

...machinery fitted for cargo purposes. Chd

Is Electric Light fitted yes

TURBINE N° 4106

GEAR No

2886 Shafting 1075-

TURBINE ENGINES. &c.—Description of Engines Dou

Journals (1st Red) 3 at 5.49"
(2nd) } 4 at 11.49"
Wheel shaft 11"

Wheel shaft $11''$ } 4 at 10.4
 Faces { 1st Red } 2 at 7½
 { 2nd " } 2 at 10

Width of Face $2^{12.5}$ 2 " 18.

No. of Screw Shafts One

Distance between Centers of Bearings { 1st Red.) 392
" " { 2nd " 392

Dia. of Shaft under collars (Wheel shaft)
 17 Kingsbury Thrust at
 Fore end of wheel shaft

Diameter of Thrust Shaft under collars

Diameter of Thrust Shaft under Couplers

Diameter of cam: as per rule ~~11.28~~ 12.01

Dia of Pinion Shaft (1st Red) 5.49 (2nd Red) 11.49
 Bearings (1st Red) 203

2nd } 39² Dia of Pitch Circle (1st Pinion) 8.5" (34 Teeth)
 35² }
 67² }
 Wheel Shaft }
 Kingsbury Thrust at }
 End of Wheel Shaft }

21.	Diameter of Tunnel Shaft	as per rule.....	10 5 1
		as ft. - 1	10 : 5 6 3

Diameter of Propeller 15' 0" ✓

REPORT ON MACHINERY.

17517
No. 3299
1919

Date of writing Report 1919 When handed in at Local Office 10 Port of Philadelphia, Pa.
No. in Survey held at Essington, Pa. & Newark, N.J. Date, First Survey 2nd October 1918. Last Survey 1919
Reg. Book. on the S.S. Buffalo Bridge (Number of Visits)
Master Built at Newark, N.J. By whom built Submarine Boat Corp. When built 1919.
Engines made at Essington, Pa. By whom made Westinghouse Electric & Mfg. Co. when made 1919.
Boilers made at Bayonne, N.J. By whom made Babcock & Wilcox, Sta. when made 1918.
Registered Horse Power 386 Owners U.S. Shipping Board Emergency Fleet Corp. Port belonging to Newark, N.J.
Shaft Horse Power at Full Power 1500. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted yes

TURBINE No. 4106 GEAR No. 2886 Shafting 1075
TURBINE ENGINES, &c.—Description of Engines Double reduction geared turbine No. of Turbines One.
Diameter of Rotor Shaft Journals, H.P. 4 1/2. I.P. ✓ Diameter of Pinion Shaft 1 3/4 BORE 3 1/4 2nd 8 BORE 4 3/4
Diameter of Journals 1 3/4 2nd 2 1/4 1 1/2 Distance between Centres of Bearings 18 1/2 2nd 3-4 1/2 Diameter of Pitch Circle 2nd 9.238 (28 TEETH)
Diameter of Wheel Shaft 11" Distance between Centres of Bearings 6-9 1/2 Diameter of Pitch Circle of Wheel 2nd 29.83 (155 TEETH)
Width of Face 2 2nd 2 1/2 18 Diameter of Thrust Shaft under Collars END OF MAIN SHAFT. Diameter of Tunnel Shaft as per rule 10.53
No. of Screw Shafts One CL Diameter of same as per rule 11.28 12.01 as fitted 11.88 3. Diameter of Propeller 15' 0" Pitch of Propeller 12' 9"
No. of Blades 4 State whether Moveable no Total Surface 62.18 # Diameter of Rotor Drum, H.P. 21 I.P. 1/2 (M.P. 1/2 Eastern) 29 1/2
Thickness at Bottom of Groove, H.P. 1 1/2 L.P. ✓ Astern 1 1/2 Revs. per Minute at Full Power, Turbine 3360 Propeller 90
IMPULSE BLADING DATA

ARTICULARS OF BLADING.

H.P.

I.P. AHEAD

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.
ST EXPANSION	3 1/2	22 1/2	3	DRUM DIA	1 1/2 ROTATING	30 1/4	30 3/8		
ND	1	23	3	"	2 nd " "	29 1/2			
ED	1 1/2	24	3	MAX TIP	1 1/2 " "	32 1/8	39		
TE	2	25	3	"	2 nd " "	33 1/8			
TH	2 1/2	30	2	WIDTH BLADE	1 1/2 " "	1 1/2			
TE	3	32	2	"	2 nd " "	1 1/2			
TH	4	34	1	MEAN DIA. TASS TWO BLADE	32 1/2	1 1/2			
TH	6	38	2	NO OF ROTATING ROWS.	2	1			

and size of Feed pumps Two 9 1/2 x 6 x 10 Westinghouse Air Brake
and size of Bilge pumps One 10 x 6 x 10 Westinghouse duplex also Ballast & Transfer pump.
and size of Bilge suction in Engine Room One 5" Independent Suction (Port side) One 3" (Starboard side)
in Fire room Two in hold No 3. One in hold No 4 One in Tunnel well all 3"
of Bilge Injections. One sizes 10" Connected to condenser, or to circulating pump Cir. pump Is a separate Donkey Suction fitted in Engine Room & size 6"
all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes
all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks valves
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
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 yes
if pipes are carried through the bunks none How are they protected
all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes
the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges yes Nonreturn Valves fitted
Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Engine grating (Deck level)

TERS, &c.—(Letter for record) Manufacturers of Steel
Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers
Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate
each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to
oilier Area of each valve Pressure to which they are adjusted Are they fitted with rising gear
1st distance between boilers or uptakes and bunks or woodwork Mean dia. of boilers Length Material of shell plates
less Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cr. seams
Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps
stages of strength of longitudinal joint rivets Working pressure of shell by rules Size of manhole in shell
plates
compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter
of plain part top crown bottom Description of longitudinal joint No. of strengthening rings
bottom
pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom
stays to ditto: Sides Back If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space
of stays 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
at smallest part Area supported by each stay Working pressure by rules Greatest pitch of stays Working pressure of plate by rules
Material of Lower back plate Thickness
of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays
less wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and
of girder at centre Length as per rule Distance apart Number and pitch of stays in each
pressure by rules Steam dome: description of joint to shell % of strength of joint Diameter
of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets
pressure of shell by rules Crown plates: Thickness How stayed

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Foundation

SUPERHEATER. Type Two Tubular 580 sq ft - Heating Surface Date of Approval of Plan _____ Tested by Hydraulic Pressure to 400 lb
 Date of Test 17 June 1919 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes
 Diameter of Safety Valve 1" Pressure to which each is adjusted 210 lbs Is Easing Gear fitted _____

IS A DONKEY BOILER FITTED? No If so, is a report now forwarded? _____

SPARE GEAR. State the articles supplied: Complete list of spares according to rules. Two slides & nuts for each size of pin bearings, first & second pinions of gear, which are set of main and turbine coupling bolts 5/16" of gear & turbine casing bolts. Two thermometers for oil circulating system, complete set of bearing bushes for first & second pinions and gear shaft complete, half set of gland segments and springs for rotor shaft, set of pads for one face king-bush thrust for set of liners for ditto, set of valves and springs for pump as follows: Bilge Ballast Feed and lubricating oil; Bucket & rod for lubricating oil pump; one set of springs for main & aux condensers and Boiler safety valve springs, quantity of assorted studs, nuts & bolts; Bars & plates of iron; In sets of fittings, three 4" tube nipples for down take, seven 4" ditto for mud drum, ten 2" boiler tubes, 1/2" & 3/4" tube plugs, two storm-joint springs, one plate & gasket for same, 4" Expander with three straight taper rolls and mandrel, taps for 3/4" & 1/2" tapered studs.

The foregoing is a correct description.

Westinghouse Electric & Mfg Co. - Eastington, Pa. Manufacturer.

B. C. Gardner, Eng. & Marine Dept. for Robert M. Baughman, Representative

Dates of Survey while building { During progress of work in shops - Oct 29, 11, 15, 17, 24, 31, Nov 4, 8, 21, 25, Dec 5, 13, 30, Jan 6, 13, 16, 21, 24, 28, Feb 3, 6, 10, 14, 24, 26, Mar 3, 13, 19 = 30.
 During erection on board vessel - 14, 17, 19, 22, 24, 28, 30 Aug 13, 14, Sep 13, Oct 2
 Total No. of visits _____

Is the approved plan of main boiler forwarded herewith _____

Dates of Examination of principal parts - Casings _____

Rotors _____

Blading _____

Gearing _____

Rotor shaft _____

Thrust shaft _____

Tunnel shafts _____

Screw shaft _____

Propeller _____

Stern tube 28 July 1919

Steam pipes tested 14 Aug 1919

Engine and boiler seatings 28 July 1919

Engines holding down bolts 13 Sept 1919

Completion of pumping arrangements 10 Sept 1919

Boilers fired 4 June 1919

Engines tried under steam 13 Sept 1919

Main boiler safety valves adjusted 25 Sept 1919

Thickness of adjusting washers Port & Starboard (1 1/2" 1 1/4") Main & Bipls (7/8" 3/4")

Material and tensile strength of Rotor shaft Cast Steel 60000 min

DRIVING CHROME NICKEL STEEL 110000 min

Identification Mark on Do. Y 104

Material and tensile strength of Pinion shaft 55% U.S. CARBON 85000

Identification Mark on Do. _____

Material of Wheel shaft INGOT STEEL

Identification Mark on Do. Y 104

Material of Thrust shaft INGOT STEEL

Identification Mark on Do. _____

Material of Tunnel shafts INGOT STEEL

Identification Marks on Do. _____

Material of Screw shafts INGOT STEEL

Identification Marks on Do. _____

Material of Steam Pipes Steel

Test pressure 600 lbs

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 Section 49 of the Rules been complied with yes

Is this machinery a duplicate of a previous case yes If so, state name of vessel "Agawam"

General Remarks (State quality of workmanship, opinions as to class, etc.) The Turbine and gears have been built under special survey in accordance with the approved plans. The workmanship is good. The material have been tested by the Surveyors to the American Bureau of Shipping in accordance with New York letter dated 23/11/14. The machinery has been shipped to Newark, to be fitted aboard the vessel.

The Tail shaft fitted with a continuous liner. The machinery has been fitted aboard the S. S. Buffalo Bridge under special survey in a satisfactory manner. In my opinion is worthy of the class + L.M.C 10-19. Fitted for Oil Fuel 10-19. F.P. above 150°F

The amount of Entry Fee ... £ _____

Special ... £ \$250.00

Donkey Boiler Fee ... £ _____

Travelling Expenses (if any) £ _____

Credit Phila & Fee. _____

When applied for,

When received,

Committee's Minute _____

Assigned _____

+ L.M.C. 10.19 Subject

MACHINERY CERTIFICATE
 ISSUED 3.11.19



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