

# REPORT ON STEAM TURBINE MACHINERY.

No. 8100

Received at London Office 25 APR 1942

pt. 4a.

Date of writing Report 12 Aug 41 When handed in at Local Office 13 Aug 41 Port of Philadelphia  
No. in Survey held at Henton NJ Date, First Survey 18 March Last Survey 11 July 1941  
Reg. Book. Hull 1491 "Sinclair H.C." (Number of Visits 8)

Built at Fore River Mass. By whom built Bethlehem Steel Co Yard No. 1491 Tons Gross  
Engines made at Henton NJ By whom made De Laval Steam Turbine Co Engine No. 230910 When built  
Boilers made at By whom made Boiler No. When made  
Shaft Horse Power at Full Power 4000 Owners Sinclair Refining Co Port belonging to  
Nom. Horse Power as per Rule 905 898 Is Refrigerating Machinery fitted for cargo purposes NO Is Electric Light fitted Ys  
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 Direct Current Generator rated Kilowatts Volts at revolutions per minute;  
supplying power for driving Propelling Motors, Type

Divided Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE	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	1.600	22.800	1				1.020	31.476	1	1.720	31.200	1
2ND	1.560	16.316	1				1.185	33.246	1	1.390	36.296	1
3RD	1.615	16.466	1				1.680	35.676	1	3.750	39.570	1
4TH	1.685	16.606	1				2.000	37.796	1			
5TH	1.760	16.756	1				3.100	40.160	1			
6TH	1.845	16.926	1				4.800	41.880	1			
7TH	1.605	20.146	1				8.300	45.948	1			
8TH	1.700	20.336	1									
9TH	1.820	20.576	1									
10TH	1.915	20.846	1									
11TH	1.115	21.166	1									

Shaft Horse Power at each turbine H.P. 2000 I.P. 7,000 HP L.P. 2000  
Motor Shaft diameter at journals H.P. 3" I.P. 7" L.P. 7"  
Pitch Circle Diameter 1st pinion 9.200 LP 1st reduction wheel 48.200" main wheel 124.947"  
2nd pinion 13.041" main wheel 124.947"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 10 1/4" 1st reduction wheel 12 1/8"  
2nd pinion 20 1/8" main wheel 21 7/8"  
Pinion Shafts, diameter at bearings External 1st 4 1/2" 2nd 9" diameter at bottom of pinion teeth 1st 8.784 HP 2nd 12.279"  
Internal 1st 8" 2nd 7"

Wheel Shafts, diameter at bearings 1st 6 1/2" 2nd 16" diameter at wheel shroud, 1st 8" 2nd 20"  
Generator Shaft, diameter at bearings  
Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule Thrust Shaft, diameter at collars as per rule Tube Shaft, diameter as per rule  
as fitted

Propeller Shaft, diameter as per rule Is the tube screw shaft fitted with a continuous liner Bronze Liners, thickness in way of bushes as per rule  
as fitted

Thickness between bushes as per rule Is the after end of the liner made watertight in the propeller boss If the liner is in more than one length are the junctions  
as fitted

Sealed 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

Other appliance fitted at the after end of the tube shaft Length of Bearing in Stern Bush next to and supporting propeller  
Propeller, diameter Pitch No. of Blades State whether Movable Total Developed Surface square feet.

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

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

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

Holds, &c.

In Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room  
No. and size

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes  
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

All Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks  
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

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  
at pipes pass through the bunkers How are they protected

at pipes pass through the deep tanks Have they been tested as per rule

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  
apartment to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

England

015348-015354-0091



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?

Plans. Are approved plans forwarded herewith for Shafting  
(If not state date of approval)

Main Boilers

Auxiliary Boilers

Donkey Boilers

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

Spare Gear. State the articles supplied:—

As per rule.

The foregoing is a correct description,

De Laval Steam Turbine Engine

Dates of Survey while building  
{ During progress of work in shops - -  
{ During erection on board vessel - - -  
{ Total No. of visits

March 18 April 18 May 6 June 10 28 30 July 9 11 1941

Dates of Examination of principal parts—Casings

11 July

Rotors

11 July

Blading

11 July

Gearing

11 July

Wheel shaft

11 July

Thrust shaft

Intermediate shafts

Tube shaft

Screw shaft

Propeller

Stern tube

Engine and boiler seatings

Engine holding down bolts

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

HP. 103,000 108,500 105,000. OH Steel

Identification Mark 3491.GD

Flexible Pinion Shaft, Material and tensile strength

Pinion shaft, Material and tensile strength OH Steel HP 105,000 LP 105,000

Identification Mark 1600 1613 JBC

1st Reduction Wheel Shaft, Material and tensile strength OH Steel HP 77,000 LP 79,500

Identification Mark 412-4123 WNR

Wheel shaft, Material

OH Steel

Identification Mark 987 WNR

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

Is this machinery a duplicate of a previous case

yes

If so, state name of vessel 1490

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 Fore River Mass. When installation has been properly fitted on board, tried out under full power and to the satisfaction of the Societies' Surveyors, it will in my opinion be eligible to receive the Record of + LMC 7.41.

The amount of Entry Fee

\$ 30 00

Special

\$ 200 00

Donkey Boiler Fee

\$ 20 00

Travelling Expenses (if any)

\$ 20 00

When applied for,

14<sup>th</sup> Aug 1941

When received,

19

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

NEW YORK JAN 28 1942

Assigned

See N.Y.K. RPT. NO. 42056



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