

REPORT ON MACHINERY.

Huddersfield before No. 15788
Huddersfield No. 10798.

No. 4529.

Date of writing Report _____ 19 _____ When handed in at Local Office 2-3-1920 Port of MANCHESTER Received at London Office 15 MAR 3 1920
 No. in Survey held at HUDDERSFIELD Date, First Survey 5. May 1919 Last Survey 18. Feb. 1920
 Reg. Book. _____ (Number of Visits 8.)
 on the DOUBLE REDUCTION GEAR for STEAM TURBINES 'N.I. VESSEL'

Master TURBINES Built at _____ By whom built _____ When built _____
 Engines made at W. HARTLEPOOL By whom made RICHARDSONS WESTGARTH & CO. N° 191 when made _____
HEAR " " HUDDERSFIELD " " DAVID BROWN & SONS " " _____ when made 1920.
 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

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

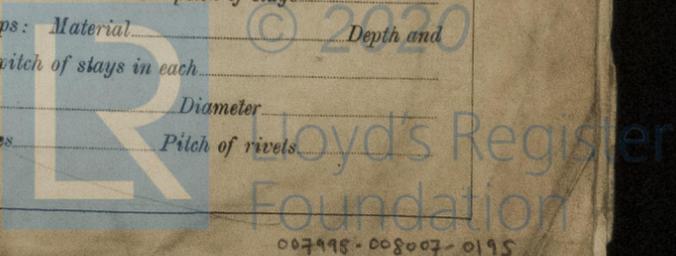
PARTICULARS OF BLADING.

	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.
1 st EXPANSION									
2 nd ID									
3 rd RD									
4 th / 20 TH									
5 th TH									
6 th TH									
7 th = (5 th) TH									
8 th TH									

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 _____
 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 _____

BOILERS, &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 _____
 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 _____
 No. 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 _____ plates _____ Size of manhole in shell _____
 No. and Description of Furnaces in each Boiler _____ Material _____ Outside diameter _____
 Thickness of plain part _____ top _____ crown _____ Description of longitudinal joint _____ bottom _____ No. of strengthening rings _____
 Working pressure of furnace by the rules _____ Combustion chamber plates: Material _____ Thickness: Sides _____ Back _____ Top _____ Bottom _____
 No. 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 _____
 Thickness 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:— for D.R. GEAR

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. While installing fixtures for bearings, overhauling gear. Assorted bolts, studs and nuts for bearings and cases.

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

Dates of Survey while building { During progress of work in shops -- } from 5 May 1919 to 18 February 1920 8 visits. { During erection on board vessel --- } { Total No. of visits _____ } Is the approved plan of main boiler forwarded herewith _____

Dates of Examination of principal parts—Casings _____ Rotors _____ Blading _____ Gearing _____

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 fired _____ 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 shafts HIGH SPEED NICKEL CHROME STEEL 46.4 ton pull Identification Mark on Do. 40+41

Material of Wheel shaft FORGED MILD STEEL Identification Mark on Do. 286 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 N.I. Standard.

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 and eligible in my opinion to be classed with record of L.M.C. This gear is to be fitted to steam turbines building by Messrs. Richardson West of West Hartlepool.

mark on coupling of slow speed shaft.

LLOYDS No 110 22-1-20

The amount of Entry Fee ... £ : : When applied for, 22.9.1920 from London. Special ... £ 24-4-3 Donkey Boiler Fee ... £ : : When received, 19/10/20 Ebbw Travelling Expenses (if any) £ : :

A. Campbell Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. SEP. 21 1920

Assigned



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

Vertical text on the right edge of the page, including 'Rp', 'Date', 'Reg', 'Mas', 'Eng', 'Boil', 'Regi', 'MU', '(Let', 'Boil', 'No.', 'safet', 'Are', 'Sma', 'Mate', 'Desc', 'Tap', 'rules', 'boile', 'Descr', 'plates', 'Top', 'small', 'Pitch', 'Area', 'HE', 'Lower', 'Pitch', 'water', 'girder', 'Worki', 'separa', 'holes', 'If stiff', 'Worki', 'Dates of Survey while building', 'GEN', 'Surv', 'quali', 'have', 'despa', 'Sur', 'Tra', 'Comm', 'Assig'