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NEWCASTLE-ON-TYNE, No. 105986

Report on Steam Turbine Machinery.

No. 3194

pt. 4a.

Received at London Office

29 JUL 1948

Date of writing Report 26/7/1948 When handed in at Local Office 26/7/1948 Port of Barrow
No. in Survey held at Barrow NEWCASTLE-ON-TYNE Date, First Survey 14/6/1946 Last Survey 23/7/1948
Reg. Book 95136 on the SHILLONG Tons {Gross 8933.68
- Supplement. Net 4816.33
Built at Newcastle By whom built Vickers-Armstrongs Ltd No. 104 When built 1948
Engines made at Barrow By whom made do Engine No. 955 When made 1948
Boilers made at Barrow By whom made do Boiler No. 955 When made 1948
Shaft Horse Power at Full Power 13,000 Owners P. & O. Port belonging to LONDON
Nom. Horse Power as per Rule 2880 Is Refrigerating Machinery fitted for cargo purposes — Is Electric Light fitted —
Trade for which Vessel is intended —

STEAM TURBINE ENGINES, &c.—Description of Engines IMPULSE-REACTION

No. of Turbines Ahead 3 Direct coupled, No. of primary pinions to each set of reduction gearing —
Astern 2 I.P. & L.P. single reduction geared to 1 propelling shafts.
H.P. double reduction geared
direct coupled to { Alternating Current Generator — phase — periods per second } rated — Kilowatts — Volts at — revolutions per minute;
Direct Current Generator }
for supplying power for driving — Propelling Motors, Type —
rated — Kilowatts — Volts at — revolutions per minute. Direct coupled, single or double reduction geared to — propelling shafts.

TURBINE BLADING.	H. P.			I. 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 1/4"	19"	7	1 3/8"	38 1/4"	9	2 3/4"	53 1/2"	2			
2nd "	1 3/4"	19 1/2"	6	1 3/4"	39"	6	3 3/8"	54 3/8"	1	H.P. 1. 3 ROW WHEEL	48" M.D.	
3rd "	1 5/8"	19 7/8"	4	1 4/8"	39 1/4"	6	3 5/8"	55 1/4"	1	L.P. 1. 3 ROW WHEEL	56" M.D.	
4th "	2 3/16"	20 7/8"	4	2 1/4"	40"	5	4 1/16"	56 1/8"	1			
5th "				2 3/4"	41"	4	4 5/8"	57 1/4"	1			
6th "				3 3/8"	42 1/4"	4	5 3/16"	58 3/8"	1			
7th "	IMPULSE						5 13/16"	59 5/8"	1			
8th "	1 2 ROW WHEEL 30 1/2"						6 7/16"	60 7/8"	1			
9th "							7 1/8"	62 1/4"	1			
10th "							8"	64"	1			
11th "							9 3/4"	64 1/2"	1			
12th "							10 1/8"	69 3/4"	1			
							12"	72"	1			

Shaft Horse Power at each turbine H.P. 4333 I.P. 4333 L.P. 4333
Revolutions per minute, at full power, of each Turbine Shaft H.P. 1898 I.P. 1898 L.P. 1898
1st reduction wheel 1898 main shaft 185
Rotor Shaft diameter at journals H.P. 5" I.P. 7 1/2" L.P. 9" Pitch Circle Diameter
1st pinion 11.355 1st reduction wheel 23.995 Width of Face 1st reduction wheel 20 1/2"
2nd pinion 11.156 main wheel 169.39 main wheel 4'-0"
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings
1st pinion 17 1/2" 1st reduction wheel 18 1/4"
2nd pinion 19 1/8" 3'-2 1/4" main wheel 4'-2 1/4" FORD
Flexible Pinion 1st — Pinion Shafts, diameter at bearings External 1st { 5 1/2" 2nd { 8 1/2" diameter at bottom of pinion teeth 1st 11.2091"
Shafts, diameter 2nd — Internal 1st { 2" 2nd { 3" 2nd 10.3678"
Wheel Shafts, diameter at bearings 1st 7'-2" diameter at wheel shroud, 1st — Generator Shaft, diameter at bearings —
main 22" main 13'-7 3/8" Propelling Motor Shaft, diameter at bearings —
Intermediate Shafts, diameter as per rule... as fitted 19 1/4" Thrust Shaft, diameter at collars as per rule... as fitted 20 1/8"
Tube Shaft, diameter as per rule... as fitted — Screw Shaft, diameter as per rule... as fitted 2 1/2" Is the { tube screw } shaft fitted with a continuous liner { yes }
Bronze Liners, thickness in way of bushes as per rule... as fitted 3 1/32" thickness between bushes as per rule... as fitted 3/4" Is the after end of the liner made watertight in the propeller boss —
If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner —
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 Oil Gland or other appliance fitted at the after end of the tube shaft — If so, state type — Length of Bearing in Stern Bush next to and supporting propeller 7'-2"
Propeller, diameter 8'-6" Pitch 16'-3" No. of Bades 4 State whether Moveable not Total Developed Surface 160 square feet.
If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine yes Can the H.P. or I.P. Turbines exhaust direct to the Condenser —
No. of Turbines fitted with astern wheels 2 Feed Pumps { No. and size — How driven — }
Pumps connected to the Main Bilge Line { No. and size — How driven — }
Ballast Pumps, No. and size — Lubricating Oil Pumps, including Spare Pump, No. and size —
Are two independent means arranged for circulating water through the Oil Cooler — Suctions, connected both to Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room — In Pump Room —
In Holds, &c. — Independent Power Pump Direct Suctions to the Engine Room
Main Water Circulating Pump Direct Bilge Suctions, No. and size — Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes —
Bilges, No. and size — 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 Sea Connections fitted direct on the skin of the ship — Are they fitted with Valves or Cocks —
Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates — Are the Overboard Discharges 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 pass through the bunkers — How are they protected —
What pipes pass through the deep tanks — Have they been tested as per rule —
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 Shaft Tunnel watertight — Is it fitted with a watertight door — worked from —

BOILERS, &c.—(Letter for record S) Total Heating Surface of Boilers 10,315 ft ECONOMISER 2 x 7,800 ft
Is Forced Draft fitted yes No. and Description of Boilers 2 FOSTER WHEELER DESIGNED Working Pressure 585 lb
Is a Report on Main Boilers now forwarded? yes
Is { a Donkey } Boiler fitted? — If so, is a report now forwarded? —
{ an Auxiliary }
Is the donkey boiler intended to be used for domestic purposes only —
Plans. Are approved plans forwarded herewith for Shafting 6.5.46 Main Boilers 30.11.46 Auxiliary Boilers — Donkey Boilers —
(If not, state date of approval) 14.10.46
Superheaters 28.3.47 General Pumping Arrangements 6.9.46 Oil Fuel Burning Arrangements 27.11.46

SPARE GEAR.

Has the spare gear required by the Rules been supplied? 7 To be dealt with at Newcastle.
State the principal additional spare gear supplied.

The foregoing is a correct description,

For VICKERS-ARMSTRONGS LIMITED.

Manufacturer.

Dates of Survey while building
During progress of work in shops - - -
During erection on board vessel - - -
Total No. of visits. 203

Dates of Examination of principal parts—Casings 20.2.48 Rotors 7.9.48 Blading 7.9.48 Gearing 5.7.48
Wheel shaft 27.5.48 Thrust shaft 19.5.48 Intermediate shafts 19.5.48 Tube shaft — Spare Screw shaft 7.7.48
Propeller — Stern tube 19.5.48 Engine and boiler seatings — Engine holding down bolts —
Completion of fitting sea connections — Completion of pumping arrangements — Boilers fixed — Engines tried under steam 1.7.48
Main boiler safety valves adjusted — Thickness of adjusting washers —
Rotor shaft, Material and tensile strength Stainless Steel 35 tons/ft Identification Mark See below
Flexible Pinion Shaft, Material and tensile strength — Identification Mark —
Pinion shaft, Material and tensile strength Stainless Steel 47 tons/ft Identification Mark See below
1st Reduction Wheel Shaft, Material and tensile strength do 37 tons/ft Identification Mark 155.45765.7.7.48 LPH
Wheel shaft, Material — Identification Mark 155.45765 Thrust shaft, Material Stainless Steel Identification Mark 155.48420
Intermediate shafts, Material Stainless Steel Identification Marks See below Tube shaft, Material — Identification Marks —
Screw shaft, Material Stainless Steel Identification Marks See below Steam Pipes, Material CARB. MOL. & MILD STEEL Test pressure 1585 lb
Date of test NOT COMPLETE 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 the use of oil as fuel been complied with —
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo — If so, have the requirements of the Rules been complied with —
If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with —

Is this machinery a duplicate of a previous case yes If so, state name of vessel SURAT

General Remarks. (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has been constructed under special survey in accordance with the approved plans, Secretary's letters and the requirements of the Rules.

PINIONS		ROTORS	INTERMEDIATE SHAFTS
H.P. R. 155.45766.7.7.48 LPH	155.49164.7.7.48 LPH I.P.	155.48419.19.5.48 LPH	155.48419.19.5.48 LPH
H.P. Sec 155.45762.7.7.48 LPH	155.48821.7.7.48 LPH L.P.	155.48417	155.48417
Spare 155.48960.7.7.48 LPH			
I.P. 155.48960.7.7.48 LPH			
L.P. 155.45756.7.7.48 LPH			

Workmanship and materials are good. The machinery has been dispatched to Newcastle for installation.

The amount of Entry Fee 25 £ 107 : 12 : When applied for. 28/7/1948
Special 15 : 16 :
Donkey Boiler Fee : : When received.
Travelling Expenses (if any) £ : : 19

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute.

FRI 29 APR 1948

Assigned.

See F.E. mch. rpt.



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