

Report on Steam Turbine Machinery.

No. 104096

Date of writing Report 19... When handed in at Local Office 27 NOV 1946 Port of NEWCASTLE-ON-TYNE Received at London Office 3 DEC 1946
 No. in Survey held at Newcastle on Tyne Date, First Survey 13th JUNE, 1944 Last Survey 26th OCTOBER, 1946
 Reg. Book 74931 on the TURBO ELEC S.S. HELICINA (Number of Visits 154)
 Built at Wallsend By whom built Swan Hunter & Wigham Richardson Ltd Yard No. 1711 When built 1946
 Engines made at Wallsend By whom made Swan Hunter & Wigham Richardson Ltd Engine No. 1809 When made 1946
 Boilers made at Wallsend By whom made Swan Hunter & Wigham Richardson Ltd Boiler No. 1808 When made 1946
 Shaft Horse Power at Full Power 13,000 Owners Anglo-Saxon Petroleum Co. Ltd Port belonging to London
 Nom. Horse Power as per Rule 25767 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes
 Trade for which Vessel is intended Carrying petroleum in bulk

STEAM TURBINE ENGINES, &c.—Description of Engines

TURBO-ELECTRIC

No. of Turbines 2 Direct coupled, single reduction geared to propelling shafts. No. of primary pinions to each set of reduction gearing 1
 direct coupled to Alternating Current Generator phase periods per second Direct Current Generator rated Kilowatts Volts at revolutions per minute;
 for supplying power for driving Propelling Motors, Type SYNCHRONOUS-DOUBLE UNIT
 rated Kilowatts Volts at 122 revolutions per minute. Direct coupled, single or double reduction geared to ONE 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												
2nd												
3rd												
4th												
5th												
6th												
7th												
8th												
9th												
10th												
11th												
12th												

Shaft Horse Power at each turbine H.P. 6500 I.P. 4150
 Reolutions per minute, at full power, of each Turbine Shaft 1st reduction wheel 1st reduction wheel
 Rotor Shaft diameter at journals H.P. Pitch Circle Diameter 1st pinion 1st reduction wheel Width of Face 1st reduction wheel
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 1st reduction wheel
 Flexible Pinion 1st 2nd Pinion Shafts, diameter at bearings External 1st 2nd diameter at bottom of pinion teeth
 Wheel Shafts, diameter at bearings 1st main diameter at wheel shroud, 1st Generator Shaft, diameter at bearings
 Intermediate Shafts, diameter as per rule 19.0 19.0 19.0 19.0 Thrust Shaft, diameter at collars as per rule 19.0 19.0
 Tube Shaft, diameter as per rule 20.0 20.0 Is the screw shaft fitted with a continuous liner
 Bronze Liners, thickness in way of bushes as per rule 31.0 31.0 Thickness between bushes as per rule 31.0 31.0 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 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
 haft No If so, state type Length of Bearing in Stern Bush next to and supporting propeller 8-8-3-9
 Propeller, diameter 20-0 Pitch 15-02 No. of Bades 4 State whether Moveable No Total Developed Surface 195 square feet.
 f Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or L.P. Turbines exhaust direct to the
 Condenser Yes No. of Turbines fitted with astern wheels Feed Pumps No. and size 2 Turbo 16000 1 Turbo 50000
 How driven Steam
 Pumps connected to the Main Bilge Line No. and size (1) 12x8x12 BALLAST (2) FIRE, BILGES SANITARY - 107 Jms/hr
 How driven Steam
 Ballast Pumps, No. and size (1) 12x8x12 110 Jms/hr Lubricating Oil Pumps, including Spare Pump, No. and size 2 ELEC - 120 GALS/MIN
 Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected both to Main Bilge Pumps and Auxiliary
 Bilge Pumps, No. and size:—In Engine and Boiler Room 4-4 dia In Pump Room 2-4 dia
 In Holds, &c. Aft cofferdam 1-4 dia Fore pump room 1-2 1/2 Aft cofferdam 1-4
 Main Water Circulating Pump Direct Bilge Suctions, No. and size 2-14 dia Independent Power Pump Direct Suctions to the Engine Room
 Bilges, No. and size 1-6 dia 2-5 dia 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 Below 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 *✓*) Total Heating Surface of Boilers *118,618 sq ft* *Superheaters = 2880 sq ft Total 21498 sq ft*
Is Forced Draft fitted *Yes* No. and Description of Boilers *3 B.W. Marine Type* Working Pressure *450 lb. sq. in.*
Is a Report on Main Boilers now forwarded? *Yes*
Is *a Donkey* Boiler fitted? *Yes* If so, is a report now forwarded? *Yes*
Is the donkey boiler intended to be used for domestic purposes only *No*
Plans. Are approved plans forwarded herewith for Shafting *25-6-43* Main Boilers *✓* Auxiliary Boilers *✓* Donkey Boilers *4-9-43*
(If not, state date of approval)
Superheaters *✓* General Pumping Arrangements *22-12-43* Oil Fuel Burning Arrangements *20-3-46, 27-12-45*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*
State the principal additional spare gear supplied *1 Spare screw shaft*

The foregoing is a correct description,

FOR

SWAN, HUNTER, & WIGHAM LTD.

P.L. Jones

Manufacturer

Dates of Survey while building
During progress of work in shops - *1944 JUNE 13, 23, AUG 4, SEPT 8, 22, OCT 20, NOV 7, 14, 1945 FEB 27, MAR 14, 23, APR 5, 10, 10, MAY 15, 31, JUNE 5, JULY 23, 30, AUG 9, 22, 24, 21, SEPT 19, 24, 21, OCT 12, 18, 22, 30, NOV 1, 9, 15, 16, 19, 30, DEC 3, 13, 14, 1946 JAN 3, 4, 10, 11, 14, 21, 23, 25, 29, 30, FEB 1, 4, 5, 6, 7, 11, 12, 13, 15, 18, 21, 22, MAR 4, 5, 6, 8, 11, 14, 15, 18, 21, 22, 27, APR 4, 5, 12, 15, 30, MAY 2, 3, 7, 8, 10, 20, 21, 22, 23, 24, 27, 28, 29, 31, JUNE 3, 4, 11, 14, 17, 18, 21, 26, 25, 26, 27, JULY 1, 3, 4, 5, 8, 9, 11, 12, 15, 16, 18, 19, 23, 26, AUG 9, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 26, 27, 28, 29, SEPT 2, 3, 4, 9, 10, 13, 16, 19, 20, 24, 25, 26, OCT 1, 6, 9, 10, 14, 18, 23, 24, 26.*
During erection on board vessel - *154*
Total No. of visits *154*

Dates of Examination of principal parts—Casings *✓* Rotors *✓* Blading *✓* Gearing *✓*
Wheel shaft *✓* Thrust shaft *30-11-45* Intermediate shafts *14-3-46* Tube shaft *✓* Screw shaft *5-3-46*
Propeller *14-3-46* Stern tube *10-1-46* Engine and boiler seatings *10-9-46* Engine holding down bolts *10-9-46*
Completion of fitting sea connections *4-4-46* Completion of pumping arrangements *10-10-46* Boilers fixed *10-9-46* Engines tried under steam *23-10-46*
Main boiler safety valves adjusted *25-9-46* Thickness of adjusting washers *F/F-1/32, A-1/32, 3/16-1/4, P/F-3/16, A-9/32, 3/16-1/4, S/F-3/32, A-3/8, 3/16-1/4*
Rotor shaft, Material and tensile strength *✓* Identification Mark *✓*
Flexible Pinion Shaft, Material and tensile strength *✓* Identification Mark *✓*
Pinion shaft, Material and tensile strength *✓* Identification Mark *✓*
1st Reduction Wheel Shaft, Material and tensile strength *✓* Identification Mark *✓*
Wheel shaft, Material *✓* Identification Mark *✓* Thrust shaft, Material *S.M. Steel* Identification Mark *14164-468*
Intermediate shafts, Material *S.M. Steel* Identification Marks *14164-469* Tube shaft, Material *✓* Identification Marks *✓*
Screw shaft, Material *S.M. Steel* Identification Marks *14164-467* Steam Pipes, Material *S.D. Steel* Test pressure *1250 lb. sq. in.*
Date of test *2-5-11-16-20/2/46, 17-26-27/6/46, 3-8-12-17/7/46, 2-9-46* 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 the use of oil as fuel been complied with *Yes*
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *Yes* If so, have the requirements of the Rules been complied with *Yes*
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 *OLNA*

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 rule requirements & approved plans. Materials & workmanship are good. The machinery was satisfactorily tested on mooring & sea trials & in my opinion is eligible for classification with records of *TL.M.C. 10,46 3W.T.B. 450 lb. sq. in. (S.F. 440 lb. sq. in.) D.B. 130 lb. sq. in. F.D. C.L.* Fitted for oil fuel *10,46 F.P. above 150°F*
Oil fuel installation for main boilers capable of burning cracked asphalt or bitumen *S.G. 1.06 Melting point 165°F F.P. 400°F*
S.H.P. 11,525 at 121.4 r.p.m. obtained on sea trial over measured mile - speed 17.50 knots

The amount of Entry Fee *£ 32 : 17 : 0* When applied for *27 NOV 1946*
Special *11-6-46*
Donkey Boiler Fee *£ 13 : 14 : 0* When received
Travelling Expenses (if any) *£ 0 : 0 : 0*

J. H. Matthews
Engineer Surveyor to Lloyd's Register of Shipping.

FRI 20 DEC 1946

Committee's Minute

Assigned *TL.M.C. 10,46.*

F.D. C.L.

3 WTB 450 lb (Spt. 440 lb) D.B. 130 lb

FITTED FOR OIL FUEL 10,46 FLASH POINT ABOVE 160°F



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