

# REPORT ON STEAM TURBINE MACHINERY. No. 8182

pt. 4a.

Date of writing Report 27 Dec 41 When handed in at Local Office 29 Dec 41 Port of Philadelphia Pa  
 No. in Survey held at Trenton NJ Date, First Survey 9 July 41 Last Survey 29 Nov 1941  
 Reg. Book. "Sheldon Clark" (Number of Visits 4)  
 Boilers — on the "Sheldon Clark" Tons } Gross  
 Net  
 Built at Jore River Mass By whom built Bethlehem Steel Co Yard No. 1493 When built  
 Engines made at Trenton NJ By whom made De Laval Steam Turbine Co Engine No. 230916 When made 1941  
 Boilers made at \_\_\_\_\_ By whom made \_\_\_\_\_ Boiler No. \_\_\_\_\_ When made \_\_\_\_\_  
 Shaft Horse Power at Full Power 6000 Owners Smclair Refining Co Port belonging to \_\_\_\_\_  
 Nom. Horse Power as per Rule 1335 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 De Laval 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  
 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 LADING.	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	660	26.310	1				1.280	40.816	1	1.040	42.776	1
2nd "	580	20.906	1				1.870	43.286	1	1.980	44.216	1
3rd "	645	21.036	1				2.000	45.946	1	5.000	48.540	1
4th "	725	21.196	1				2.670	48.916	1			
5th "	800	21.346	1				3.980	51.580	1			
6th "	900	21.146	1				6.180	54.510	1			
7th "	645	21.636	1				9.930	59.160	1			
8th "	770	24.886	1									
9th "	930	25.206	1									
10th "	1.140	25.626	1									
11th "	1.385	26.116	1									

Shaft Horse Power at each turbine { H.P. 3000 } H.P. 5265 1st reduction wheel 734.3  
 { I.P. \_\_\_\_\_ } I.P. \_\_\_\_\_ main shaft 92  
 { L.P. 3000 } L.P. 3390  
 Motor Shaft diameter at journals { H.P. 5" } Pitch Circle Diameter { 1st pinion 4.600 IP 1st reduction wheel 67.400" } Width of Face { 1st reduction wheel 13 3/4"  
 { I.P. \_\_\_\_\_ } { 2nd pinion 16.073" main wheel 128.283" } { main wheel 24 3/4"  
 { L.P. 8" } { 1st pinion 10 3/8" 1st reduction wheel 13 3/4"  
 { 2nd pinion 23 1/4" main wheel 26 3/4"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 5" } 1st reduction wheel 13 3/4"  
 { 2nd pinion 11" } main wheel 26 3/4"  
 Flexible Pinion Shafts, diameter { 1st \_\_\_\_\_ } Pinion Shafts, diameter at bearings External 1st \_\_\_\_\_ 2nd \_\_\_\_\_ diameter at bottom of pinion teeth { 1st 9.118" HP  
 { 2nd \_\_\_\_\_ } Internal 1st \_\_\_\_\_ 2nd \_\_\_\_\_ { 2nd 15.311" LP  
 Wheel Shafts, diameter at bearings { 1st 8" } diameter at wheel shroud, { 1st 11" } Generator Shaft, diameter at bearings \_\_\_\_\_  
 { main 18" } { main 23" } Propelling Motor Shaft, diameter at bearings \_\_\_\_\_

Intermediate Shafts, diameter as per rule \_\_\_\_\_ Thrust Shaft, diameter at collars as per rule \_\_\_\_\_  
 as fitted \_\_\_\_\_ as fitted 11 1/4" in 2nd gear for 1st of main wheel  
 Tube Shaft, diameter as per rule \_\_\_\_\_ Screw Shaft, diameter as per rule \_\_\_\_\_ Is the { tube } shaft fitted with a continuous liner { screw }  
 as fitted \_\_\_\_\_ as fitted \_\_\_\_\_

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 1 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 \_\_\_\_\_  
 That pipes pass through the bunkers \_\_\_\_\_ How are they protected \_\_\_\_\_  
 That 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?

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

Superheaters General Pumping Arrangements Oil Fuel Burning Arrangements

Has the spare gear required by the Rules been supplied Yes. SPARE GEAR.

State the principal additional spare gear supplied 3 Spare pinions. Report attached.

The foregoing is a correct description,

DE LAVAL STEAM TURBINE Co. J. Phillips Contract Division

Dates of Survey while building July 9. Aug 20. Sept 22. Oct 9. Nov 19. 21. 29. 1941

Dates of Examination of principal parts Casings 21 Nov Rotors 21 Nov Blading 21 Nov Gearing 29 Nov

Wheel shaft 29 Nov Thrust shaft 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 shaft, Material and tensile strength OH Steel 110500, 111000, 110000 lbs. Identification Mark 3538 GD

Pinion Shaft, Material and tensile strength OH Steel 86500, 125000 lbs. Identification Mark 7336 JKH-4505

Pinion shaft, Material and tensile strength OH Steel HP. 116500 LP 114000 lbs. Identification Mark 444948 7378 JKH

1st Reduction Wheel Shaft, Material and tensile strength OH Steel HP 86000 LP 85500 Identification Mark 9371 JFM 9372

Wheel shaft, Material OH Steel Identification Mark 4422 WTR 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

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. Hull 1492

General Remarks (State quality of workmanship, opinions as to class, &c.) This installation has been built under special survey and in accordance with the approved plans. The workmanship & materials are good. The unit has been shipped to Fox River, Mass. When the installation has been properly fitted on board, tried out under full power, and to satisfaction of the Societies' surveyors, it will in my opinion be eligible to receive the record of +LMC with date.

Table with columns for Fee Type, Amount, and Date. Includes entries for Entry Fee (\$30), Special (\$222), Donkey Boiler Fee (£), and Travelling Expenses (£30).

W. R. Punham Engineer Surveyor to Lloyd's Register of Shipping.

NEW YORK APR 8 1942

Committee's Minute Assigned See N.Y.K. RPT. NO. 42277

