

REPORT ON STEAM TURBINE MACHINERY. No. 3656

Received at London Office 4 APR 1942

Date of writing Report Sept. 22 1941 When handed in at Local Office Feb 21 1942 Port of Boston, Massachusetts

No. in Survey held at Lynn, Mass. Date, First Survey April 21 Last Survey July 23 1941
Reg. Book. (Number of Visits 8)

on the Hull No. 192 Tons ^{Gross} _____ _{Net} _____

Built at Kearney, N.J. By whom built Federal S.B. Co. Yard No. 192 When built 1941

Engines made at Lynn, Mass. By whom made General Electric Co. Engine No. _____ When made 1941

Boilers made at _____ By whom made _____ Boiler No. _____ When made _____

Shaft Horse Power at Full Power 6000 Owners Sinclair Refining Co. Port belonging to _____

Nom. Horse Power as per Rule 1165 Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted Yes

Trade for which Vessel is intended Carrying petroleum in bulk

STEAM TURBINE ENGINES, &c.—Description of Engines Cross compound, double reduction gear

No. of Turbines ^{Ahead} two ^{Direct coupled, single reduction geared} } to one propelling shafts. No. of primary pinions to each set of reduction gearing two
^{Astern} one ^{double reduction geared} }

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 _____

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	.845"	29.210"	1				1.195"	34.990"	1	.850"	37.230"	2
2ND "	.680"	17.710"	1				1.735"	35.870"	1	1.130"	37.51"	1
3RD "	.740"	17.830"	1				2.320"	36.840"	1	3.940"	40.940"	1
4TH "	.820"	17.990"	1				3.170"	38.340"	1			
5TH "	.950"	18.250"	1				4.860"	40.720"	1			
6TH "	1.000"	18.350"	1				7.250"	44.300"	1			
7TH "	1.110"	18.570"	1				9.560"	47.760"	1			
8TH "	1.230"	18.810"	1									
9TH "	1.480"	19.310"	1									
10TH "	1.710"	19.770"	1									
11TH "	2.000"	20.350"	1									
12TH "												

Shaft Horse Power at each turbine { H.P. 3000 }
I.P. _____ ^{Revolutions per minute, at full power, of each Turbine Shaft} I.P. _____
L.P. 3000 } H.P. 6072 1st reduction wheel 882
HP 8,400 } main shaft 92
LP 12,600 } L.P. 4048

Rotor Shaft diameter at journals { H.P. 3" outboard end }
I.P. 4" gear pitch circle 1st pinion _____ 1st reduction wheel 57.800" Width of { 1st reduction wheel 17"
L.P. 6" outboard diameter 2nd pinion 14.880" main wheel 142.777" Face { main wheel 33.25"
L.P. 5-1/2" gear end

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 15" } 1st reduction wheel 14"
2nd pinion 26-1/2" main wheel 28-1/2"

Flexible Pinion Shafts, diameter { 1st None } Pinion Shafts, diameter at bearings { External 1st 6" } 1st HP 8.025"
2nd 8.250" Internal 1st solid 2nd { 12" diameter at bottom of pinion teeth } 2nd LP 12.225"
2nd { 8-3/4"

Wheel Shafts, diameter at bearings { 1st 9" } diameter at wheel shroud, { 1st 58.068" Generator Shaft, diameter at bearings _____ }
main 21" { main 143.267" Propelling Motor Shaft, diameter at bearings _____ }

Intermediate Shafts, diameter as per rule _____ Thrust Shaft, diameter at collars as per rule _____
as fitted _____ as fitted 14.250"

Tube Shaft, diameter as per rule _____ Screw Shaft, diameter as per rule _____
as fitted _____ as fitted _____ Is the { tube } shaft fitted with a continuous liner { _____
screw }

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
as fitted _____ as fitted _____ 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 _____ If so, state type _____ 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 Yes Can the H.P. or I.P. Turbine exhaust direct to the _____

Condenser yes No. of Turbines fitted with astern wheels one 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 _____

Are two independent means arranged for circulating water through the Oil Cooler _____ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
Pumps, No. and size:—In Engine and Boiler Room _____ In Pump 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 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 _____

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 }

Is the donkey boiler intended to be used for domestic purposes only

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.

Has the spare gear required by the Rules been supplied Please see attached list.

State the principal additional spare gear supplied

The foregoing is a correct description,

L. E. Grube, Turbine Engr. Dept. J. E. C. Manufacturer.

Dates of Survey while building { During progress of work in shops - - } Apr. 21-30 May 29-30 June 2-9 July 23-22 1941 { During erection on board vessel - - - } Total No. of visits 8 visits

Dates of Examination of principal parts—Casings Apr. 21-30 Rotors June 9 Blading July 23 Gearing July 9 June 9-2 July 23 July 23

Wheel shaft June 9 Thrust shaft July 23 Intermediate shafts Tube shaft Screw shaft

Propeller Stern tube Engine and boiler seatings Engine holding down bolts

Completion of fitting sea connections Completion of pumping arrangements Boilers fixed Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers Rotor shafts Material and tensile strength OH.H.P. 128,000 LP 106,200 Identification Mark 458 459 23-7-41

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength OH HS HP 100,000 100,000 Identification Mark 460 23-7-41

1st Reduction Wheel Shaft, Material and tensile strength OH Steel LS HP 120,000 Identification Mark 461 23-7-41

Wheel shaft, Material OH Steel Identification Mark 466, 23-7-41 Thrust shaft, Material Identification Mark 462 23-7-41 463 23-7-41

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

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 If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) This machinery has been constructed under special survey in accordance with the approved plans. The workmanship and materials are good. The installation has been tried out in the shop under 2/3 full power and found satisfactory.

The unit has been forwarded to Federal S.B. Company, Kearny, N.J. When the installation has been satisfactorily installed aboard the vessel and to the satisfaction of the surveyor it will in my opinion be eligible to receive the record of LMC with date.

Table with columns for fee type (Entry Fee, Special Boston, Donkey Boiler Fee, Travelling Expenses), amount in £, and when applied/received (29-8 1941).

Thomas Barre Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK FEB 25 1942 M.G.

Assigned See N.Y.K. RPT. NO. 42143.



Certificate (if required) to be sent to... (The Surveyors are requested not to write on or below the space for Committee's Minute.)