

REPORT ON STEAM TURBINE MACHINERY. No. 7401

t. 4a.

450485
 Date of writing Report 19 When handed in at Local Office 19 Port of Philadelphia Received at London Office
 No. in Survey held at Henton N.J. Date, First Survey 5 Nov Last Survey 11 Nov 1937
 Reg. Book. on the S/S "ESSO HOUSTON" (Number of Visits 2) Tons Gross 7699 Net 4654
 Built at Kearney N.J. By whom built Federal SFB Co Yard No. 145 When built
 Engines made at Henton N.J. By whom made De Laval Steam Turbine Co Engine No. 226496 When made 1937
 Boilers made at By whom made Boiler No. When made
 Shaft Horse Power at Full Power 2000 Owners Port belonging to
 Nom. Horse Power as per Rule 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 compound steam turbines

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

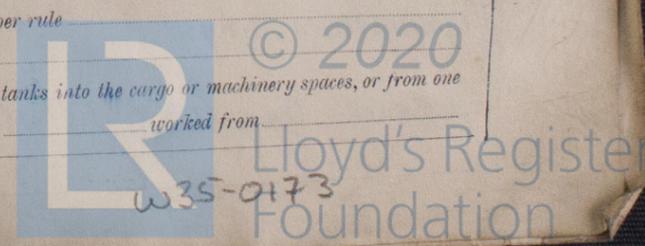
TURBINE LOADING.	H. P.			I. P.			L. P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	.510	22.463	1				1.280	21.828	1	1.720	30.707	1
2ND "	.640	15.611	1				1.280	27.028	1	1.390	31.803	1
3RD "	.670	"	1				1.450	29.398	1	3.330	35.218	1
4TH "	.625	"	1				2.140	30.948	1			
5TH "	.695	"	1				2.720	33.088	1			
6TH "	.770	"	1				3.730	35.188	1			
7TH "	.720	19.826	1				6.500	38.798	1			
8TH "	.850	"	1									
9TH "	.820	"	1									
10TH "	.965	"	1									
11TH "	1.180	"	1									

Shaft Horse Power at each turbine { H.P. 1585 I.P. 6005 L.P. 1895 } Revolutions per minute, at full power, of each Turbine Shaft { I.P. 90 L.P. 8043 }
 Rotor Shaft diameter at journals { H.P. 4" I.P. 6.905" L.P. 6" } Pitch Circle Diameter { 1st pinion 8.221" 2nd pinion 11.856" } 1st reduction wheel 46.200" main wheel 118.241" Width of Face { 1st reduction wheel 12" main wheel 26.700" }
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 10" 2nd pinion 19 3/8" } 1st reduction wheel 10" main wheel 22 5/8"

Flexible Pinion Shafts, diameter { 1st 5 1/2" 2nd 6" } Pinion Shafts, diameter at bearings External 1st 5 1/2" 2nd 6" Internal 1st 9" 2nd 6" diameter at bottom of pinion teeth { 1st 7.873" L.P. 2nd 11.094" }
 Wheel Shafts, diameter at bearings { 1st 15" } diameter at wheel shroud, { 1st } Generator Shaft, diameter at bearings
 Intermediate Shafts, diameter as per rule Thrust Shaft, diameter at collars as per rule Tube Shaft, diameter as per rule as fitted
 Screw Shaft, diameter as per rule 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 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 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 }
 Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
 Are two independent means arranged for circulating water through the Oil Cooler
 Pumps, No. and size:—In Engine and Boiler 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 they fitted with Valves or Cocks
 Are all Sea Connections fitted direct on the skin of the ship Are the Overboard Discharges above or below the deep water line
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Blow Off Cocks fitted with a spigot and brass covering plate
 Are they each fitted with a Discharge Valve always accessible on the plating of the vessel How are they protected
 What pipes pass through the bunkers Have they been tested as per rule
 What pipes pass through the deep tanks
 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:—

The foregoing is a correct description, OF PROPELLING MACHINERY. *Mc Laval Steam Turbine Co per J.H. Schenckler Manufacture Englepton*

Dates of Survey while building { During progress of work in shops - - } 5 Nov 11 Nov 1937.
 { During erection on board vessel - - - }
 Total No. of visits _____

Dates of Examination of principal parts—Casings 11 Nov Rotors 11 Nov Blading 11 Nov Gearing 11 Nov

Wheel shaft 11 Nov Thrust shaft _____ 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 *Steel* / Identification Mark _____

Flexible Pinion Shaft, Material and tensile strength _____ Identification Mark _____

Pinion shaft, Material and tensile strength *Steel* / Identification Mark _____

1st Reduction Wheel Shaft, Material and tensile strength *Steel* / Identification Mark _____

Wheel shaft, Material _____ 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 _____

Is this machinery a duplicate of a previous case *Yes* / If so, state name of vessel _____

General Remarks (State quality of workmanship, opinions as to class, &c.) *The above turbines & gears have been constructed under the rules of the American Bureau of Shipping, and material tested by them. The installation has been tried out under steam in the shop & found satisfactory. After the trial the turbines & gears were opened up, examined & found in good order. When the installation has been satisfactorily installed on board the vessel and trial out under steam to the satisfaction of the Societies' Surveyors, it will in my opinion be eligible to receive the record of LMC with date*

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

W.A. Cumham
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **NEW YORK FEB 2 - 1938**
 Assigned *See N.Y.K. 38176* *Club*