

# REPORT ON MACHINERY.

No. 960

Writing Report 2<sup>nd</sup> June 1918 When handed in at Local Office 10 Port of Belfast  
 Survey held at Belfast Date, First Survey 2<sup>nd</sup> March 1914 Last Survey 25 May 1918  
 on the T.S.S. ORCA (Number of Visits 126)

Built at Belfast By whom built Harland & Wolff Ltd Gross Tons 1918  
 Made at Belfast By whom made Harland & Wolff Ltd Net Tons 1918  
 Owners Pacific Steam Navigation Co Part belonging to Liverpool  
 Horse Power at Full Power 3160 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes

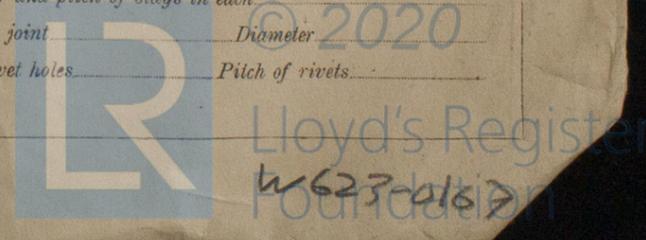
ENGINE ENGINES, &c.—Description of Engines One Low Pressure Turbine  
 Diameter of Pinion Shaft 10.12"  
 Diameter of Pitch Circle 10.62"  
 Diameter of Thrust Shaft under Collars 10.82"  
 Diameter of Tunnel Shaft 10.62"  
 Diameter of Propeller 10'-0" Pitch of Propeller 8'-0"  
 Total Surface 4220 sq ft  
 Diameter of Rotor Drum, H.P. 9'-2 1/2" L.P. 9'-2 1/2"  
 Revs. per Minute at Full Power, Turbine 213 Propeller 213

## DETAILS OF BLADING.

EXPANSION	H.P.			L.P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
.....				5"	10'-0 1/2"	9			
.....				6 1/2"	10'-3 1/2"	9			
.....				8 1/2"	10'-7"	9			
.....				10 1/2"	10'-11 1/2"	9			
.....				10 1/2"	10'-11 1/2"	8			
.....				10 1/2"	10'-11 1/2"	7			

Size of Feed pumps  
 Size of Bilge pumps  
 Size of Bilge suction in Engine Room  
 In Holds, &c.  
 Bilge Injections sizes Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine Room & size  
 All the bilge suction pipes fitted with roses Are the roses in Engine room always accessible  
 All connections with the sea direct on the skin of the ship Are they Valves or Cocks  
 They fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Discharge Pipes above or below the deep water line  
 They each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate  
 Pipes are carried through the bunkers How are they protected  
 All Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times  
 The Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges  
 The Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record) Manufacturers of Steel  
 Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers  
 Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate  
 Each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to boiler  
 Area of each valve Pressure to which they are adjusted Are they fitted with easing gear  
 Least distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates  
 Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams  
 Seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps  
 Percentages of strength of longitudinal joint Working pressure of shell by rules Size of manhole in shell  
 Description of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter  
 Thickness of plates Description of longitudinal joint No. of strengthening rings  
 Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom  
 Working pressure of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules  
 Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space  
 Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays  
 Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom  
 Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules  
 Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays  
 Working pressures by rules Girders to Chamber tops: Material Depth and  
 Thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each  
 Working pressure by rules Steam dome: description of joint to shell % of strength of joint Diameter  
 Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets  
 Working pressure of shell by rules Crown plates: Thickness How stayed



**SUPERHEATER.** Type \_\_\_\_\_ Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to \_\_\_\_\_  
 Date of Test \_\_\_\_\_ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler \_\_\_\_\_  
 Diameter of Safety Valve \_\_\_\_\_ Pressure to which each is adjusted \_\_\_\_\_ Is Easing Gear fitted \_\_\_\_\_

**IS A DONKEY BOILER FITTED?** \_\_\_\_\_ If so, is a report now forwarded? \_\_\_\_\_

**SPARE GEAR.** State the articles supplied: \_\_\_\_\_

The foregoing is a correct description,  
**For HARLAND & WOLFF Ltd.** \_\_\_\_\_  
 Manufacturer.

*Submising.*

Dates of Survey \_\_\_\_\_  
 During progress of work in shops -- *2<sup>nd</sup> March 1914 to 25<sup>th</sup> June 1918*  
 During erection on board vessel ---  
 building \_\_\_\_\_  
 Total No. of visits *126* \_\_\_\_\_

Dates of Examination of principal parts—Casings *13-11-17* Rotors *3-12-17* Blading *29-1-18* Gearing   
 Rotor shaft *25-8-17* Thrust shaft  Tunnel shafts  Screw shaft  Propeller   
 Stern tube  Steam pipes tested  Engine and boiler seatings  Engines holding down bolts   
 Completion of pumping arrangements  Boilers fixed  Engines tried under steam   
 Main boiler safety valves adjusted  Thickness of adjusting washers

Material and tensile strength of Rotor shaft *S. Steel, 30.2 x 30.0 Low 47* Identification Mark on Do. *LLOYDS 3-*  
 Material and tensile strength of Pinion shaft \_\_\_\_\_ Identification Mark on Do. \_\_\_\_\_

Material of Wheel shaft \_\_\_\_\_ Identification Mark on Do. \_\_\_\_\_ Material of Thrust shaft \_\_\_\_\_ Identification Mark on Do. \_\_\_\_\_  
 Material of Tunnel shafts \_\_\_\_\_ Identification Marks on Do. \_\_\_\_\_ Material of Screw shafts \_\_\_\_\_ Identification Marks on Do. \_\_\_\_\_

Material of Steam Pipes \_\_\_\_\_ Test pressure \_\_\_\_\_  
 Is an installation fitted for burning oil fuel \_\_\_\_\_ Is the flash point of the oil to be used over 150°F. \_\_\_\_\_

Have the requirements of Section 49 of the Rules been complied with \_\_\_\_\_  
 Is this machinery a duplicate of a previous case *Yes* If so, state name of vessel *orduna - orbite*

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

The amount of Entry Fee ... £	When applied for,
Special ... £	<i>See other sheet</i> 19.
Donkey Boiler Fee ... £	When received,
Travelling Expenses (if any) £	19.

*R. F. Beumills*  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI 7 JUN 1918**  
 Assigned *See other sheet attached*

