

# REPORT ON STEAM TURBINE MACHINERY. No. 63091

Rpt. 4a.

Received at London Office... NOV. 28 1940

Date of writing Report 23.11.40 When handed in at Local Office 23.11.40 Port of GLASGOW  
 No. in Survey held at Glasgow Date, First Survey 16.7.40 Last Survey 11th Nov. 1940  
 Reg. Book. on the S/S. "EMPIRE VOICE" (Number of Visits 13) Tons } Gross 6828  
 Net 3977  
 Built at Glasgow By whom built Banley Curle & Co. Ltd. Yard No. 678 When built 1940  
 Engines made at -do- By whom made -do- Engine No. BW73 When made 1940  
 Boilers made at -do- By whom made -do- Boiler No. 678 When made 1940  
 Shaft Horse Power at Full Power 990 Owners Ministry of Shipping Port belonging to Glasgow  
 Nom. Horse Power as per Rule 165 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 Trade for which Vessel is intended

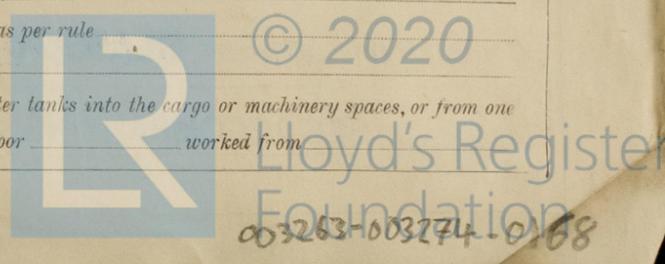
## STEAM TURBINE ENGINES, &c.—Description of Engines One L.P. turbine with DR gearing & Hyd. Coupling.

No. of Turbines One Ahead One Direct coupled, single reduction geared to one propelling shafts. No. of primary pinions to each set of reduction gearing one  
 Astern - double reduction geared }  
 direct coupled to { Alternating Current Generator - phase - periods per second } rated - Kilowatts - Volts at - revolutions per minute;  
 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							66 mfm	832 mfm	OHE			
2ND							84	868	"			
3RD							103	906	"			
4TH							122	944	"			
5TH							142	984	"			
6TH							163	1026	"			
7TH							185	1070	"			
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. - I.P. - L.P. 990 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. - I.P. - L.P. 3730 }  
 Rotor Shaft diameter at journals { H.P. - I.P. - L.P. 125 mfm } Pitch Circle Diameter { 1st pinion 8.3555" 1st reduction wheel 60.6309" Width of Face { 1st reduction wheel 260 mfm main wheel 600 mfm }  
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 225 mfm 2nd pinion 422.5 F+A } 1st reduction wheel 360 mfm main wheel 525 mfm F+A  
 TRANSMISSION Flexible Pinion Shafts, diameter { 1st 115 mfm 2nd - } Pinion Shafts, diameter at bearings External { 1st 125 mfm 2nd 320 mfm } Internal { 1st 35 L 2nd 260 L } diameter at bottom of pinion teeth { 1st 7.9989" 2nd 13.511" }  
 Wheel Shafts, diameter at bearings { 1st 230 mfm 2nd 250 mfm } diameter at wheel shroud, { 1st 1460 mfm } Generator Shaft, diameter at bearings -  
 Intermediate Shafts, diameter as per rule - as fitted - Thrust Shaft, diameter at collars as per rule Asp. as fitted 362 mfm 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 protected between the liners - Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft - 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 - } Lubricating Oil Pumps, including Spare Pump, No. and size 208" x 9" x 18"  
 Ballast Pumps, No. and size - Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room -  
 In Holds, &c. - 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 they fitted with Valves or Cocks -  
 Are all Sea Connections fitted direct on the skin of the ship - 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 ) Total Heating Surface of Boilers

Is Forced Draft fitted \_\_\_\_\_ No. and Description of Boilers \_\_\_\_\_ Working Pressure \_\_\_\_\_

Is a Report on Main Boilers now forwarded? \_\_\_\_\_

Is { a Donkey } Boiler fitted? \_\_\_\_\_ If so, is a report now forwarded? \_\_\_\_\_  
{ an Auxiliary }

Plans. Are approved plans forwarded herewith for Shafting \_\_\_\_\_ Main Boilers \_\_\_\_\_ Auxiliary Boilers \_\_\_\_\_ Donkey Boilers \_\_\_\_\_  
(If not state date of approval)

Superheaters \_\_\_\_\_ General Pumping Arrangements \_\_\_\_\_ Oil Fuel Burning Arrangements \_\_\_\_\_

Spare Gear. State the articles supplied:— See attached List. (With approved plans)



FOR BARCLAY, CURLE & CO., LTD

Alexander Macneill  
Chief Draughtsman

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops -- } 1940 July 16 23 Aug 1 5 22 29 Sep 11 9 12 17 20 25 Nov 11  
{ During erection on board vessel --- }  
Total No. of visits 13

Dates of Examination of principal parts—Casings 16-7-40 Rotors 23-7-40 Blading 5-8-40 Gearing 9-9-40

Wheel shaft 23-7-40 Thrust shaft 1-8-40 Intermediate shafts - Tube shaft - Screw shaft -

Propeller - Stern tube - Engine and boiler seatings - Engine holding down bolts -

Completion of pumping arrangements - Boilers fixed - Engines tried under steam -

Main boiler safety valves adjusted - Thickness of adjusting washers -

Rotor shaft, Material and tensile strength S.M. STEEL 37.6 TONS Identification Mark 168 ERH 31-5-40 ATB

TRANSMISSION Flexible Pinion Shaft, Material and tensile strength S.M. STEEL 32.2 TONS Identification Mark 657 ERH 18-1-40 ATB

Pinion shaft, Material and tensile strength S.M. STEEL 48.8 TONS Identification Mark 768 ERH 5-3-40 ATB

1st Reduction Wheel Shaft, Material and tensile strength S.M. STEEL Identification Mark 731 WK ATB

Wheel shaft, Material S.M. STEEL Identification Mark 230 WTM ATB Thrust shaft, Material S.M. STEEL Identification Mark 793 WK ERH ATB

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 carrying and burning oil fuel been complied with -

Is this machinery a duplicate of a previous case Yes If so, state name of vessel "EMPIRE LIGHT" G.L.S.R. No 62788

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been built under special survey in accordance with the Rules and approved plans, and the materials and workmanship are good. It has been satisfactorily installed in the vessel, tested under full load and found efficient.

Rob  
23/11/40

The amount of Entry Fee ... £	:	:	When applied for,
Special ... £	:	:	19.....
Donkey Boiler Fee ... £	:	:	When received,
Travelling Expenses (if any) £	:	:	19.....

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 26 NOV 1940

Assigned SEE ACCOMPANYING MACHINERY REPORT.



© 2020

Lloyd's Register Foundation

Rpt. 13.

No. in Reg.

8796

Built at

Owners

Electrica

Is vessel

Have plan

Heating

has the g

trip switc

if not con

arranged

test for m

of the gen

near unpro

injury and

contact

are they in

and oil

material is

semi-insula

Is the const

to pilot and

side of switc

CB

and for each

Are compar

ammeters

equaliser con