

# REPORT ON OIL ENGINE MACHINERY.

Bel 9352  
2 JUN 1925 8678

Received at London Office 26 FEB 1925  
 Date of writing Report 19 When handed in at Local Office 25 Feb 1925 Port of London & Belfast.  
 No. in Survey held at Bedford & Belfast. Date, First Survey 10 Nov 24 Last Survey 24 Feb 1925  
 Reg. Book. Number of Visits NINE  
 on the <sup>Single</sup> Motor <sup>Twin</sup> Screw vessels "PORT DUNEDIN"  
 Tons { Gross 4163  
 Net 4153.

Master Built at Belfast By whom built Dockman Clark Yard No. 477 When built 1925  
 Engines made at Sunderland By whom made W. Doxford & Sons Ltd Engine No. When made "  
 Electric Generating Sets  
 Boiler makers made at Bedford By whom made H. H. Allen & Sons Ltd Eng. No. 53135/1/2/3 When made 1925  
 Brake Horse Power Owners Commonwealth & Dominion Line Port belonging to London  
 Indicated Horse Power 320 B.H.P. + 210 kW  
 Nom. Horse Power as per Rule 274 Is Refrigerating Machinery fitted for cargo purposes yes Is Electric Light fitted yes

Let's auxiliary  
 L ENGINES, &c. Type of Engines Diesel, Burmeister & Wain Design 2 or 4 stroke cycle 4 Single or double acting triple  
 Maximum pressure in cylinders 530 lbs No. of cylinders 4 No. of cranks 4 Diameter of cylinders 410 mm  
 Length of stroke 520 mm Revolutions per minute 200 Means of ignition Compression Kind of fuel used Heavy oil

Is there a bearing between each crank yes Span of bearings (Page 92, Section 2, par. 7 of Rules) 465 mm  
 Distance between centres of main bearings 830 mm Is a flywheel fitted yes Aux. Wt. 2530 lbs max as per Rule 222  
 Diameter of crank shaft journals as fitted 235 mm  
 Diameter of crank pins 240 mm Breadth of crank webs as per Rule 295 mm as fitted 380 mm Thickness of ditto as per Rule 124 mm as fitted 120 mm

Diameter of flywheel shaft as per Rule as fitted 235 mm Diameter of tunnel shaft as per Rule as fitted ✓ Diameter of thrust shaft as per Rule as fitted ✓  
 Diameter of screw shaft as per Rule as fitted ✓ Is the screw shaft fitted with a continuous liner the whole length of the stern tube ✓  
 Is the after end of the liner made watertight in the propeller boss ✓ If the liner is in more than one length are the joints burned ✓  
 Does the liner do 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 ✓  
 Are two liners fitted, is the shaft lapped or protected between the liners ✓ If without liners, is the shaft arranged to run in oil ✓

Is the propeller of outer gland fitted to stern tube ✓ Length of stern bush Diameter of propeller  
 Pitch of propeller ✓ No. of blades ✓ state whether moveable Total surface square feet  
 Method of reversing ✓ Is a governor or other arrangement fitted to prevent racing of the engine when disengaged yes Thickness of cylinder liners 34.5 mm

Are the cylinders fitted with safety valves yes Means of lubrication Rotary pump from end of crank shaft 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 ✓  
 Is the sea suction provided with an efficient strainer which can be cleared ✓

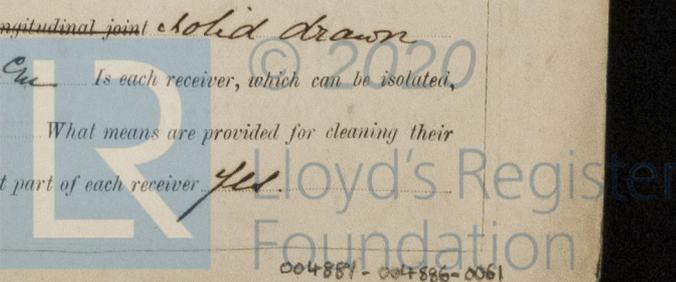
Are bilge pumps in the vessel ✓ No. of bilge pumps fitted to the main engines ✓ Diameter of ditto Stroke  
 Can one be overhauled while the other is at work ✓ No. of auxiliary pumps connected to the main bilge lines How driven  
 Are suction pipes of pumps No. and sizes of suction pipes connected to both main bilge pumps and auxiliary bilge pumps: - In engine room  
 Are pumps in holds, etc. No. of ballast pumps How driven Sizes of pumps

Is the ballast pump fitted with a direct suction from the engine room bilges ✓ State size Is a separate auxiliary pump suction fitted in engine room and size  
 Are all the bilge suction pipes fitted with roses ✓ Are the roses in Engine Room always accessible  
 Are the sluices on Engine Room bulkheads always accessible ✓ Are all connections with the sea direct on the skin of the ship  
 Are the valves or cocks they fired sufficiently high on the ship's side to be seen without lifting the floor plates  
 Are the discharge pipes above or below the deep water line ✓ Are they each fitted with a discharge valve always accessible on the plating of the vessel

Are all pipes, cocks, valves and pumps in connection with the machinery accessible at all times ✓ Are the bilge suction pipes, cocks and valves arranged so as to prevent any communication between the sea and the bilges ✓ Is the screw shaft tunnel watertight Is it fitted with a watertight door  
 Is the vessel a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork  
 No. of main air compressors One for each set No. of stages 3 Diameter 62-285-325 Stroke 210 Driven by Crankshaft  
 No. of auxiliary air compressors No. of stages Diameters Stroke Driven by  
 No. of small auxiliary air compressors No. of stages Diameters Stroke Driven by  
 No. of scavenging air pumps Diameter Stroke Driven by

Are the air compressors and their coolers made so as to be easy of access yes  
 Diameter of auxiliary Diesel Engine crank shafts as per Rule as fitted  
 Total for the 3 generating sets  
 AIR RECEIVERS: No. of high pressure air receivers 3 Internal diameter 293 mm Cubic capacity of each 88 litres

Material Steel Seamless, lap welded or riveted longitudinal joint Seamless Solid drawn Range of tensile strength  
 Thickness 15 mm working pressure by Rules 60 kg/cm<sup>2</sup> No. of starting air receivers 3 Internal diameter 416 mm  
 Cubic capacity each 230 litres Material Steel Seamless, lap welded or riveted longitudinal joint Solid drawn  
 Range of tensile strength ✓ thickness 17.5 mm Working pressure by rules 60 kg/cm<sup>2</sup> Is each receiver, which can be isolated, fitted with a safety valve as per Rule Fusible plug Can the internal surfaces of the receivers be examined yes What means are provided for cleaning their inner surfaces ✓ Is there a drain arrangement fitted at the lowest part of each receiver yes



IS A DONKEY BOILER FITTED? *Yes*

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

HYDRAULIC TESTS:-

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS					
COVERS	<i>Face test 1000 Paraffin jackets 50lb hydraulic</i>				
JACKETS	<i>50lb hydraulic</i>				
PISTON <sup>oil</sup> <del>WATER</del> PASSAGES	<i>Pistons oil Cooled 20lb with judgeon in place.</i>				
MAIN COMPRESSORS - 3rd Stage	<i>2000lb paraffin</i>	<i>\$</i>	<i>Cooler Coil 2000lb paraffin</i>	<i>(Internal air)</i>	
1st & 2nd	<i>450 lb hydraulic</i>	<i>\$</i>	<i>1st Stage Cooler 150lb</i>	<i>2nd Stage 400lb hydraulic</i>	
Jackets	<i>50 lb hydraulic</i>	<i>\$</i>			
AIR RECEIVERS-STARTING	<i>2000lb</i>		<i>Flagston Surveyors at Harland &amp; Wolff</i>		
INJECTION					
AIR PIPES	<i>2000lb paraffin</i>				
FUEL PIPES	<i>" "</i>				
FUEL PUMPS	<i>" "</i>				
SILENCER	<i>✓</i>				
WATER JACKET	<i>✓</i>				
SEPARATE FUEL TANKS	<i>✓</i>				

PLANS. Are approved plans forwarded herewith for shafting *also foring Certificate Crank Yes* Receivers *✓* Separate Tanks *✓*  
(If not, state date of approval)

SPARE GEAR *Cyl head, 1 liner, 1 piston, connecting rod & main bearing bolts & nuts, Sets of piston & valves for all purposes, 1 HP air comp coil, Springs for all purposes & ample main spare*

The foregoing is a correct description,  
 For W. H. ALLEN, SONS & Co., Ltd.  
*W. H. Allen* Manufacturer.

Dates of Survey while building  
 { During progress of work in shops - - }  
 { During erection on board vessel - - }  
 Total No. of visits

Dates of Examination of principal parts—Cylinders *10.11.24 until Completion.* Covers *✓* Pistons *✓* Rods *✓* Connecting rods *✓*  
 Crank shaft *Sheffield* Thrust shaft *✓* Tunnel shafts *✓* Screw shaft *✓* Propeller *✓* Stern tube *✓* Engine seatings *✓*  
 Engines holding down bolts *✓* Completion of pumping arrangements *✓* Engines tried under working conditions *✓*  
 Completion of fitting sea connections *✓* Stern tube *✓* Screw shaft and propeller *✓*  
 Material of crank shaft *Super Steel* Identification Mark on Do. *282 TH 24.7.24* Material of thrust shaft *327 T.H. 13.8.24* Identification Mark on Do. *280 TH 22.7.24*  
 Material of tunnel shafts *Armature do.* Identification Marks on Do. *✓* Material of screw shafts *✓* Identification Marks on Do. *✓*  
 Is the flash point of the oil to be used over 150° F. *yes*  
 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.) *These generating sets have been constructed under special survey. The materials & workmanship are good. The Diesel engines are directly coupled to D.C. Dynamos having multiple with interpoles. 220 volts 955 Amps 210 KW. Official test bed trials of 6 hours duration were witnessed followed by a 2 hour 10% overload trial. These trials were satisfactory in every way & there was no overheating in engine & dynamo. The sets were afterwards dismantled & forwarded to Belfast where they will be installed.*

This machinery is efficiently installed & fixed in the vessel & was tried under supervision  
 The amount of Entry Fee ... £ : : When applied for, *26 FEB 1925*  
 Special Chargeable to *W. H. Allen* £ 27 : 8 :  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ 8 : 8 : When received, *23 JUN 1925*  
 Committee's Minute *FRI. 5 JUN 1925*  
 Assigned *See Bel 9352*

*T. J. Stoddart* *William Dutt*  
 Engineer Surveyor to Lloyd's Register of Shipping.

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

