

REPORT ON STEAM TURBINE MACHINERY. No. 7401

t. 4a.

450405
 Date of writing Report 19 When handed in at Local Office 19 Port of Philadelphia
 No. in Survey held at Henton NJ Date, First Survey 5 Nov Last Survey 11 Nov 1937
 Reg. Book. 5/5 "ESSO HOUSTON" (Number of Visits 2)
 on the Kearney NJ By whom built Federal SFB Co Tons Gross 7699 Net 4654
 Engines made at Henton NJ By whom made De Laval Steam Turbine Co Yard No. 145 When built
 Boilers made at By whom made Boiler No. 226496 When made 1937
 Shaft Horse Power at Full Power 3000 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 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.
ST EXPANSION	510	22.463	1				1.286	21.828	1	1.720	30.707	1
ND	640	15.611	1				1.286	27.028	1	1.390	31.803	1
RD	670	"	1				1.410	28.398	1	3.330	31.218	1
TH	625	"	1				2.140	30.848	1			
TH	695	"	1				2.720	33.088	1			
TH	770	"	1				3.730	35.188	1			
TH	720	19.826	1				6.500	38.798	1			
TH	810	"	1									
TH	820	"	1									
TH	965	"	1									
TH	1.180	"	1									

11/11/37
 1/10/37
 1/12/37
 14/1/38
 Shaft Horse Power at each turbine { H.P. 1585 I.P. 1895 L.P. 4.95
 Revolutions per minute, at full power, of each Turbine Shaft { H.P. 6005 I.P. 8043 L.P. 897.5
 Rotor Shaft diameter at journals { H.P. 4.95 I.P. 11.856 L.P. 6" Pitch Circle Diameter { 1st pinion 8.921 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" 1st reduction wheel 10" main wheel 22 5/8"
 Flexible Pinion Shafts, diameter { 1st Pinion Shafts, diameter at bearings External 1st 5 1/2" 2nd 9" 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
 Propelling Motor Shaft, diameter at bearings
 Intermediate Shafts, diameter as per rule Thrust Shaft, diameter at collars as per rule Tube Shaft, diameter as per rule

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
 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 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
 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
 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 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?
{ an Auxiliary }

If so, is a report now forwarded?

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

Main Boilers.

Auxiliary Boilers

Donkey Boilers

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. Schuchter
Engineer

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

5 Nov. 11 Nov. 1937.

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 L M C with date

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

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

Committee's Minute

NEW YORK FEB 2 - 1938

Assigned See N.Y.K. 38176