

# REPORT ON STEAM TURBINE MACHINERY.

No. 3729

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4a.

Writing Report... 19... When handed in at Local Office... 19... Port of Seattle, Washington  
 Survey held at Seattle, Washington Date, First Survey Oct. 13, 1947 Last Survey February 20th 1948  
 Book on the Steel Tank Steamer "MINERVE" (ex "Donner Lake") (Number of Visits 26)  
 Gross Tons 10448  
 Net Tons 6301  
 at Portland, Oregon By whom built Kaiser Company, Inc. Yard No. P-66 When built 1944  
 Engines made at Lynn, Mass. By whom made General Electric Co. Engine No. 61798 When made 1944  
 Boilers made at St. Louis, Missouri By whom made Combustion Engineering Co. Boiler No. S#1-P#2 When made 1944  
 Horse Power at Full Power 6000 Owners Government of France Port belonging to LeHavre (Contemplated)  
 Horse Power as per Rule 1324 HN=1486 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 Use for which Vessel is intended Petroleum in Bulk

## STEAM TURBINE ENGINES, &c.—Description of Engines One Curtis Impulse 10 Stage Turbine

of Turbines One Ahead One Direct coupled, single reduction geared } to X propelling shafts. No. of primary pinions to each set of reduction gearing X  
~~Two~~ X } double reduction geared  
 coupled to Alternating Current Generator 3 phase 60-62 periods per second } rated 5400 Kilowatts 2370 Volts at 3715 revolutions per minute;  
~~Direct Current Generator~~  
 applying power for driving One Propelling Motor X Type 3-Phase 62-Cycle, 80 Pole, Revolving Field, Salient Pole, Synchronous  
6000BHP Kilowatts 2300 Volts at 90 revolutions per minute. Direct coupled, single or double reduction geared to Single propelling shaft X

TURBINE STAGING	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	7/8"	34"	2									
"	1"	34"	1									
"	1-1/4"	34-3/8	1									
"	1-5/8	35-1/4	1									
"	7/8	42 1/2	1									
"	1-3/8	43 1/2	1									
"	2-1/8	45 1/2	1									
"	2-1/2	47"	1									
"	5-1/2	49 1/2	1									
"	9"	56"	1									

Horse Power at each turbine H.P. - I.P. - L.P. - Revolutions per minute, at full power, of each Turbine Shaft H.P. 3715 I.P. - L.P. - 1st reduction wheel - main shaft 90

Shaft diameter at journals H.P. 5" and 10" I.P. - L.P. - Pitch Circle Diameter 1st pinion - 2nd pinion - 1st reduction wheel - main wheel - Width of Face 1st reduction wheel - main wheel -

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion - 2nd pinion - 1st reduction wheel - main wheel -

Pinion diameter 1st - 2nd - Pinion Shafts, diameter at bearings External 1st - Internal 2nd - 1st - 2nd - diameter at bottom of pinion teeth 1st - 2nd -

Shafts, diameter at bearings main - diameter at wheel shaft Generator Shaft, diameter at bearings 10" Propelling Motor Shaft, diameter at bearings 18 1/2" (17 1/2" comp.)

Intermediate Shafts, diameter as per rule 16 1/2" as fitted 16-7/8" Thrust Shaft, diameter at collars as per rule 17.325 as fitted 18" (17 1/2" comp.) Tube Shaft, diameter as per rule - as fitted -

Shaft, diameter as per rule 18-1/8" as fitted 18-5/8" Is the screw shaft fitted with a continuous liner Yes Bronze Liners, thickness in way of bushes as per rule .85 as fitted 1-1/8"

Space between bushes as per rule .65 as fitted 1" 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 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 material insoluble in water and non-corrosive X If two liners are fitted, is the shaft lapped or protected between the liners X Is an approved Oil Gland appliance fitted at the after end of the tube shaft Yes Length of Bearing in Stern Bush next to and supporting propeller 7'-3"

Blade diameter 19'-6" Pitch 17.6 No. of Blades 4 State whether Moveable No Total Developed Surface 138.3 square feet. The Screw, are arrangements made so that steam can be led direct to the L.P. Turbine One Turbine only Can the H.P. or I.P. Turbine exhaust direct to the sea X No. of Turbines fitted with astern wheels None Feed Pumps No. and size 2-Centrifugal, 200" G.P.M. 1 Simplex 10"x7"x2" How driven Steam Turbine Steam

connected to the Main Bilge Line No. and size 2 Bilge @ 175 G.P.M. 1 General Service 450 G.P.M. How driven Electric Motor Electric Motor

Pumps, No. and size One @ 10x7x10 Duplex Lubricating Oil Pumps, including Spare Pump, No. and size 2 electric driven Rotex 60 G.P.M. independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge No. and size:—In Engine and Boiler Room 10 @ 3"- (2 @ 4")

Boatswains Stores 2-1" Ejectors, Chain Locker 2" Ejector, Ford Pump Rm. One 10x7"x10" Steam Duplex Bilge Pump. 2-1/2" Suction P & S Dry Stores, 2-1/2" P&S Pump Rm. Water Circulating Pump Direct Bilge Suctions, No. and size 1 - 18" Diam. Independent Power Pump Direct Suctions to the Engine Room No. and size 2 - 4" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes Yes

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 Sea Connections fitted direct on the skin of the ship Chests & Spool Pieces they fitted with Valves or Cocks Valves

fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Overboard Discharges above or below the deep water line below 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 No Pipes pass through the bunkers None How are they protected X

Pipes pass through the deep tanks None Have they been tested as per rule X Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes 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 Yes Is it fitted with a watertight door Yes worked from Main Deck Level

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 11354 sq.ft.

Is Forced Draft fitted Yes No. and Description of Boilers 2 Combustion Engineering W.T. Single PASS. STRAIGHT TUBE. Working Pressure 500 lbs. ps

Is a Report on Main Boilers now forwarded? Yes

Is { a Donkey } Boiler fitted? No If so, is a report now forwarded? X  
{ an Auxiliary }

Plans. Are approved plans forwarded herewith for Shafting Yes Main Boiler None available Auxiliary Boilers X Donkey Boilers X  
(If not state date of approval)

Superheaters X General Pumping Arrangements Yes Oil Fuel Burning Arrangements Yes

Spare Gear. State the articles supplied: Checked and found ample as per Rule Requirements

The foregoing is a correct description,

Manufacturers

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

Dates of Examination of principal parts—Casings \_\_\_\_\_ Rotors \_\_\_\_\_ Blading \_\_\_\_\_ Gearing \_\_\_\_\_

Wheel shaft \_\_\_\_\_ 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 \_\_\_\_\_ Identification Mark \_\_\_\_\_

Flexible Pinion Shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_

Pinion shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_

1st Reduction Wheel Shaft, Material and tensile strength \_\_\_\_\_ Identification Mark \_\_\_\_\_

Wheel shaft, Material \_\_\_\_\_ Identification Mark \_\_\_\_\_ 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 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 X If so, have the requirements of the Rules been complied with X

Is this machinery a duplicate of a previous case X If so, state name of vessel X

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel was constructed under the Special Survey and to the requirements of the American Bureau of Shipping and U. S. Coast Guard, and the materials and workmanship are considered satisfactory.

The scantlings and general arrangements have been checked as far as practicable and found to conform to available plans on board the vessel, copies of which are attached herewith.

For recommendations as to class, etc. please see Rpt. 9 attached.

The amount of Entry Fee	£	:	:	When applied for,
Special	£	:	:	19
Donkey Boiler Fee	SEE REPORT 9.	:	:	When received,
Travelling Expenses (if any)	£	:	:	19

*James F. Robertson*  
Engineer Surveyor to Lloyd's Register of Shipping.

NEW YORK APR 7 1948

Committee's Minute

Assigned LMC-2, 48.



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