

REPORT ON MACHINERY.

No. 15719

FRI. 30 JAN. 1920

1a.

Report of writing Report 22 Aug 1920 When handed in at Local Office 27/1 1920 Port of West Hartlepool
 in Survey held at Hartlepool Date, First Survey 27th June 18 Last Survey 19th Jan^y 1920
 Reg. Book. on the (N1) Turbine No T189 (Number of Visits 60)

Master Built at By whom built Tons } Gross
 Engines made at Hartlepool By whom made Richardsons, Westgate & Co Ld (T189) when made 1920 Net
 Boilers made at By whom made when made
 Registered Horse Power Owners Port belonging to
 Shaft Horse Power at Full Power 2900 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

TURBINE ENGINES, &c.—Description of Engines Double reduction 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 { 1st Pinion 5 3/4 between Holes
 Diameter of Journals { 1st Pinion 12 1/2 between Holes
 Diameter of Wheel Shaft { 1st Pinion 6.302
 Diameter of Pitch Circle { 2nd Pinion 13.379
 Diameter of Pitch Circle of Wheel { 1st Wheel 49.656
 { 2nd Wheel 46.785
 Diameter of Thrust Shaft under Collar 14 3/4 Diameter of Tunnel Shaft as per rule 13.125
 Diameter of same as fitted Diameter of Propeller Pitch of Propeller
 State whether Moveable Total Surface Diameter of Rotor Drum, H.P. 20 1/2 L.P. 2 1/4 Astern { H.P. 28 1/2
 Revs. per Minute at Full Power, Turbine 3500 Propeller 78 L.P. 36
 Normal 3187 " 71

DETAILS OF BLADING.

| H.P. PCD 24. | | | | L.P. PCD 36 | | | | ASTERN. { H.P. PCD 30. L.P. PCD 39 | | | |
|----------------------|----------------------------------|--|--------------|----------------------|----------------|------------------|--------------|--|---|-------------------------------|-----------------------------|
| 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. |
| EXPANSION | $\frac{3}{4}$ and $1\frac{1}{4}$ | $24\frac{13}{16}$ and $25\frac{1}{16}$ | 2 | $2\frac{3}{4}$ | | $38\frac{3}{4}$ | 1 | $\frac{1}{2} + 1\frac{1}{2} + 2\frac{1}{8} + 2\frac{3}{4}$ | $30\frac{7}{8} + 31\frac{1}{2} + 32\frac{1}{8} + 32\frac{3}{4}$ | 4 one of each length for L.P. | |
| " | $\frac{7}{8}$ and $1\frac{1}{2}$ | $24\frac{15}{16}$ and $25\frac{1}{16}$ | 2 | $3\frac{1}{8}$ | $3\frac{1}{8}$ | 39 | 1 | (i.e. four rows of buckets on one disc) | | | H.P. shaft. |
| " | $1\frac{1}{2}$ | $25\frac{1}{2}$ | 1 | $3\frac{1}{8}$ | | $39\frac{7}{8}$ | 1 | | | | |
| " | $1\frac{3}{4}$ | $25\frac{3}{4}$ | 1 | $4\frac{3}{4}$ | | $40\frac{3}{4}$ | 1 | | | | |
| " | 2 | 26 | 1 | $6\frac{1}{8}$ | | $42\frac{1}{8}$ | 1 | $1\frac{15}{16} + 3\frac{7}{16} + 4\frac{15}{16}$ | $40\frac{15}{16} + 42\frac{1}{16} + 43\frac{7}{16}$ | 3 | |
| " | $2\frac{5}{8}$ | $26\frac{5}{16}$ | 1 | $7\frac{1}{4}$ | | $43\frac{1}{4}$ | 1 | (i.e. three rows of buckets on one disc) | | | one of each length for L.P. |
| " | $2\frac{1}{2}$ | $26\frac{1}{16}$ | 1 | $7\frac{1}{2}$ | | $43\frac{1}{2}$ | 1 | | | | |
| " | - | - | - | $7\frac{3}{4}$ | | $43\frac{3}{4}$ | 1 | | | | |

and size of Feed pumps
 and size of Bilge pumps
 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 using 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 pump of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate
 all 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 190 lb 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 rivets Working pressure of shell by rules Size of manhole in shell
 plates
 of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter
 top Thickness of plates Description of longitudinal joint No. of strengthening rings
 bottom
 Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom
 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
 across wide water spaces 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 RICHARDSONS WESTGARTH & CO., LIMITED.

Manufacturer.

Manager Turbine Dept.

Dates of Survey while building { During progress of work in shops -- 1918 June 27, July 5, Aug 16, 26, Sep 6, 11, 13, 19, Oct 7, 14, 16, 18, 22, 25, 26, Nov 7, 27, Dec 2, 9, 16, 1919 Jan 7, 14, 15, 22, 25, 27, Feb 6, 11, 13, 18, 26, March 6, 7, 13, 14, 20, 28, 31, Apr 7, 24, 25, May 1, 6, 12, 19, 22, 26, June 2, 4, 19, 26, Sep 19, Oct 28, Nov 6, 13, Dec 22, 1920 Jan 12, 19
During erection on board vessel --
Total No. of visits 60

Is the approved plan of main boiler forwarded herewith _____

Dates of Examination of principal parts—Casings 27/18 to 13/19 Rotors 16/18 to 25/19 Blading 6/18 to 25/19 Gearing _____
Rotor shaft 16/18 to 25/19 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 fired _____ Engines tried under steam _____
Main boiler safety valves adjusted _____ Thickness of adjusting washers _____

Material and tensile strength of Rotor shaft Steel 32.66 tons Identification Mark on Do. HP No. 32, 11

Material and tensile strength of Pinion shaft See Manchester Report N4413 Lincolnton Identification Mark on Do. _____

Material of Wheel shaft steel Identification Mark on Do. (24495 108 7/1919 AC) Material of Thrust shaft steel Identification Mark on Do. (24495 108 7/1919 AC) and

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? No. If so, state name of vessel (ND) 7187, (ND) 7188,

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

These Turbine Engines have been constructed under special survey the workmanship are sound & good. The High pressure casing has been tested by Hydraulic pressure to 2900 lbs, the L.P. casing tested to 440 lbs, all the Exhausting pipes & Expansion pipes between the casing tested to 50 lbs, the H.P. Controlling valves to 400 lbs, the Exhaust & Astern separators to 400 lbs, the Nozzle steam pipes to 500 lbs. The Turbines & Reduction gearing were erected & tried at full speed without load, & worked satisfactorily & are eligible in my opinion to have the notation * LMC with date when installed on board.

This Machinery has now been sent to Middlesbrough to fit on board.

The amount of Entry Fee ... £ : : When applied for, 12/1920 to 1/1921
Special ... £ 24-3-1
Donkey Boiler Fee ... £ : : When received, 31/8/20 1920
Travelling Expenses (if any) £ : : 1920

Engineer Surveyor to Lloyd's Register of Shipping.

FRI. AUG. 13 1920

Committee's Minute

Assigned

See note p. 10463

Surveyor's Signature

Sails, and the following spare sails



© 2020

Lloyd's Register Foundation