

REPORT ON MACHINERY.

No. 2486

Received at London Office 3 SEP 1927

Writing Report 19 When handed in at Local Office 19 Port of Boston & Cleveland
 Survey held at LYNN & Lorain, Ohio Date, First Survey SEPT. 7 1926 Last Survey APRIL 26 1927
 Book. S/S "CARL D. BRADLEY" (Number of Visits 12)
 on the S/S "CARL D. BRADLEY" Tons Gross 8805 Net 6420
 Built at Lorain, Ohio By whom built Amer. S. B. Co. When built 1924-25
 Engines made at LYNN By whom made GENERAL ELECTRIC CO when made 1927
 Pumps made at Bayonne N.J. By whom made Babcock & Wilcox Co. when made 1924
 Registered Horse Power 985 Owners BRADLEY TRANSPORTATION CO. Port belonging to Rogers City
 Horse Power at Full Power 4200 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted YES

CURTIS TYPE STEAM TURBINE ELECTRIC
 BINE ENGINES, &c.—Description of Engines GENERATOR AC 60 CYCLE 2400 VOLTS No. of Turbines ONE
 Diameter of Rotor Shaft Journals, H.P. END 5" L.P. ✓ Diameter of Pinion Shaft ✓
 Diameter of Journals ✓ Distance between Centres of Bearings ✓ Diameter of Pitch Circle ✓
 Diameter of Wheel Shaft ✓ Distance between Centres of Bearings ✓ Diameter of Pitch Circle of Wheel ✓
 Diameter of Face ✓ Diameter of Thrust Shaft under Collars 14 1/2" 15 7/8" ✓ Diameter of Tunnel Shaft as per rule 13.2"
 Screw Shafts one Diameter of same as per rule 15.15" as fitted 16.0" Diameter of Propeller 16'-0 1/4" Pitch of Propeller 14'-3"
 Blades 4 State whether Moveable yes Total Surface 89" Diameter of Rotor Drum, H.P. ✓ L.P. ✓ Astern ✓
 Revs. per Minute at Full Power, Turbine 3600 Propeller 106"

DETAILS OF BLADING.

	H.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.
EXPANSION	58 1/2"	3'-3 1/8"	2						
"	1.9"	2'-4"	1						
"	2.1"	2'-4 3/8"	1						
"	2.6"	3'-0 7/8"	1						
"	3.0"	3'-1 5/8"	1						
"	3.8"	3'-6 1/4"	1						
"	5.4"	4'-0 1/2"	1						
"	9.5"	5'-0 7/8"	1						

and size of Feed pumps 1-100 H.P. Centri. Motor driven 1-75 H.P. Centri. turbine driven 1-10 1/2" x 18" A. Steam
 and size of Bilge pumps 1-20 H.P. rotary motor driven 1-20 H.P. Centri. motor driven
 and size of Bilge suction in Engine Room 1-7.5 H.P. rotary motor driven 1-5 H.P. rotary motor driven 50 H.P. Centri. motor driven
4" 1-4" & 1-6" after eng. room 1-6" fwd. eng. room Boiler Room
 In Holds, &c. Ford & after pumps - 4"

Bilge Injections none sizes ✓ Connected to condenser, or to circulating pump ✓ Is a separate Donkey Suction fitted in Engine Room & size 1-4"
 Are the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes
 Are the connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Valves
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates yes Are the Discharge Pipes above or below the deep water line above
 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 no
 Are the pipes carried through the bunkers Five windlass etc. How are they protected so fixed as to be free from damage
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes
 Is the Screw Shaft Tunnel watertight ✓ Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record S) Manufacturers of Steel see Report No. 27263. New York
 Heating Surface of Boilers 11000 Is Forced Draft fitted yes No. and Description of Boilers Two Babcock & Wilcox
 Working Pressure 325# Tested by hydraulic pressure to 650# Date of test 30 June 27 No. of Certificate 503 & 504
 Is each boiler worked separately yes Area of fire grate in each boiler 108" No. and Description of Safety Valves to ✓
 Boiler 2-3 1/4" Consolidated Area of each valve 8.295" Pressure to which they are adjusted 325# Are they fitted with easing gear yes
 Greatest distance between boilers or uptakes and bunkers or woodwork ✓ Mean dia. of boilers ✓ Length ✓ Material of shell plates ✓
 Thickness ✓ Range of tensile strength ✓ Are the shell plates welded or flanged ✓ Descrip. of riveting: cir. seams ✓
 Diameter of rivet holes in long. seams ✓ Pitch of rivets ✓ Lap of plates or width of butt straps ✓
 Mountings of strength of longitudinal joint ✓ Working pressure of shell by rules ✓ Size of manhole in shell ✓
 Description of compensating ring ✓ No. and Description of Furnaces in each Boiler ✓ Material ✓ Outside diameter ✓
 Thickness of plates ✓ Description of longitudinal joint ✓ No. of strengthening rings ✓
 Working pressure of furnace by the rules ✓ Combustion chamber plates: Material ✓ Thickness: Sides ✓ Back ✓ Top ✓ Bottom ✓
 If stays are fitted with nuts or riveted heads ✓ Working pressure by rules ✓ End plates in steam space ✓
 Diameter at smallest part ✓ Area supported by each stay ✓ Working pressure by rules ✓ Material of stays ✓
 Thickness ✓ Pitch of stays ✓ How are stays secured ✓ Working pressure by rules ✓ Material of Front plates at bottom ✓
 Area supported by each stay ✓ Working pressure by rules ✓ Material of tube plates ✓ Thickness: Front ✓ Back ✓ Mean pitch of stays ✓
 Material of Lower back plate ✓ Thickness ✓ Greatest pitch of stays ✓ Working pressure of plate by rules ✓
 Pitch of tubes ✓ Material of tube plates ✓ Thickness: Front ✓ Back ✓ Mean pitch of stays ✓
 Working pressures by rules ✓ Girders to Chamber tops: Material ✓ Depth and ✓
 Length as per rule ✓ Distance apart ✓ Number and pitch of stays in each ✓
 Steam dome: description of joint to shell ✓ % of strength of joint ✓ Diameter ✓
 Description of longitudinal joint ✓ Diameter of rivet holes ✓ Pitch of rivets ✓
 Crown plates: Thickness ✓ How stayed ✓



Lloyd's Register Foundation

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SUPERHEATER. Type BxW Date of Approval of Plan Nov. 19, 1926. Tested by Hydraulic Pressure to 650
Date of Test 30 June 1927. Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes
Diameter of Safety Valve 2" Pressure to which each is adjusted 325# for 100 in. Is Easing Gear fitted
(245# 14 in. Superheat) yes

IS A DONKEY BOILER FITTED? no If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:— Rotor for main generator. Two propeller
blades. Valves for ballast feed, & bilge pumps. Boilers two
scaps. etc.

The foregoing is a correct description.

General Electric Co. by R. S. Grube Manufacturer.
Turbine Engineering Dept.

Dates of Survey while building
During progress of work in shops -- Oct. 1-15, Dec 21-30, 1926. JAN 13-28, FEB 9-21, MAR 9-23, APR 12-26, 1927
During erection on board vessel -- 1927. March 31, April 2, 9, 11, 16, 20, 26, June 11, 12, 14, 18, 22, 25, 31
Total No. of visits 49. Is the approved plan of main boiler forwarded herewith ✓

Dates of Examination of principal parts—Casings 30-12-26, 28-1-27 Rotors 30-12-26, 26-4-27 Blading 21-2-26, 26-4-27 Gearing ✓
Rotor shaft 30-12-26, 26-4-27 Thrust shaft March 31-27 Tunnel shafts March 31-27 Screw shaft March 31-27 Propeller April
Stern tube March 31-27 Steam pipes tested 1927. Engine and boiler seatings March 31-27 Engines holding down bolts June
Completion of pumping arrangements July 5-27. Boilers fired June 3-27. Engines tried under steam July 6-
Main boiler safety valves adjusted July 5-27. Thickness of adjusting washers Lock nuts fitted, no washers
Material and tensile strength of Rotor shaft 0.4 STEEL 103,800 LBS PER SQ INCH. Identification Mark on Do. LLOYDS No 129-2
Material and tensile strength of Propeller shaft 0.4 STEEL 71,300 LBS PER SQ INCH. Identification Mark on Do. LLOYDS No 130-2
Motor shaft 0.4 Steel LLOYDS 729. 10-8-26. G.D. Identification Mark on Do. LLOYDS 1051
Material of Wheel shaft Identification Mark on Do. 0.4 Steel Identification Mark on Do. LLOYDS 1051
Material of Tunnel shafts 0.4 Steel Identification Marks on Do. LLOYDS 1051 G.D. Material of Screw shafts 0.4 Steel Identification Marks on Do. LLOYDS 1051
Material of Steam Pipes 0.4 Seamless steel Test pressure 995#
Is an installation fitted for burning oil fuel no Is the flash point of the oil to be used over 150°F. ✓
Have the requirements of Section 49 of the Rules been complied with ✓

Is this machinery a duplicate of a previous case no If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, etc. THE DIRECT CONNECTED TURBINE AND GENERATOR. HAVE

BUILT ACCORDING TO THE RULES AND APPROVED PLANS, TESTED UNDER STEAM, AND THE OIL GOVERNOR ADJUSTED TO TRIP AT 3

THE QUALITY OF WORKMANSHIP AND MATERIAL IS GOOD AND IN THE OPINION OF THE UNDERSIGNED ELIGIBLE TO HAVE

RECORD OF + LMC. WHEN FITTED IN THE VESSEL AND TESTED UNDER WORKING CONDITIONS

The above described machinery has been installed in accordance
with the Rules, & was found to be safe & efficient under working
conditions. The vessel is eligible in my opinion, for record of this motor has been installed in accordance with the
of + LMC. 7.27, in the Register Book, and "Turbo electric generator electrically coupled to screw shaft"

Installation of Turbo Electric
Machinery & Accessories
The amount of Entry Fee \$ 450.00 When applied for, 19 Aug 1927
Inspection of Castings 40.00
Special 40.00
Donkey Boiler Fee £ When received, 5-10-27
Travelling Expenses (if any) \$ 490.00

Committee's Minute NEW YORK AUG 21 1927

Assigned + LMC. 7.27

Note "Turbo electric generator
electrically coupled to screw shaft."
F.D.

CERTIFICATE WRITTEN

4^A NEW YORK Continuation of Report No. 17585 dated 13 May '27. on the

AMERICAN SHIP BUILDING COMPANY'S HULL NO. 797.

S. S. "CARL D. BRADLEY"

Turbo Electric Machinery

Main Motor.

Main Motor for this vessel is of the three (3) phase induction type with wound rotor. It has 68
and will therefore make about 106 R.P.M. at full speed. The Horse Power is 4200 at 106 R.P.M.
The shaft diameter is 14 1/2" as approved.
Speed can be regulated by altering the speed of the turbine and in addition five changes of speed
provided by resistances which can be switched in across the phases of the motor.
Motor has been built at Schenectady in accordance with the Rules and approved plans and the work-
ship and material are good. It has been satisfactorily tested for insulation, and also at full
load (but not at full load) and has been shipped to Cleveland to be fitted on board the vessel.
This has been done to the satisfaction of the Surveyor and the machinery has been satisfactorily
tested at full power, it will be eligible, in my opinion, to receive the notation +L.M.C. (with date)
Turbo electric generator electrically coupled to Screw Shaft."

John S. Heck.

Surveyor to Lloyd's Register of Shipping.

The foregoing is a correct description.

General Electric Company

By: R. S. Grube

Fee \$ 700

(New York \$575 B.S. Murphy ret \$125)

Expenses 107

New York

Applied for 16 May 1927

10

Boston

Paid - 4 June 1927

"The above described machinery has been installed in accordance with the
Rules, & was found to be safe & efficient under working conditions. The vessel is eligible,
in my opinion, for record of + LMC. 4.27, in the
Register Book, and "Turbo electric generator electrically
coupled to screw shaft."

G. Drummond.
Surveyor to R.R.



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