

4a.

REPORT ON MACHINERY.

No. 4413

Received at London Office

of writing Report When handed in at Local Office 1-10-19 Port of Manchester
 in Survey held at Huddersfield Date, First Survey 10. May 1918 Last Survey 17. Sept 1919
 g. Book. (Number of Visits 12)
 on the DOUBLE REDUCTION GEAR for STEAM TURBINES N.I. VESSEL Tons } Gross
 } Net
 Built at By whom built When built
 Engines made at W. HARTLEPOOL By whom made RICHARDSONS WESTGARTH & CO. N° 189 when made 1919
HEAR " " HUDDERSFIELD " " DAVID BROWN & SONS when made 1919
 Oilers 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

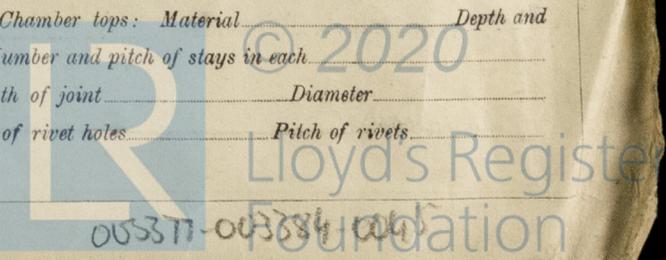
TURBINE ENGINES, &c.—Description of Engines No. of Turbines
 Diameter of Rotor Shaft Journals, H.P. L.P. Diameter of Pinion Shaft 1st 4 1/2", 2nd 9"
 Diameter of Journals 1st 4 1/2", 2nd 9" Distance between Centres of Bearings 1st 27", 2nd 46 1/2" Diameter of Pitch Circle 1st 6.302", 2nd 13.379"
 Diameter 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
 Diameter 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									
3 rd									
4 th									
5 th									
6 th									
7 th									
8 th									
9 th									
10 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
 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
 Per centages of strength of longitudinal joint rivets Working pressure of shell by rules Size of manhole in shell plates
 Size of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter
 Length of plain part top Thickness of plates crown 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
 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



SUPERHEATER. Type

Date of Test

Date of Approval of Plan

Tested by Hydraulic Pressure to

Diameter of Safety Valve

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler 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. While installing fixtures for bearings. Overhauling gear and bolts, studs and nuts for bearings and casing.

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

W.H. Child Director.

Manufacturer.

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

May 1918 to September 1919 12 visits.

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts - Casings June 1918 Rotors July '18 Blading July to Nov '18 Gearing as above

Rotor shaft July to Sept 18 Thrust shaft Tunnel shafts Screw shaft Propeller

Completion of pumping arrangements Engine and boiler seatings Engines holding down bolts

Main boiler safety valves adjusted Boilers fixed Engines tried under steam

Material and tensile strength of Rotor shaft Thickness of adjusting washers

Material and tensile strength of Pinion shaft High Speed. Nickel Steel 48.56 tons 4" Identification Mark on Do.

Material of Wheel shaft Mild Steel Identification Mark on Do. LLOYDS N^o 108 7-1919 Identification Mark on Do. 19 P

Material of Tunnel shafts Identification Marks on Do. Material of Thrust shaft Identification Mark on Do.

Material of Steam Pipes Identification Marks on Do. Material of Screw shafts Identification Marks on Do.

Is an installation fitted for burning oil fuel Test pressure

Have the requirements of Section 49 of the Rules been complied with Is the flash point of the oil to be used over 150°F.

Is this machinery a duplicate of a previous case? Yes If so, state name of vessel Standard N.1

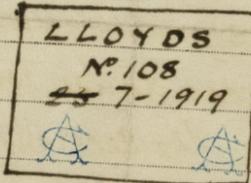
General Remarks (State quality of workmanship, opinions as to class, &c.) This double reduction gear has been

built under survey and the materials tested in accordance with the Rules of the Society. The materials and workmanship so far as could be seen are sound

and good and eligible in my opinion to be classed with the record of L.M.S.

This gear is to be fitted to steam turbines building by Messrs. Richardson and Crutcher No. 7 West. Kertepool

Mark on coupling of Slow Speed shaft.



The amount of Entry Fee ... £ Special ... £ 24-3-0 Donkey Boiler Fee ... £ Travelling Expenses (if any) £

When applied for, 12/8/20 from Len. When received, 31/8/20

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

Committee's Minute FRI. AUG. 13 1920

Assigned See note to 104/103

