

REPORT ON STEAM TURBINE MACHINERY. No. 38176

Received at London Office

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Date of writing Report 19 JAN 1938 When handed in at Local Office 21 JAN 1938 Port of New York

No. in Survey held at New York Date, First Survey 27 Aug 1937 Last Survey 14 Jan 1938

Reg. Book. 5/5 ESSO HOUSTON (Number of Visits 20) Tons } Gross 7699
Net 4654

on the KEARNY N.J. By whom built FEDERAL S.B. + D.D.C. Yard No. 145 When built 1938

Engines made at TRENTON N.J. By whom made DE LAVAL STEAM TURBINE CO. Engine No. 226496 When made 1938

Boilers made at CARTERET N.J. By whom made FOSTER WHEELER CORP. Boiler No. 211/12 When made 1938

Shaft Horse Power at Full Power 3300 MAX Owners STANDARD OIL CO. OF NEW JERSEY Port belonging to WILMINGTON, DEL.
3000 NORMAL

Nom. Horse Power as per Rule 916 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted YES

Trade for which Vessel is intended CARRYING PETROLEUM IN BULK

TEAM TURBINE ENGINES, &c. — Description of Engines GEARED STEAM TURBINES

No. of Turbines 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;
Direct Current Generator

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	510"	22.463	1				1.280	25.828	1	3.330	35.218	1
2ND "	640	15.611	1					27.028	1			
3RD "	670	"	1				1.450	28.398	1			
4TH "	625	"	1				2.140	30.848	1			
5TH "	695	"	1				2.720	33.088	1			
6TH "	770	"	1				3.730	35.588	1			
7TH "	720	19.826	1				6.500	38.798	1			
8TH "	850	"	1									
9TH "	820	"	1									
10TH "	965	"	1									
11TH "	1.180	"	1									
12TH "												

Shaft Horse Power at each turbine { H.P. 1585 / I.P. 6005 / L.P. 5043 } 1st reduction wheel 897 / main shaft 90 NORMAL

Revolutions per minute, at full power, of each Turbine Shaft

Rotor Shaft diameter at journals { H.P. 4" / I.P. 6" / L.P. 6" } Pitch Circle Diameter { 1st pinion 8.221 LP / 2nd pinions 11.856 } 1st reduction wheel 46.200 / main wheel 118.241 } Width of Face { 1st reduction wheel 12" / main wheel 26.7"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 10" / 2nd pinion 19 3/4" } 1st reduction wheel 10" / main wheel 22 5/8"

Flexible Pinion Shafts, diameter { 1st 4 1/2 HP / 2nd 5 1/2 LP } Pinion Shafts, diameter at bearings { External 1st 5 1/2" / 2nd 9" / Internal 1st 6" / 2nd 6" } diameter at bottom of pinion teeth { 1st 6.557 HP / 2nd 7.973 LP }

Wheel Shafts, diameter at bearings { 1st 5 1/2" / main 15" } Generator Shaft, diameter at bearings 118.791 } Propelling Motor Shaft, diameter at bearings 118.791

Intermediate Shafts, diameter { as per rule 13.15" / as fitted 13 1/2" } Thrust Shaft, diameter at collars { as per rule 14.59" / as fitted 11" } (No Torque)

Tube Shaft, diameter { as per rule 15 1/2" / as fitted 15 1/2" } Is the screw shaft fitted with a continuous liner YES

Bronze Liners, thickness in way of bushes { as per rule 3/4" / as fitted 5/16" } Thickness between bushes { as per rule 9/16" / as fitted 11/16" } Is the after end of the liner made watertight in the propeller boss YES

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 FITS TIGHTLY

If two liners are fitted, is the shaft lapped or protected between the liners YES Is an approved Oil Gland or other appliance fitted at the after end of the tube YES

Propeller, diameter 17'3" / Pitch 14'9" MEAN No. of Blades 4 State whether Moveable NO Total Developed Surface 103.3 square feet.

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

Condenser YES No. of Turbines fitted with astern wheels ONE Feed Pumps { No. and size 2 MANY ROTARY 65 GPM / How driven STEAM TURBINES } No. and size 1 AUX. 10" x 6" x 24" V.S.

Pumps connected to the Main Bilge Line { No. and size 1- BILGE PUMP 12" x 8 1/2" x 12" HD / How driven STEAM } No. and size 1- FIRE BILGE ROTARY 450 GPM / How driven ELEC. MOTOR

Ballast Pumps, No. and size 2 CARGO PUMPS / 1 STRAINING PUMP Lubricating Oil Pumps, including Spare Pump, No. and size 1 ROTARY 150 GPM 1-6" x 7" x 12" V.S.

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 4-3" In Pump Room 1-4"

In Holds, &c. OIL PUMPING CARGO SYSTEM, 1-2 1/2" IN FOR PUMP ROOM, 1-1 1/2" R.S. IN COFFER DAMS, 2-1/2" IN DRY CARGO SPACE, 1-4" IN DRY TANK, 1-4" IN FIRE PEAK, 1-2" IN CHAIN LOCKER

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1-10" Independent Power Pump Direct Suctions to the Engine Room YES

Bilges, No. and size 1-4" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes YES

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 YES

Are all Sea Connections fitted direct on the skin of the ship YES Are they fitted with Valves or Cocks YES VALVES

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates YES 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 YES Are the Blow Off Cocks fitted with a spigot and brass covering plate SPIGOT ONLY

What pipes pass through the bunkers NONE How are they protected YES

What pipes pass through the deep tanks CARGO PIPING ONLY Have they been tested as per rule YES

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times YES

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 YES Is the Shaft Tunnel watertight NONE Is it fitted with a watertight door YES worked from YES



BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers 9190 sq ft.
 Is Forced Draft fitted YES No. and Description of Boilers 2 WATER TUBE Working Pressure 450 LBS
 Is a Report on Main Boilers now forwarded? YES
 Is { a Donkey } Boiler fitted? NO If so, is a report now forwarded?
 { an Auxiliary }
 Is the donkey boiler intended to be used for domestic purposes only
 Plans. Are approved plans forwarded herewith for Shafting YES Main Boilers YES Auxiliary Boilers Donkey Boilers
 (If not state date of approval)
 Superheaters YES General Pumping Arrangements YES Oil Fuel Burning Arrangements NO
 Has the spare gear required by the Rules been supplied YES **SPARE GEAR.**
 State the principal additional spare gear supplied TAIL SHAFT

The foregoing is a correct description,

*Patrol Ship building and Dry Dock Co
 City, N.Y.* Manufacturer.

Dates of Survey while building
 During progress of work in shops -- 1937 Aug 27, 29, 30 Oct 1, 4, 7, Nov 10
 During erection on board vessel --- Nov 19, 23, 24, 30 Dec 17, 24 1938 Jan 4, 6, 10, 11, 14,
 Total No. of visits 20
 Dates of Examination of principal parts—Casings 11 Nov 1937 Rotors 11 Nov Blading 11/11/37 Gearing 11/11/37
 Wheel shaft 11/11/37 Thrust shaft 11/11/37 Intermediate shafts 7/10/37 Tube shaft Screw shaft 7/10/37
 Propeller 24/11/37 Stern tube 19/11/37 Engine and boiler seatings 23/11/37 Engine holding down bolts 31/12/37
 Completion of fitting sea connections 17/12/37 Completion of pumping arrangements 11/1/38 Boilers fixed Engines tried under steam 14/1/38
 Main boiler safety valves adjusted 11/1/38 Thickness of adjusting washers LOCK NUTS FITTED IN LIEU OF WASHERS
 Rotor shaft, Material and tensile strength HP STEEL 80000 TS LP NICKEL STEEL 120000 TS Identification Mark SHAFTS NOT STAMPED
 Flexible Pinion Shaft, Material and tensile strength STEEL 80000 TS Identification Mark
 Pinion shaft, Material and tensile strength 3 1/2% NICKEL STEEL 100000 TS Identification Mark
 1st Reduction Wheel Shaft, Material and tensile strength STEEL 80000 TS Identification Mark
 Wheel shaft, Material STEEL Identification Mark Thrust shaft, Material STEEL Identification Mark
 Intermediate shafts, Material STEEL Identification Marks Tube shaft, Material Identification Marks
 Screw shaft, Material STEEL Identification Marks Steam Pipes, Material STEEL Test pressure 900 LBS. IN SHOP 675 IN PLACE
 Date of test 24/12/37 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 OIL TANKER 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 NOT DESIRED
 Is this machinery a duplicate of a previous case YES If so, state name of vessel ESSO BAYWAY / N. Y. Rot 38079

General Remarks (State quality of workmanship, opinions as to class, &c.)

The machinery of this vessel has not been built under Special Survey but it has been examined & it complies with the Rules & the workmanship & machinery are good as far as can be seen. The steel forgings & castings have been tested by the representatives of the U. S. Govt & American Bureau of Shipping.

The machinery has been satisfactorily tried at full power & the electric welded gear cases & engine seatings afterwards examined & found good. It is now in good & safe working condition & eligible, in my opinion, to receive the notations L.M.C. 1.38 F.D. and 'FITTED FOR OIL FUEL 1.38 F.P. ABOVE 150° F'

The amount of Entry Fee ... £ \$1000.00 INCLUSIVE :
 Special ... £ FEE :
 Donkey Boiler Fee ... £ :
 Travelling Expenses (if any) £ :
 When applied for, **FEB 4 - 1938**
 When received, 14/2 1938

McKindee John S. Heck
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **NEW YORK FEB 2 - 1938**

Assigned L.M.C. 1.38

NEW YORK

Certificate (if required) to be sent to...

Note F.D.
 CL.