

26 APR 1944

Rpt. 4a.

REPORT ON STEAM TURBINE MACHINERY.

No. 102035

Received at London Office 25 APR 1944

Date of writing Report 26-4-44 When handed in at Local Office 26-4-44 Port of NEWCASTLE-ON-TYNE
No. in Survey held at NEWCASTLE-ON-TYNE Date, First Survey (1943) Apr. 28 Last Survey 12th April 1944
Reg. Book. on the S/S "EMPIRE SHEBA" (Wave King) (Number of Visits 52)
Built at GLASGOW By whom built HARLAND AND WOLFF LD. Yard No. 1222 (G) When built 1944
Engines made at NEWCASTLE-ON-TYNE By whom made C.A. PARSONS AND CO. LD. Engine No. 2574/5 When made 1944
Boilers made at By whom made Boiler No. When made
Shaft Horse Power at Full Power 6,800 Owners Port belonging to
Nom. Horse Power as per Rule (1215) Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted
Trade for which Vessel is intended 1210

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

No. of Turbines Ahead TWO Direct coupled
Asteron ONE single reduction geared to ONE propelling shafts. No. of primary pinions to each set of reduction gearing TWO
direct coupled to Alternating Current Generator phase periods per second
for supplying power for driving Propelling Motors, Type rated Kilowatts Volts at revolutions per minute;
rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE BLADING.

	EFFECTIVE HEIGHT OF BLADES.	H.P. DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	I.P. DIAMETER AT TIP.	NO. OF ROWS.	EFFECTIVE HEIGHT OF BLADES.	L.P. DIAMETER AT TIP.	NO. OF ROWS.	EFFECTIVE HEIGHT OF BLADES.	ASTERN. DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	1.23"	17.585"	7				1.23"	39.68"	3			
2ND	1.52"	18.165"	7				1.129"	40.258"	1			
3RD	1.68"	18.485"	6				1.626"	41.392"	1			
4TH	2.07"	19.265"	6				2.268"	42.536"	1			
5TH	2.58"	20.285"	6				2.834"	43.668"	1			
6TH							3.55"	45.1"	1			
7TH							4.259"	46.518"	1			
8TH							4.977"	47.954"	1			
9TH							5.802"	49.604"	1			
10TH							6.634"	51.268"	1			
11TH	7.15"	30.47"	1				7.66"	53.32"	1			
12TH	1.68"	31.69"	1				8.92"	55.84"	1			

Shaft Horse Power at each turbine { H.P. 3,500
I.P. 3,300
L.P. 3,300
Revolutions per minute, at full power, of each Turbine Shaft { H.P. 3971
I.P. 3971
L.P. 2865
Rotor Shaft diameter at journals { H.P. 5"
I.P. 7"
L.P. 7"
Pitch Circle Diameter { 1st pinion L.P. 13.0688
2nd pinion 19.7894
1st reduction wheel 51.2041
main wheel 124.6478
Width of Face { 1st reduction wheel 20 1/2"
main wheel 39"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 38 3/4"
2nd pinion 38 3/4"
1st reduction wheel 38 3/4"
main wheel 42"

Flexible Pinion Shafts, diameter { 1st 11"
2nd 11"
Pinion Shafts, diameter at bearings { External 1st 47"
Internal 1st 47"
2nd 5"
Generator Shaft, diameter at bearings { 1st 12.2230"
2nd 18.9412"

Wheel Shafts, diameter at bearings { 1st 11"
main 17 1/2"
diameter at wheel shroud, { 1st 47"
main 119 3/4"
Propelling Motor Shaft, diameter at bearings {

Intermediate Shafts, diameter { as per rule
as fitted
Thrust Shaft, diameter at collars { as per rule
as fitted

Tube Shaft, diameter { as per rule
as fitted
Screw Shaft, diameter { as per rule
as fitted
Is the { tube
screw } shaft fitted with a continuous liner {

Bronze Liners, thickness in way of bushes { as per rule
as fitted
Thickness between bushes { as per rule
as fitted
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 affected 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 {

Propeller, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet.

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine { Can the H.P. or I.P. Turbine exhaust direct to the Condenser {

No. of Turbines fitted with astern wheels { 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 to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room {

In Holds, &c. { In Pump Room {

Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size { Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes {

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 {

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

Is Forced Draft fitted No. and Description of Boilers

Is a Report on Main Boilers now forwarded? If so, is a report now forwarded?

Is { a Donkey } Boiler fitted? { an Auxiliary }

Is the donkey boiler intended to be used for domestic purposes only Main Boilers Auxiliary Boilers Donkey Boilers

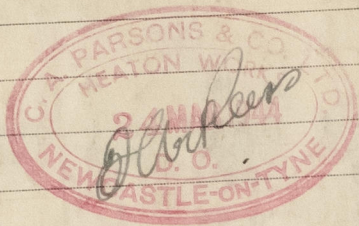
Plans. Are approved plans forwarded herewith for Shafting (If not state date of approval) Oil Fuel Burning Arrangements

Superheaters General Pumping Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied



The foregoing is a correct description,

Dates of Survey while building

Dates of Examination of principal parts — Casings Rotors Blading Gearing

Wheel shaft Thrust shaft Intermediate shafts Tube shaft Screw shaft

Propeller Stern tube Engine and boiler seatings Engine holding down bolts

Completion of fitting sea connections Completion of pumping arrangements Boilers fixed Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Rotor shafts Material and tensile strength H.P. — O.H. STEEL 36.8 TONS/IN² L.P. 39 TONS/IN² Identification Mark

Flexible Pinion Shaft, Material and tensile strength H.P. — O.H. STEEL (Ni) 44.5 TONS/IN² L.P. — O.H. STEEL (Ni) 45 TONS/IN² Identification Mark

Pinion shafts Material and tensile strength PORT — O.H. STEEL (Ni) 45 TONS/IN² STD. O.H. STEEL (Ni) 44.5 TONS/IN² Identification Mark

1st Reduction Wheel Shaft, Material and tensile strength PORT — O.H. STEEL (Ni) 44.5 TONS/IN² STD. O.H. STEEL (Ni) 44.5 TONS/IN² Identification Mark

Wheel shaft, Material O.H. STEEL Identification Mark Thrust shaft, Material Identification Mark

Intermediate shafts, Material Identification Marks Tube shaft, Material Identification Marks

Screw shaft, Material Identification Marks Steam Pipes, Material 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 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 EMARE CAPTAIN.

General Remarks (State quality of workmanship, opinions as to class, &c.) This Machinery has been constructed under Special Survey in accordance with the Secretary's Letters - Approved Plans - Specification and the Society's Rules.

Materials and Workmanship are good.

The Machinery has now been despatched to Glasgow for installation in a Vessel classified with the British Corporation Register.

Traying Reports will be sent on completion of this type Engine Programme.

The amount of Entry Fee £ 52 : 3 : 0

Donkey Boiler Fee £ : : 0

Travelling Expenses (if any) £ : : 0

When applied for, 24 APR 1947

When received, 19

Committee's Minute

Assigned N/S for Classing Committee

John E. Martin
Engineer Surveyor to Lloyd's Register of Shipping.

