

Rpt. 4a.

REPORT ON MACHINERY.

No. 4337
JUN 26 1919

Date of writing Report 1919 When handed in at Local Office 23rd June 1919. Port of Manchester
No. in Survey held at Reg. Book. Date, First Survey 25th Mar. 18 Last Survey 25th Mar 1919
on the DOUBLE REDUCTION GEAR for STEAM TURBINES (N.I.) (Number of Visits 12)

Master Built at By whom built
Engines made at W. HARTLEPOOL By whom made RICHARDSONS WESTGARTH & CO. When built
Boilers made at HUDDERSFIELD By whom made DAVID BROWN & SONS when made 1914.
Registered Horse Power Owners when made 1919-3.
Shaft Horse Power at Full Power Is Refrigerating Machinery fitted for cargo purposes Port belonging to
Is Electric Light fitted

TURBINE ENGINES, &c.—Description of Engines

Diameter of Rotor Shaft Journals, H.P. L.P. No. of Turbines
Diameter of Journals 1st 4 1/2", 2nd 9" Distance between Centres of Bearings 1st 27", 2nd 46 1/2" Diameter of Pinion Shaft 1st 4 1/2", 2nd 9"
Diameter of Wheel Shaft 1st 9", 2nd 14 3/4" Distance between Centres of Bearings 1st 26", 2nd 45 1/2" Diameter of Pitch Circle 1st 6.302", 2nd 13.379"
Width of Face 1st 18", 2nd 33 1/2" Diameter of Thrust Shaft under Collars Diameter of Pitch Circle of Wheel 1st 49.656", 2nd 76.765"
No. of Screw Shafts Diameter of same as per rule as fitted Diameter of Tunnel Shaft as per rule as fitted
No. of Blades State whether Moveable Total Surface Diameter of Propeller Pitch of Propeller
Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine Diameter of Rotor Drum, H.P. L.P. astern
Propeller

PARTICULARS OF BLADING.

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.
1ST EXPANSION									
2ND									
3RD									
4TH									
5TH									
6TH									
7TH									
8TH									

No. and size of Feed pumps

No. and size of Bilge pumps

No. and size of Bilge suction in Engine Room

In Holds, &c.

No. of Bilge Injections sizes Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine Room & size
Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible
Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks
Are 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
Are 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
What pipes are carried through the bunkers How are they protected
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings 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 worked from

OILERS, &c.—(Letter for record) Manufacturers of Steel

Total 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
Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to
Each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear
Smallest 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
Long. 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 plates Working pressure of shell by rules Size of manhole in shell
Size of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter
Length of plain part top crown bottom 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
Pitch 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
Material 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
Pitch 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

W1219-0038

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:— *Two bearing bushes each for Slow Speed wheel shaft, Slow Speed pinion shaft, high speed wheel shaft and high speed pinion shaft. Set of wear down gauges, white metalting fixtures for bearings, overhauling gear and bolts, studs and nuts for bearings and casings.*

The foregoing is a correct description,
DAVID BROWN & SONS, (HUDDLE) LTD.

Manufacturer.

J. E. Brown

Director.

Dates of Survey while building { During progress of work in shops -- *from 25. March 1918 to 25 March 1919* 12 visits.
During erection on board vessel ---
Total No. of visits _____

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Casings _____ Rotors _____ Blading _____ Gearing *Nov. 7 Dec. 1918*

Rotor shaft _____ 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 _____ Identification Mark on Do. _____

Material and tensile strength of Pinion shaft *high speed - nickel steel 48.56 tons* Identification Mark on Do. *2.19 P*

Material of Wheel shaft *nickel steel* Identification Mark on Do. *264 P* 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 _____ If so, state name of vessel _____

General Remarks (State quality of workmanship, opinions as to class, &c. *This double reduction gear has been built under Survey and the materials tested in accordance with the Rules of this Society. The materials and workmanship, so far as could be seen, are sound and good. This gear is eligible in my opinion to be classed and included in the record of the L.M.C. This gear is being fitted to steam turbines building by Messrs Richardson Westgarth & Co. of West Hartlepool.*

Mark on Coupling of Slow Speed Shaft

LLOYDS
No. 104
25-3-1919

The amount of Entry Fee ... £ : :
Special ... £ *24* 3 0
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, *12/31.19.20*
When received, *23/31.20*

A. Campbell

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 12 MAR. 1920

Assigned

See note p. 101610



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Foundation