

REPORT ON STEAM TURBINE MACHINERY.

Received at London Office SAT 23 JUN 1923

Date of writing Report 20/6/23 When handed in at Local Office

Port of Newcastle-on-Tyne

No. in Survey held at Newcastle

Date, First Survey 2nd Sept 1920 Last Survey 19th June 1923

Reg. Book. 69051 on the Steel Co. OIL FIELD

(Number of Visits 75)

Tons { Gross
Net

Built at Newcastle By whom built Tyne Iron Shipbuilding Co. Ltd. Yard No. 224 When built 1923

Engines made at Newcastle By whom made Wallsend Slipway & Eng. Co. Ltd. Engine No. 844 When made 1923

Boilers made at Newcastle By whom made Wallsend Slipway & Eng. Co. Ltd. Boiler No. 844 When made 1923

Shaft Horse Power at Full Power 2,500 (WORKING 2,150) Owners Northern Petroleum Tank S.S. Co. Ltd. Port belonging to Newcastle

Nom. Horse Power as per Rule 467 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

STEAM TURBINE ENGINES, &c.—Description of Engines Two Steam Turbines geared to one screw shaft No. of Turbines Ahead 2 Astern 2

Direct coupled, single or double reduction geared to propelling shafts. No. of primary pinions to each set of reduction gearing 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 one propelling shaft.

PARTICULARS OF TURBINE BLADING.

STAGE	H. P.			H. P. ASTERN			L. 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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST Expansion	1 7/16	25 1/16	26 3/4	1 7/16	32 3/8	1	1 5/8	3 11 3/32	1	1 7/16	3 11 1/16	1
2ND	1 3/32	28 1/16	1	1 7/16	33	2	1 7/16	3 11 1/32	1	1 7/16	4 0 3/4	2
3RD	1 3/32	28 1/16	1	2 3/4	34 3/16	3	1 7/8	3 11 3/16	1	2 9/16	4 1 2	3
4TH	1 3/32	28 1/16	1	1 3/8	29 1/2	1	2 7/16	4 0 1/4	1	2 5/16	4 1 8	1
5TH	1 3/8	28 3/32	1	2 5/8	29 5/8	3	2 7/16	4 0 7/8	1	3 1/4	4 2 1/16	2
6TH	1 3/8	28 3/32	1				3 3/8	4 1 1/16	1	1 1/32	3 10	1
7TH	1 3/8	29 1/16	1				4 1/2	4 2 3/16	1	2 1/2	3 9 3/8	2
8TH	1 3/8	29 1/32	1				5 1/16	4 3 1/16	1	3 1/8	3 8 3/8	1
9TH	1 9/16	29 7/16	1				8 1/4	4 6 1/4	1			

1st STAGE CYLIND. Shaft Horse Power at each turbine

main shaft 73.5 Pitch Circle Diameter, 1st pinion 42.744 2nd pinion 15.576 1st reduction wheel 103.95

Width of Face, 1st reduction wheel 14 main wheel 31 1/2 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings.

1st pinion 10 25 3/4 2nd pinion 3 4 1/2 1st reduction wheel 10 6 7/8 main wheel 34 3/4 70 Flexible Pinion Shafts, diameter 1st H.P. 3 L.P. 3 3/4

Pinion Shafts, diameter at bearings External 1st 4 1/2 2nd 11 diameter at bottom of teeth of pinion 1st H.P. 5.85 L.P. 9.06 2nd 16.34

Wheel Shafts, diameter at bearings, 1st 11 main 16 diameter at wheel shroud, 1st 58.0037 main 104.48

Generator Shafts, diameter at bearings Propelling Motor Shafts, diameter at bearings

Main Shafting, diameter of Tunnel Shafting as per rule 12.96 as fitted 15 3/4 diameter of Thrust Shafting as per rule 13.6 as fitted 15 3/4

diameter of Screw Shaft as per rule 14 7/8 as fitted 16 3/4 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner

made watertight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes 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 Yes If two liners are fitted, is the

shaft lapped or protected between the liners Yes Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently

lubricated Yes Length of Stern Bush 5 9 Diameter of Propeller 18 3

Pitch of Propeller 17 3 No. of Blades 4 State whether Movable No Total Surface 106 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 L.P. Turbine can exhaust direct to the Condenser Yes

No. of Turbines fitted with astern wheels 2 Total number of power driven Main and Auxiliary Pumps 16

No. and size of Feed Pumps one pair 7 1/2 x 9 1/2 x 24 How driven Steam No. and size of Pumps connected to the Main Bilge Line 1 1/2 10 x 10 x 10

How driven 2 from main shaft No. and size of Ballast Pumps one 10 x 10 x 10 No. and size of Lubricating Oil Pumps, including

Spare Pump 3 7 x 5 1/2 x 15 Are two independent means arranged for circulating water through the Oil Cooler Yes No. and size of suction

connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room 2 3 1/2 x 8 3 2 1/2 and in Holds, &c. none

No. and size of Main Water Circulating Pump Bilge Suctions one 9 1/2 No. and size of Donkey Pump Direct Suctions

to the Engine Room Bilges one 3 1/2 Are all the bilge suction pipes in holds and tunnel well fitted with steam-bores Yes

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

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line Below

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

What pipes are carried through the bunkers none How are they protected Yes

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

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 Yes Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door worked from Yes

BOILERS, &c.—(Letter for record 3) Total Heating Surface of Boilers 5368 sq ft

Is Forced Draft fitted Yes No. and Description of Boilers 3 S.E. Cyl. Mull.

Working Pressure 220 lbs

Is a Report on Main Boilers now forwarded? *Yes*Is a Donkey Boiler fitted? *Yes*

If so, is a report now forwarded?

Plans. Are approved plans forwarded herewith for Shafting
(If not state date of approval)Main Boilers *Yes*Auxiliary Boilers *None*

Donkey Boilers

Spare Gear. State the articles supplied:— 1 Red^d H.P. pinion, L.P. pinion. Two each Shafts for H.P. Rotor Bearing Cover - L.P. Rotor Bearing Cover - 1 Red^d pinion bearing cover - Bolts for 2 Red^d pinion bearing covers, for main wheel bearing covers. 8 Bolts for Propeller shaft coupling. 4 Bolts for Horizontal joint of stern case. 2 Bolts for horizontal joint of H.P. turbine casing. Two top halves + two bottom halves bearing bushes for H.P. Rotor. One each Top + Bottom Half Steady Bearing

Bush. Two each Top + Bottom halves bearing bushes for L.P. rotor. One Top Half + one Bottom Half bearing bush for H.P. or 1 Red pinion with lip. one each with lip - two top and two bottom halves bearing bushes for 2 Red pinion. Two top and two bottom halves bearing bushes for main gear wheel.

Seven Barton Rings for H.P. flange. Three for L.P. flange. Seven springs for Barton Rings H.P. Six springs for Barton Rings L.P. Eight pads for main thrust block. nine pads for each H.P. + L.P. adjusting blocks. 5mliners for each main thrust block, H.P. + L.P. adjusting blocks. One spring each for H.P. ahead, H.P. ahead + L.P. astern turbines. 2 valves + seats for Bilge Sanitary Pumps. One spring for Bilge pump escape valve. One spring for Bilge Sanitary Pump escape valve. 20 Brass condenser ferrules. 12 valves for lubricating oil pumps. One bucket + rod for lubricating oil pumps. Two thermometers for oil circulating system. 3 main boiler safety valve springs. 12 valves for each of ballast, aux feed and main feed pumps. 2 feed check valve lids. One 1/2" propeller. Assorted bolts nuts + washers of various sizes.

Oil Fuel. 2 suction strainer bags - 2 discharge strainer bags - 6 burner bodies - 6 caps - 18 nozzles - 18 diaphragms - 5 thermometers - 5 fan aspirator burners - 6 fuelstick guns. Donkey Boiler 2 thermometers - 2 burner bodies - 2 caps - 6 nozzles - 6 diaphragms - 2 fuelstick guns. 2 discharge strainer bags.

The foregoing is a correct description,
FOR THE WALLSEND SLIPWAY & ENGINEERING CO. LIMITED

Manufacturer.

SECRETARY.

Dates of Survey while building
During progress of work in shops - 1921
During erection on board vessel - 1922
Total No. of visits 75.

Dates of Examination of principal parts - Casings 30th Nov. 1921 Rotors 2nd Dec 1921 Blading 1st May 1922 Gearing 27th April 1922

Wheel shaft 16th Sept 1922 Thrust shaft 12th Dec 1921 Tinnel shafts 13th Jan. 1922 Screw shaft 13th Jan. 1922 Propeller 12th Dec. 1921

Stern tube 7th Oct. 1921 Engine and boiler seatings 10th April 1923 Engines holding down bolts 14th May 1923

Completion of pumping arrangements 7th June 1923 Boilers fired 14th May 1923 Engines tried under steam 7th June 1923

Main boiler safety valves adjusted 7th June 1923 Thickness of adjusting washers Port Blv F 3/2" A 3/8" Star. Blv F 3/2" A 3/2" Superheats P 1/4" S 7/8"

Material and tensile strength of Rotor shaft 35/38.6" S.M. Steel Identification Mark on Do. 3320-3333

Material and tensile strength of Flexible Pinion Shaft 31.6" S.M. Steel sleeves 38" extension shafts 38" Identification Mark on Do. 2592-2593-2594-2595

Material and tensile strength of Pinion shaft Nickel Steel 41.8/46.4" Identification Mark on Do. 2596-2597-2598-2599

Material and tensile strength of 1st Reduction Wheel Shaft S.M. Steel 48/47.6" Identification Mark on Do. 5970-5971

Material of Wheel shaft S.M. Steel Identification Mark on Do. 5949 Material of Thrust shaft S.M. Steel Identification Mark on Do. 3309

Material of Tinnel shafts INTER S.M. Steel Identification Marks on Do. 1083 Material of Screw shafts S.M. Steel Identification Marks on Do. 3308

Material of Steam Pipes Lap welded Steel Test pressure 660 lbs/sq. in. Date of test May 1st - 2nd - 3rd - 8th - 10th 1923

Is an installation fitted for burning oil fuel *Yes* Is the flash point of the oil to be used over 150°F. *Yes*

Have the requirements of the Rules for carrying and burning oil fuel been complied with *Yes*

Is this machinery a duplicate of a previous case *No* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been constructed under special survey. The materials and workmanship are sound and good. It has been efficiently installed on board the vessel and tried out under steam. The Society's Rule requirements for oil fuel burning have been complied with. The fuel oil suction and pressure lines were tested on completion. Steam, water and sand-box arrangements for fire-extinguishing are provided. The Steam to Transfer pump, fuel-heating installation and settling tanks' heating coils are controlled from deck as are the fuel suction valves on the sidehold bulkheads. In my opinion the machinery of this vessel is eligible for inscription in the Society's Register Book - L.M.C. 6.23 FITTED FOR OIL FUEL 6.23 F.P. ABOVE 150°F

The amount of Entry Fee ... £ 5 : 0
Special ... £ 95 : 1
Donkey Boiler Fee ... £ :
Travelling Expenses (if any) £ :
When applied for, 22/6/23.
When received, 19/7/23.

Committee's Minute

FRI. 29 JUN 1923

Assigned

+ L.M.C. 6.23

F.D. C.L.

D.R.

Fitted for oil fuel 6.23
F.P. above 150°F.

R. Lee Annes.

Engineer Surveyor to Lloyd's Register of Shipping.



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