

## REPORT ON STEAM TURBINE MACHINERY.

Received at London Office MON. 30 APR. 1923

Date of writing Report 24 April 23 When handed in at Local Office 28 4 23 Port of Manchester  
No. in Survey held at Manchester Date, First Survey 5 1 23 Last Survey 23 4 1923  
Reg. Book. on the Rotating parts of Turbines and Double Reduction Gears.  
Built at Manchester By whom built S.S. British Hussar. Tons } Gross  
Engines made at Manchester By whom made Metropolitan Vickers Elec. Co. Engine No. 2124/25 When made 9 23 } Net  
Boilers made at By whom made Boiler No. When made  
Shaft Horse Power at Full Power 3200 Owners Port belonging to  
Nom. Horse Power as per Rule 641 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

STEAM TURBINE ENGINES, &c.—Description of Engines *Nathan Impulse* No. of Turbines Ahead 1 H.P. 1 L.P.  
Astern 1 H.P. 1 L.P.  
Direct coupled, single or double reduction geared to One propelling shaft. No. of primary pinions to each set of reduction gearing 2, direct coupled to — phase  
periods per second, Alternating Current Generator rated — Kilowatts — Volts at — revolutions per minute; for supplying power for driving  
Propelling Motors. Propelling Motors, Type —  
rated — Kilowatts — Volts at — revolutions per minute. Direct coupled, single or double reduction geared to — propelling shafts.

## PARTICULARS OF TURBINE BLADING.

	H.P.			L.P.			H.P. ASTERN			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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	12 1/8	38 1/2	2	15 1/2	39 5/16	1	1 1/4	38 3/4	2 on	2 1/2	36 1/2	1
2ND	11 1/2	38 1/2	1	13 1/2	39 1/2	1	2 1/8	39 7/8	1 wheel	5 7/8	39 7/8	1
3RD	7 7/8	38 7/8	1	2 5/16	40 5/16	1						
4TH	7 7/8	38 7/8	1	4 3/16	42 3/16	1						
5TH	1	39	1	6 3/8	44 3/8	1						
6TH				8 1/4	46 1/4	1						
7TH				10 3/16	48 3/16	1						
8TH												

Shaft Horse Power at each turbine 1600 Revolutions per minute, at full power, of each Turbine Shaft 3125 1st reduction wheel 492.9  
main shaft 72.9 Pitch Circle Diameter, 1st pinion 6.7941 2nd pinion 11.6491 1st reduction wheel 43.10012 main wheel 78.2677  
Width of Face, 1st reduction wheel 20" main wheel 40" Distance between centres of pinion and wheel faces and the centre of the adjacent bearings,  
1st pinion 10 3/8" 2nd pinion 17 3/4" 1st reduction wheel 21" main wheel 35 1/2" Flexible Pinion Shafts, diameter 1st 3 1/8" 2nd 5 3/4"  
Pinion Shafts, diameter at bearings External 1st 6" 2nd 10" diameter at bottom of teeth of pinion 1st 6.21751" 2nd 10.73736  
Internal 1st 3 7/16" 2nd 6"  
Wheel Shafts, diameter at bearings, 1st 10" main 19" diameter at wheel shroud, 1st — main —  
Generator Shafts, diameter at bearings 5" Propelling Motor Shafts, diameter at bearings —

Main Shafting, diameter of Tunnel Shafting as per rule as fitted diameter of Thrust Shafting as per rule as fitted  
diameter of Screw Shaft as per rule as fitted Is the screw shaft fitted with a continuous liner the whole length of the stern tube Is the after end of the liner

made watertight in the propeller boss If the liner is in more than one length are the joints burned If the liner does not fit tightly at the  
part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two liners are fitted, is the  
shaft lapped or protected between the liners Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently  
lubricated Length of Stern Bush Diameter of Propeller

Pitch of Propeller No. of Blades State whether Moveable Total Surface square feet. If Single Screw, are  
arrangements made so that steam can be led direct to the L.P. Turbine, and either the H.P. or I.P. Turbine can exhaust direct to the Condenser

No. of Turbines fitted with astern wheels Total number of power driven Main and Auxiliary Pumps

No. and size of Feed Pumps How driven No. and size of Pumps connected to the Main Bilge Line

How driven No. and size of Ballast Pumps No. and size of Lubricating Oil Pumps, including

Spare Pump Are two independent means arranged for circulating water through the Oil Cooler No. and size of suction

connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room and in Holds, &c.

No. and size of Main Water Circulating Pump Bilge Suctions No. and size of Donkey Pump Direct Suctions

to the Engine Room Bilges Are all the bilge suction pipes in holds and tunnel well fitted with strum-bones

Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

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

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one

compartment to another Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

BOILERS, &c.—(Letter for record ) Total Heating Surface of Boilers

Is Forced Draft fitted No. and Description of Boilers

Working Pressure

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W1630-0096



Is a Report on Main Boilers now forwarded?

Is a Donkey Boiler fitted?

If so, is a report now forwarded?

Plans. Are approved plans forwarded herewith for Shafting *Yes*  
(If not state date of approval)

Main Boilers.

Auxiliary Boilers

Donkey Boilers

Spare Gear. State the articles supplied:— One set of pads for turbine Mitchell Thrust blocks,

one high speed pinion complete with flexible coupling, two bearings for turbine rotor,  
one set high speed pinion bearings, one set intermediate idlers, two belts and nuts  
for each side of gear bearing.

The foregoing is a correct description,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.,

TRAFFORD PARK

MANCHESTER

Manufacturer.

*Simpson Mech. DO.*

Dates of Survey while building { During progress of work in shops -- 1923, Jan 5, 8, 10, 11, 15, 17, 22, 25, 31, Feb 5, 7, 13, 16, 21, 24, 26, Mar 1, 3, 6, 8, 13, 14, 19, 26, 28, Apr 5, 11, 13, 17, 19, 23, = 31  
During erection on board vessel ---  
Total No. of visits

Dates of Examination of principal parts—Casings

Rotors 13 & 19, 4, 23 Blading 5 & 11, 4, 23 Gearing 22, 1, 23/17, 4, 23

Wheel shaft 17, 4, 23.

Thrust shaft

Tunnel shafts

Screw shaft

Propeller

Stern tube

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 *Mild Steel*, HP. 30.7, LP. 40.0 Tens <sup>0"</sup> Identification Mark on Do. 771, WL, 768, 94, 15994, 16559, 15799, 16560

Material and tensile strength of Flexible Pinion Shafts *Nickel Steel*, 53.0, 48.0, 54.2, 48.2 Tens Identification Mark on Do. WL, WL, 94, WL, 15900, 15801, 15802, 15803, 15910, 15801, 15802, 15803

Material and tensile strength of Pinion shafts *Nickel Steel*, 45.5, 44.6, 44.8, 45.5 Tens <sup>0"</sup> Identification Mark on Do. WL, WL, WL, WL, 15794, 15795

Material and tensile strength of 1st Reduction Wheel Shafts *Mild Steel*, 37.5, 37.6 Tens <sup>0"</sup> Identification Mark on Do. WL, WL, 1604, 59, 556

Material of Wheel shaft *Mild Steel* Identification Mark on Do. 17, 4, 23, 94, 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 Date of test

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 the Rules for carrying and burning oil fuel been complied with

Is this machinery a duplicate of a previous case *Yes* If so, state name of vessel *Sum Hunter W. Richter S. No 1134*

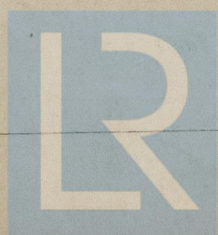
General Remarks (State quality of workmanship, opinions as to class, &c. *The above spindle, discs and blading,*

shafts, pinions, gears and details have been constructed under Special Survey and the materials tested in accordance with the Society's Rules, the materials and workmanship employed in their manufacture are sound and good. They have been forwarded to Newcastle on Tyne for assembling in place.

The amount of Entry Fee { *Mech 4c* £ 18 : 0 : 0 } When applied for, 19...  
See for Mech 5/3/23 Special ... £ ...  
Donkey Boiler Fee ... £ ...  
Travelling Expenses (if any) £ ...  
When received, 31/7/23. Advised from Lon. to open dock.

Committee's Minute TUE OCT. 16 1923

Assigned



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