight in the  
as fitted 7/8" 23/32" propeller boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner  
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  
end of the tube shaft No Length of Bearing in Stern Bush next to and supporting propeller 7 1/2"  
Propeller, dia. 16'3" Pitch 16'3" 18'9" 22'4" No. of blades 3 Material M.M. Br. whether Moveable No. Total Developed Surface ca. 70 sq. feet  
Method of reversing Engines Air motor Is a governor or other arrangement fitted to prevent racing of the engine when declutched Yes Means of lubrication  
forced Thickness of cylinder liners 34 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 to funnel

Cooling Water Pumps, No. Four of 228 Tons/hr. 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 Four of 135 Tons/hr. (Relief, Emergency Bilge, Fire, Ballast) How driven Electric motor  
Ballast Pumps, No. and size One of 135 Tons/hr. Lubricating Oil Pumps, including Spare Pump, No. and size Four of 190 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 Main Room 2 of 3 1/2", 2 of 2 1/2" Aux. Room 2 of 3 1/2" Repig. Room 2 of 3 1/2" + 1 of 2 1/2" Tunnel 2 of 3 1/2" 1 of 2 1/2" Repig.  
In Holds, &c. 10 of 3 1/2" 4 of 2 1/2" 4 of 3" 1 of 3 1/2"

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size Five of 5"  
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes Are the Bilge Suctions in the Machinery Spaces  
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 Yes  
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  
What pipes pass through the bunkers How are they protected  
What 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 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

Main Air Compressors, No. No. of stages Diameters Stroke Driven by  
Auxiliary Air Compressors, No. Two No. of stages 2 Diameters 4 Cyls. 130 + 115 mm Stroke 120 mm. Driven by Electric motor  
Small Auxiliary Air Compressors, No. One No. of stages 2 Diameters 106 + 85 mm. Stroke 80 mm. Driven by Steam Engine  
Scavenging Air Pumps, No. Two 233 M<sup>3</sup>/min. Capacity at Diameter 341 r.p.m. delivering Stroke at 1.2 Min. absol. Driven by main motor  
Auxiliary Engines crank shafts, diameter as per Rule Approved No. Four  
as fitted 220 mm. Position - Aux. motor room

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes  
Can the internal surfaces of the receivers be examined Open ends What means are provided for cleaning their inner surfaces Yes  
Is there a drain arrangement fitted at the lowest part of each receiver Yes  
High-Pressure Air Receivers, No. One Cubic capacity of each 180 litres Internal diameter 14" thickness 1/2"  
Seamless, lap welded or riveted longitudinal joint Yes Material Steel Range of tensile strength 24/28 Tons/sq. inch Working pressure by Rules 828 lbs/sq. inch  
Starting Air Receivers, No. Two Total cubic capacity 1076 Cub. ft. Internal diameter 5'-6 3/4" 6'-4 1/16" thickness 1 3/32"  
Seamless, lap welded or riveted longitudinal joint Yes Material Steel Range of tensile strength 28/32 Tons/sq. inch Working pressure by Rules 360 lbs/sq. inch



IS A DONKEY BOILER FITTED? *Yes* (not for domestic purposes only) If so, is a report now forwarded? *Yes*

PLANS. Are approved plans forwarded herewith for Shafting *22<sup>nd</sup> Oct. 17<sup>th</sup> 18<sup>th</sup> Ap. 1935* Receivers *28<sup>th</sup> May 1935* Separate Tanks *25<sup>th</sup> 31<sup>st</sup> Jan. 21<sup>st</sup> Oct. 9<sup>th</sup> 16<sup>th</sup> Mar. 1935*

Donkey Boilers *13.6.35 6.7.35* General Pumping Arrangements *24.12.35 20.2.36* Oil Fuel Burning Arrangements *7.2.36*

SPARE GEAR *In excess of rules see appended list.*

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

*W. Marshall*  
Assistant Secretary

Manufacturer.

Dates of Survey while building  
 During progress of work in shops: *1935 June 6 July 10 Aug. 2, 6, 9, 16, 22 Sept 17 Dec 19, 20 1936 Jan 3, 6, 13, 24, 28, 29 Feb 1, 4, 5, 6, 12, 14, 20, 25, 26 Mar 6, 7, 9, 11, 12, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27 Apr 3, 6, 7, 8, 9, 10, 11, 15, 17, 18, 20, 21, 22, 23, 24, 27, 28, 29, 30 May 1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30 June 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 13, 15, 16, 17, 18, 22, 24, 25, 26, 27, 30 July 1, 2, 3, 4, 6, 7, 8, 10, 11, 15, 16, 17, 18, 20, 21, 22, 25, 28, 30, 31 Aug 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 27, 31 = 145*

Dates of Examination of principal parts—Cylinders *5.3.36 23.7.36* Covers *AND* Pistons *8.4.36 24.7.36* Rods *28.4.36 5.5.36* Connecting rods *20.4.36 7.5.36*

Crank shaft *2.4.36 30.4.36 8.5.36* Flywheel shaft *✓* Thrust shaft *6.2.36 30.4.36* Intermediate shafts *30.2.36 22.4.36* Tube shaft *✓*

Screw shaft *18.3.36* Propeller *18.3.36 12.6.36* Stern tube *7.5.36* Engine seatings *10<sup>th</sup> Apr. 36* Engines holding down bolts *P.30.6.36 S.11.6.36*

Completion of fitting sea connections *10<sup>th</sup> Aug 1936* Completion of pumping arrangements *12<sup>th</sup> Aug 1936* Engines tried under working conditions *18<sup>th</sup>-19<sup>th</sup> Aug 1936*

Crank shaft, Material *S.M. STEEL* Identification Mark *235 and 237* Flywheel shaft, Material *✓* Identification Mark *154, 158, 176, 124, 591, 161, 613*

Thrust shaft, Material *Do* Identification Mark *172 and 190* Intermediate shafts, Material *S.M. STEEL* Identification Marks *161, 158, 124, 149, 274, 613*

Tube shaft, Material *Do* Identification Mark *Do* Screw shaft, Material *Do* Identification Mark *190, 189 and 603*

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 *"JUNNOTAR CASTLE"*

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

*The machinery of this vessel has been constructed under special survey and in accordance with the Rules. The workmanship & materials are good. The main engines and auxiliaries have been efficiently installed and tried out under working conditions with satisfactory results. In our opinion the vessel is eligible for notation in the Society's Register Book*

*+ LMC 9-36 CL. 2 DBs 100LBS GILENGINES*

The amount of Entry Fee ... £ 6 : 0 0 / When applied for,  
 Special ... £ 148 : 15 0 / 1<sup>st</sup> Sept. 1936  
 Donkey Boiler Fee ... £ 7 : 7 0 / When received,  
 Air Receiver  
 Travelling Expenses (if any) £ 7 : 7 0 / 12.9.36

*Charles Y. Hunter R Lee Amess*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned *+ Lmc 8.06*  
*2 S.B. - 100 lbs*  
*oil eng CL*



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