

# REPORT ON STEAM TURBINE MACHINERY. No. 41921

4a. Received at London Office 21 MAY 1942

On of writing Report DEC 12 1941 When handed in at Local Office DEC 18 1941 Port of NEW YORK (Boston District)

o. In Survey held at TRENTON, N.J. and QUINCY, MASS. Date, First Survey JULY 2-1941 Last Survey SEPT 18 1941

eg. Book. on the STEEL SINGLE SCREW TANKER "SINCLAIR RUBILENE" Tons } Gross 7874  
Net 4596

uilt at QUINCY, MASS By whom built BETHLEHEM STEEL CO Yard No. 1489 When built 1941

Engines made at TRENTON, N.J. By whom made DELAVAL STEAM TURBINE CO Engine No. 230908 When made 1941

Boilers made at BARBERTON, OHIO By whom made BABCOCK-WILCOX CO. Boiler No. 15221-2 When made 1941

Shaft Horse Power at Full Power 4000 Owners SINCLAIR REFINING CO. Port belonging to WILMINGTON, DEL.

om. Horse Power as per Rule 905 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted YES

rade for which Vessel is intended CARRYING PETROLEUM IN BULK.

STEAM TURBINE ENGINES, &c.—Description of Engines DELAVAL IMPULSE COMPOUND

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

Direct coupled, double reduction geared }

ect coupled to Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;

Direct Current Generator }

upplying power for driving Propelling Motors, Type

ed 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.
EXPANSION	600	22.500	1				1.020	31.476	1	1.220	35.200	2
"	560	16.356	1				1.185	33.246	1	1.390	36.296	
"		16.466	1				1.680	35.676	1	2.750	39.570	1
"		16.606	1				2.000	37.796	1			
"		16.756	1				3.100	40.160	1			
"		16.936	1				4.800	41.880	1			
"		20.146	1				8.300	45.948	1			
"		20.336	1									
"		20.576	1									
"		20.845	1									
"		21.166	1									

Shaft Horse Power at each turbine H.P. 2000 ✓ L.P. 2000 ✓

Revolutions per minute, at full power, of each Turbine Shaft 7,000 ✓

for Shaft diameter at journals H.P. 5 ✓ L.P. 7" ✓

Pitch Circle Diameter 1st pinion 9.200 ✓ 2nd pinion 13.041 ✓

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 10 1/4 ✓ 2nd pinion 20 1/8 ✓

Exible Pinion Shafts, diameter 1st 4 1/2 ✓ 2nd 7 ✓

Pinion Shafts, diameter at bearings 1st 8" ✓ 2nd 7" ✓

Generator Shaft, diameter at bearings 20" ✓

Propelling Motor Shaft, diameter at bearings 20" ✓

Intermediate Shafts, diameter as per rule 14.15 ✓ as fitted 14.50 ✓

Thrust Shaft, diameter at collars as per rule 10" ✓ as fitted 10" ✓

Tube Shaft, diameter as per rule 8" ✓ as fitted 8" ✓

Bronze Liners, thickness in way of bushes as per rule 1.50 ✓ as fitted 1.50 ✓

Shaft, diameter as per rule 15.65 ✓ as fitted 12.75 ✓

Is the tube screw shaft fitted with a continuous liner YES

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 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 YES

If two liners are fitted, is the shaft lapped or protected between the liners YES

Is an approved Oil Gland other appliance fitted at the after end of the tube shaft YES

Length of Bearing in Stern Bush next to and supporting propeller 7.5" ✓

Propeller, diameter 18' 0" Pitch 16.8' No. of Blades 4 State whether Moreable NO Total Developed Surface 118 square feet.

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine YES

Can the H.P. or L.P. Turbine exhaust direct to the bilge YES

No. and size of Turbines fitted with astern wheels ONE Feed Pumps No. and size TWO 40K12 31 TON/HR ONE VERT 22.3 TON/HR

How driven STEAM TURBINE STEAM U.S.A. 1016

How driven MOTOR

How driven STEAM U.S.A. 12' 8 1/2" x 12" 50.1 TON/HR MOTOR

How driven TWO 10' 8 1/2" x 10" 27.5 GPM

Lubricating Oil Pumps, including Spare Pump, No. and size TWO 50.1 TON/HR STEAM

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 2-3" 1-4" E.R. 3-2" 1-12" COFFERDAMS

Holds, etc. 2-4" AFTER PAIR ROOM 2-4" 2-2 1/2" FORE PAIR ROOM

Main Water Circulating Pump Direct Bilge Suctions, No. and size ONE 12" Independent Power Pump Direct Suctions to the Engine Room

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 VALVES

Are the Overboard Discharges above or below the deep water line YES

Are the Blow Off Cocks fitted with a spigot and brass covering plate YES

How are they protected EXTRA HEAVY GALVANIZED PIPE

Have they been tested as per rule PIPE TUNNEL

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 from one compartment to another YES

Is the Shaft Tunnel watertight YES

Is it fitted with a watertight door YES



BOILERS, &c.—(Letter for record ) Total Heating Surface of Boilers 3413 Safe max boiler = 6826 0212  
Is Forced Draft fitted YES No. and Description of Boilers Two Single Drum Boilers 2 WTB Working Pressure 500  
Is a Report on Main Boilers now forwarded? YES  
Is { a Donkey } Boiler fitted? NO If so, is a report now forwarded?  
Plans. Are approved plans forwarded herewith for Shafting Aug. 31-1940 Main Boilers Jan 14 1941 Auxiliary Boilers Donkey Boilers  
(If not state date of approval)  
Superheaters Jan 14-1941 General Pumping Arrangements Dec 11 1940 Oil Fuel Burning Arrangements Mar. 15 1941  
Spare Gear. State the articles supplied:— As per Rule

The foregoing is a correct description,

Bethlehem Steel Company, Shipbuilding Division  
Fore River Yard, Quincy, Mass. L. J. Chenevix-Tanguay General Manager.

Dates of Survey while building { During progress of work in shops -- } See PAIR REPORT NO 8026  
{ During erection on board vessel -- } JULY 8-17-23 AUG 9-15-23-25-27-29-30 SEPT 2-3-4-5-7-8-11-12-13-18  
Total No. of visits 21  
Dates of Examination of principal parts—Casings 24 FEB Rotors 16 APRIL Blading 16 APRIL Gearing 16 APRIL  
Wheel shaft 16 APRIL Thrust shaft — Intermediate shafts 17 JULY Tube shaft — Screw shaft 17 JULY  
Propeller 23 JULY Stern tube 21 JULY Engine and boiler seatings 8 SEPT. Engine holding down bolts 8 SEPT  
Completion of pumping arrangements 8 SEPT Boilers fired 9 SEPT Engines tried under steam 12 SEPT.  
Main boiler safety valves adjusted SEPT 11-12 Thickness of adjusting washers  
Rotor shaft, Material and tensile strength OH STEEL 102500-123500-100000 188 Identification Mark 3484 40  
Flexible Pinion Shaft, Material and tensile strength Identification Mark  
Pinion shaft, Material and tensile strength OH STEEL 107500-105000 Identification Mark 6608-6615 400  
1st Reduction Wheel Shaft, Material and tensile strength OH STEEL 81000 Identification Mark 4149 400  
Wheel shaft, Material OH STEEL Identification Mark 4151 400 Thrust shaft, Material — Identification Mark —  
Intermediate shafts, Material OH STEEL Identification Marks 9304 400 Tube shaft, Material — Identification Marks —  
Screw shaft, Material OH STEEL Identification Marks 9160 400 Steam Pipes, Material OH STEEL Test pressure 1000 lb.  
Date of test SEPT 8-1941 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 TANKER 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 "SMITHAIR OPALINE"

General Remarks (State quality of workmanship, opinions as to class, &c. THE MACHINERY OF THIS VESSEL, BUILT UNDER THE SPECIAL SURVEY OF THE SURVEYOR AT PHILADELPHIA (SEE TURNED PAIR REPORT NO 8026) HAS NOW BEEN FILLED ABOARD IN ACCORDANCE WITH THE RULES AND APPROVED PLANS AND REPAIRS TRIED UNDER FULL WORKING CONDITIONS WITH GOOD RESULTS. THE MATERIALS AND WORKMANSHIP ARE GOOD AND IN MY OPINION THE MACHINERY OF THIS VESSEL IS ELIGIBLE TO BE CLASSED WITH THE RECORD OF LMC 9-41 AND NOTATION 2 WTB (SAT) 500 LBS.

Amount of Entry Fee Chgd at Phila.:  
Bal. Special ... \$399.25  
Boiler Fee ... £  
Expenses (if any) £  
When applied for, Dec 31 1941  
When received, 19

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK DEC 30 1941

Assigned LMC-9, 41



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