

REC'D NEW YORK JAN 13 1943

Rpt. 4a.

REPORT ON STEAM TURBINE MACHINERY. No. 8299

Date of writing Report 1 Nov 42 When handed in at Local Office 10 Nov 42 Port of Philadelphia
No. in Survey held at Chester, Pa Date, First Survey June 27, 1942 Last Survey 30 Sept 1942
Reg. Book. SJS MARKAY (Number of Visits 22) Gross 10342 Tons Net
Built at Chester, Pa By whom built Sum Bros & Co Yard No. 232 When built 1942
Engines made at Lynn, Mass By whom made General Electric Co Engine No. HP48364 When made "
Boilers made at Barkston, Ohio By whom made Babcock & Wilcox Boiler No. 1724-1-2 When made "
Shaft Horse Power at Full Power 9000 Owners _____ Port belonging to _____
Nom. Horse Power as per Rule 1726 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
Trade for which Vessel is intended Carrying Petroleum in bulk

STEAM TURBINE ENGINES, &c.—Description of Engines Cross Compound Turbines and double reduction gears

No. of Turbines Ahead Two Direct coupled, single reduction geared to 1 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 _____ 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	1.135	30.040	1				1.340	38.710	1	1.940	44.328	2
2ND	.750	18.630	1				1.870	29.570	1	1.220	44.608	1
3RD	.870	18.870	1				2.640	46.910	1	4.355	48.642	1
4TH	.970	19.070	1				3.800	42.688	1			
5TH	1.140	19.410	1				5.620	41.490	1			
6TH	1.340	19.810	1				8.170	49.090	1			
7TH	1.680	20.490	1				10.450	42.862	1			
8TH	1.970	21.070	1									
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. 4700 ✓ I.P. _____ L.P. 4550 ✓
Revolutions per minute, at full power, of each Turbine Shaft { H.P. 6822 ✓ I.P. _____ L.P. 3790 ✓
1st reduction wheel 808
main shaft 90

Rotor Shaft diameter at journals { H.P. _____ I.P. _____ L.P. _____
Pitch Circle { 1st pinion LP 12.2" 1st reduction wheel LP 17.0" Width of Face { 1st reduction wheel 17"
Diameter { 2nd pinion 18" main wheel _____ main wheel 41"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 16 1/2" 1st reduction wheel 15 1/4"
2nd pinion 30 3/4" main wheel 32 1/2"

Flexible Pinion Shafts, diameter { 1st _____ 2nd None Pinion Shafts, diameter at bearings External { 1st 6" 2nd 13" diameter at bottom of pinion teeth { 1st HP 8.401"
Internal { 1st 10 3/8" 2nd 9" 2nd LP 11.801"

Wheel Shafts, diameter at bearings { 1st 10" main 24" diameter at wheel shroud, { 1st 10 3/8" Generator Shaft, diameter at bearings _____
main 26.943" Propelling Motor Shaft, diameter at bearings _____

Intermediate Shafts, diameter as per rule 19.02" as fitted 19.5" Thrust Shaft, diameter at collars as per rule _____ as fitted 13.374"

Tube Shaft, diameter as per rule _____ as fitted _____ Screw Shaft, diameter as per rule 20.71" as fitted 22.375" Is the { tube } shaft fitted with a continuous liner { Yes }

Bronze Liners, thickness in way of bushes as per rule .937 as fitted .1964 Thickness between bushes as per rule .703 as fitted .9375 Is the after end of the liner made watertight in the propeller boss Yes

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 No If so, state type _____

Propeller, diameter 20'-3" Pitch 20'-3" No. of Blades 4 State whether Movable No Total Developed Surface 141'2" 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 L.P. Turbine exhaust direct to the _____

Condenser Yes No. of Turbines fitted with astern wheels 1 Feed Pumps { No. and size 2 Main 235 GPM. 1. Aux. 180 GPM
How driven Steam Turbine Steam Kett Simplex

Pumps connected to the Main Bilge Line { No. and size 1- 175 GPM. 1. 600 GPM.
How driven Motor Steam Turbine

Ballast Pumps, No. and size 2 - 600 GPM. Lubricating Oil Pumps, including Spare Pump, No. and size 2 - 300 GPM.

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 3- 3 1/2" Eng room bilge. 1 1/2" Boiler room bilge. 1- 3 1/2" bilge well. 2- 3 1/2" bilge. 1- 4"

In Holds, &c. 2- 2 1/2" Fire pump room. 2- 2 1/2" Dry stores Fire. Steam ejectors for chain locker.

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1- 18" Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 1- 5" 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 man-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 Valves

Are they fixed sufficiently high on the ship's side to be seen without lifting the stowhold plates Yes Are the Overboard Discharges above or below the deep water line Both

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 Yes

What pipes pass through the bunkers None How are they protected _____

What pipes pass through the deep tanks 1- 4" Ballast line 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 _____

BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers 10,500 ^{sq} Is Forced Draft fitted Yes No. and Description of Boilers 2 Babcock & Wilcox Working Pressure 500 lbs Is a Report on Main Boilers now forwarded? No

Is a Donkey Boiler fitted? No If so, is a report now forwarded?

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

Plans. Are approved plans forwarded herewith for Shafting April 1941 Main Boilers June 1941 Auxiliary Boilers - Donkey Boilers - (If not state date of approval)

Superheaters June 1941 General Pumping Arrangements Jan 1940 Oil Fuel Burning Arrangements Feb 1942 SPARE GEAR.

Has the spare gear required by the Rules been supplied?

State the principal additional spare gear supplied. As per rule.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops -- June 27, July 4, 18, Aug 31, Sept 1, 1942, July 24, Aug 3, 11, 1942
During erection on board vessel -- Aug 11, 12, 29, Sept 3, 11, 14, 15, 18, 22, 23, 24, 29, 30, 1942
Total No. of visits 5 + 17 = 22.

Dates of Examination of principal parts—Casings June 27, July 4, 18, Rotors Sept 1, Blading Sept 1, Gearing June 27, July 4, 18, Sept 1, 1942

Wheel shaft June 27, Thrust shaft Intermediate shafts 2, 17, April 42, Tube shaft Screw shaft 11, Aug 1942

Propeller 11 Aug 1942 Stern tube 12 Aug 1942 Engine and boiler seatings 11 Sept, 12 Aug 42 Engine holding down bolts 23 Sept 1942

Completion of fitting sea connections 24 Aug 42 Completion of pumping arrangements 30 Sept 42 Boilers fixed 14 Sept 42 Engines tried under steam 30 Sept 1942

Main boiler safety valves adjusted 29 Sept 42 Thickness of adjusting washers Locknuts

Rotor shaft, Material and tensile strength OH Steel HP 124,000 LP 109,000 Identification Mark 771 1-9-42 TB

Flexible Pinion Shaft, Material and tensile strength OH Steel HS HP 103,500 LS HP 100,000 Identification Mark 763, 764, 765, 766

Pinion shaft, Material and tensile strength OH Steel HS LP 101,500 LS LP 105,000 Identification Mark 1-9-42 TB

1st Reduction Wheel Shaft, Material and tensile strength OH Steel 106,750 Identification Mark 767 1-9-42

Wheel shaft, Material OH Steel Identification Mark 769 1-9-42 Thrust shaft, Material Identification Mark 768 1-9-42

Intermediate shafts, Material OH Steel Identification Marks 6739, 6682 ON Reg 6728 Tube shaft, Material Identification Marks 6748 ON

Screw shaft, Material OH Steel Identification Marks 6748 ON Steam Pipes, Material OH Steel Test pressure 1500 lbs

Date of test 11, 14, 15 Aug 1942 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 No 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 Yes If so, state name of vessel S/S SEAKAY.

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 & materials are good. The installation has been tried out in the shop under full power and found satisfactory. The unit has been forwarded to Sun 83 & DD Company Chester, Pa. 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: This installation has been satisfactorily installed on board the vessel, tried out under full power and found in good order. The installation is now in our opinion eligible to receive the record of +LMC 9.42.

The amount of Entry Fee ... \$ 30.00 : When applied for, 30th Nov. 1942

Special ... \$ 370.00 : When received, 19

Donkey Boiler Fee ... £ : 19

Travelling Expenses (if any) ... £ : 19

Committee's Minute NEW YORK JAN 13 1943

Assigned +LMC-9-42.

NOTE-CL 2 WTB (Chet) 500 lbs.



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