

REPORT ON MACHINERY

Udd. 4. 10798.

No. 15785

SAT JUL 3 1920

Date of writing Report 28th June 1920 When handed in at Local Office 2/7/1920 Port of West Hartlepool
 No. in Survey held at Hartlepool Date, First Survey 27th June 1920 Last Survey 29th June 1920
 Reg. Book. on the (N1) Turbine Engines 5/11 HER WONDER Furness 1816 mt.

Master By whom built
 Engines made at Hartlepool By whom made New Richardson, Westgarth & Co. Ltd. When built 1920
 Boilers made at By whom made when made
 Registered Horse Power Owners when made
 Shaft Horse Power at Full Power 2900 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

URBINE ENGINES, &c.—Description of Engines Double reducton Geared Turbines No. of Turbines Two
 Diameter of Rotor Shaft Journals, H.P. 4 1/2 L.P. 5 3/4 Diameter of Pinion Shaft 1 1/2 Pinion 5 3/4 Between Helices
 Diameter of Journals 2 1/2 Pinion 12 1/2 Between Helices Distance between Centres of Bearings 2 3/4
 Diameter of Wheel Shaft 5 1/2 Pinion 13 3/4 Between Helices Distance between Centres of Bearings 2 1/2
 Width of Face 1 1/2 Pinion 14 1/4 Between Helices Diameter of Pitch Circle of Wheel 2 5/8 Pinion 49.656
 Diameter of Thrust Shaft under Collars 1 1/2 Pinion 3 1/2 Between Helices Diameter of Pitch Circle of Wheel 2 5/8 Pinion 46.765
 No. of Screw Shafts one Diameter of same as per rule Diameter of Propeller as fitted
 No. of Blades State whether Moveable Total Surface Diameter of Rotor H.P. 20 5/8 L.P. 2 1/4 astern HP 28 1/2
 Thickness at Bottom of Groove, H.P. solid L.P. solid astern LP 36
 Revs. per Minute at Normal Full Power Turbine 3184 3500 Propeller 48

PARTICULARS OF BLADING.

ST EXPANSION	H.P. P.C.D. 24"			L.P. P.C.D. 36"			ASTERN. {P.C.D. = 30" H.P. P.C.D. = 39" L.P.		
	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.
1-2-45	3/4" + 1 1/4"	24 13/16" + 25 1/4"	2	2 3/4"	38 3/4"	1	5 1/2" + 2 1/8" + 2 3/4"	30 7/8" + 32 1/2" + 32 1/2"	4
1-20	1 1/2"	24 5/8" + 25 1/4"	1	3 7/8"	39"	1	(i.e. four rows of bucket in one row)	one of each length for H.P. shaft	
20	1 3/4"	25 1/2"	1	4 1/4"	39 7/8"	1			
TH	2"	26"	1	6 1/8"	40 1/4"	1			
TH	2 1/4"	26 5/8"	1	7 1/4"	42 1/8"	1	1 5/8" + 3 1/8" + 4 1/8"	40 1/8" + 42 1/8" + 43 1/8"	3
TH	2 5/8"	26 7/8"	1	7 1/2"	43 1/4"	1	(i.e. three rows of bucket in one row)	one of each length for L.P. shaft	
TH	—	—	—	7 3/4"	43 3/4"	1			

No. and size of Feed pumps
 No. and size of Bilge pumps
 No. and size of Bilge suction in Engine Room

In Holds, &c.

of 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
 at 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

FLERS, &c.—(Letter for record Manufacturers of Steel
 al Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers
 Working Pressure 190 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
 of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter
 gth of plain part Thickness of plates Description of longitudinal joint No. of strengthening rings
 king pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom
 h of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space
 erial of stays Diameter at smallest part Area supported by each stay Working pressure by rules Material of stays
 erial Thickness Pitch of stays How are stays secured Working pressure by rules Material of Front plates at bottom
 meter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom
 kness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules
 meter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays
 across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and
 kness of girder at centre Length as per rule Distance apart Number and pitch of stays in each
 king pressure by rules Steam dome: description of joint to shell % of strength of joint Diameter
 kness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets
 king pressure of shell by rules Crown plates: Thickness How stayed



© 2020

Lloyd's Register Foundation

007945-008007-0194

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,

Manufacturer.

RICHARDSONS WESTGARTH & CO LIMITED

TURBINE DEPT

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

1918. June 27. July 5. Aug 16. Sep 6. 11. 13. 19. Oct 7. 14. 18. 22. 26. Nov 7. 15. 21. 27. Dec 2. 9. 16. 1919. 7. 14. 22. 25. 27. Feb 4. 6. 11. 13. 18. 26. Mar 6. 20. 28. 31. April 8. 25. 26. May 1. 5. 6. 12. 17. 19. 21. 24. 29. June 5. 6. 19. 26. Aug 13. 15. 29. Sep 19. Oct 9. 28. 1920. Jan 4. 8. Mar 29. Apr 14. 26. May 31. June 7. 9.

66.

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Casings 27/8/18 to 27/4/19 Rotors 16/8/18 to 17/5/19 Blading 8/9/18 to 4/2/19 Gearing

Rotor shaft 16/8/18 to 17/5/19 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 in work. 9/6/20

Main boiler safety valves adjusted Thickness of adjusting washers

Material and tensile strength of Rotor shaft S.M. steel 34.2 tons Identification Mark on Do. HP = (29) LP = (5)

Material and tensile strength of Pinion shaft See Mech. Report 4529 Identification Mark on Do. 40 and 41

Material of Wheel shaft Identification Mark on Do. Material of Thrust shaft steel Identification Mark on Do. (12105)

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 If so, state name of vessel (NI) Standard 187-188-189-190.

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

These Turbine Engines have been built under special survey, the materials & workmanship are sound & good. The H.P. casing has been tested to 190 lbs by Hyd. pressure. The L.P. casing to 40 lbs. The Exhausting pipes & Expansion rings to 50 lbs. The H.P. Controlling Valve to 40 lbs. The 2nd & 3rd Expansion separators to 400 lbs. the Nozzle steam pipe to 500 lbs. The Turbines & Reduction gears were tried together in the works at full speed without load & worked satisfactorily in the ahead direction & are eligible in my opinion to have the notation * LMC with Do when fitted on board.

The amount of Entry Fee ... £ : : When applied for, 22.9.1920 from London.
Special ... £ 24-4-3
Donkey Boiler Fee ... £ : : When received, 19/10/1920 66620
Travelling Expenses (if any) £ : :

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned



© 2020

Lloyd's Register Foundation