

REPORT ON MACHINERY.

No. 3740

Received at London Office

THU. AUG. 12 1920

Date of writing Report 19 When handed in at Local Office 19 Port of Philadelphia, Pa.
No. in Survey held at Esington, Pa. Date, First Survey Last Survey 11 June 1920
Reg. Book. on the S.S. Suboteco (Number of Visits) Gross 3548
Net 2174

Master Built at Newark, N.J. By whom built Submarine Boat Corp. When built 1920
Engines made at Esington, Pa. By whom made Westinghouse & M.C. when made 1920
Boilers made at Bayonne, N.J. By whom made Babcock & Wilcox Co. when made 1919
Registered Horse Power 386 Owners Submarine Boat Corp. Port belonging to Newark, U.S.A.
Shaft Horse Power at Full Power 1500 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

TURBINE No. 4142. Gear No. 72 Shafting No. (1122 HB)
TURBINE ENGINES, &c.—Description of Engines Double reduction geared turbines No. of Turbines 2

Diameter of Rotor Shaft Journals, H.P. 4 1/2 L.P. ✓ Diameter of Pinion Shaft 1st Red 5.49 (2nd Red 11.49)
Diameter of Journals (2nd Red 3 at 5.49) Distance between Centres of Bearings (2nd Red 39 7/8) Diameter of Pitch Circle 1st Red 58.3 (2nd Red 12.4)
Diameter of Wheel Shaft 11" Distance between Centres of Bearings Diameter of Pitch Circle of Wheel 1st Red 53 (2nd Red 12.4)
Width of Face (1st Red 2 at 7 1/2) Diameter of Thrust Shaft under Collars (1st Red 12.05 CL see over) Diameter of Tunnel Shaft as per rule 10.23
No. of Screw Shafts 6 Diameter of same as fitted 11.28 Diameter of Propeller 15' 0" Pitch of Propeller 12' 9"
No. of Blades 4 State whether Moveable yes Total Surface 62.18 Diameter of Rotor Drum, H.P. 24 L.P. 29 7/8
Thickness at Bottom of Groove, H.P. 1 1/2 L.P. ✓ Astern Solid Revs. per Minute at Full Power, Turbine 3360 Propeller 90.

PARTICULARS OF BLADING.

	H.P. REACTION.			L.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.
1ST EXPANSION	3/4	22 1/2	3	DRUM DIA 1st ROTATING	30 1/4	30 7/8			
2ND	1	23	3	" 2nd "	29 1/2	✓			
3RD	1 1/2	24	3	MAX TIP " 1st "	22 7/8	29.			
4TH	2	25	3	" 2nd "	23 7/8	✓			
5TH	2	30	2	WIDTH BLADE 1st "	1 7/8	1 1/2			
6TH	3	32	2	" 2nd "	1	✓			
7TH	4	34	1	MEAN DIA PASS THRO BLADE	32	35			
8TH	6	38	2	NO OF ROTATING ROWS.	2	1			

No. and size of Feed pumps Two 9 1/2 x 6 x 10 Westinghouse air Brake
No. and size of Bilge pumps one 10 x 6 x 10 Worthington (Duplex) also Ballast & Transfer pump
No. and size of Bilge suction in Engine Room one 5" Independent suction (Port side) one 3" (Starboard side)
In Holds, &c. Three in hold No. 1 Two in hold No. 2 Two in deep tank
Two in five room Two in hold No. 3 One in hold No. 4 One in tunnel well all 3"
No. of Bilge Injections one sizes 10" Connected to condenser, or to circulating pump Gir. Pump Is a separate Donkey Suction fitted in Engine Room & size 5"
Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes
Are all 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 yes
What pipes are carried through the bunkers none How are they protected
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 non return valves fitted
Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from Eng. room (Deck Level)

Forecastle 35 BOILERS, &c.—(Letter for record S.) Manufacturers of Steel 2 W.T. B.

Total Heating Surface of Boilers 5800 Is Forced Draft fitted yes No. and Description of Boilers 2 W.T. B.
Working Pressure 200 Tested by hydraulic pressure to Date of test No. of Certificate
Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to
each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear
Smallest 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
long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps
Per centages of strength of longitudinal joint rivets Working pressure of shell by rules Size of manhole in shell
Size of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter
Length of plain part top Thickness of plates crown Description of longitudinal joint No. of strengthening rings
bottom Thickness of plates bottom
Working pressure of furnace by the rules Combustion chamber plates: Material 2 per Thickness: Sides Back Top Bottom
Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space
Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules Material of stays
Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of Front plates at bottom
Diameter at smallest part Area supported by each stay Working pressure by rules Working pressure of plate by rules
Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules
Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays
Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and
thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each
Working pressure by rules Steam dyme: description of joint to shell 0% of strength of joint Diameter
Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets
Working pressure of shell by rules Crown plates: Thickness How stayed

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W652-0199

Two tubular 580 sq ft heating surface
SUPERHEATER. Type _____ Date of Approval of Plan _____ Tested by Hydraulic Pressure to 400 lbs
Date of Test 23rd Jan. 1920 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 _____ Is Easing Gear fitted no

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

SPARE GEAR. State the articles supplied: Two studs & nuts for each size of rotor bearing, first & second pinion frame & main gear wheel
one set of main & turbine coupling bolts, 5% of gear & turbine casing bolts, two thermometers for oil circulating system, complete set of bearing bushes
turbine rotor, first & second pinion & gear shaft complete, half set of gland segments & springs for rotor shaft, set of pads for one face of turbine thrust
for turbine, set of liners for ditto, set of valves & springs for pumps as follows. Bilge, Ballast, Feed & lubricating oil pumps. Bucket & rod for ditto
one relief valve spring for main & aux. Condenser and Boiler safety valve springs, quantity of assorted studs nuts & bolts. Bars & plate of
In set of hand hole fittings, three 4" tube nipples for down takes, seven 4" ditto for mud drums. Ten 4" Boiler tubes, two fusible plugs
Two atomizers & springs, ten spring plates & gaskets for same, one 4" expander with three straight & taper rolls & mandrel, taps for 3/4" & 1/2"
Taper studs

The foregoing is a correct description,

Westinghouse Electric Co. Manufacturer.
W. B. Flanders Eng. Marine Dept.
I.S.

1919 1920
Dates of Survey while building { During progress of work in shops - - Dec. 2, 5, 10, 11, 16, 30 Jan. 5, 7, 15, 19, 21, 27, 29 Feb. 2, 10, 17, 27, 30 March 4, 8, 12, 17 = 22 visits
During erection on board vessel - - 1920 Jan 6, 23 Mar 12, 13 Apr 4, 28 May 22, 25 Jun 1, 2, 5, 10, 11
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 25th May 1920 Screw shaft 5th April 1920 Propeller 5th April 1920
Stern tube 13th March 1920 Steam pipes tested 1st June 1920 Engine and boiler seatings 23rd Jan. 1920 Engines holding down bolts 9th June 1920
Completion of pumping arrangements 6th June 1920 Boilers fired January 1920 Engines tried under steam 9th June 1920
Main boiler safety valves adjusted 10th June 1920 Thickness of adjusting washers Port Boiler 1 3/16 33/32 Starboard Boiler 1 1/4 13/16
Material and tensile strength of Rotor shaft Cast steel 60000 lb min Identification Mark on Do. 4142
Material and tensile strength of Pinion shaft _____ Identification Mark on Do. _____
Material of Wheel shaft 6" steel Identification Mark on Do. _____ Material of Thrust shaft _____ Identification Mark on Do. _____
Material of Tunnel shafts 6" H steel Identification Marks on Do. 1128 A B Material of Screw shafts 6" H steel Identification Marks on Do. 1128
Material of Steam Pipes L.W. 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 Italia

General Remarks (State quality of workmanship, opinions as to class, &c.) The turbine has been built under special
survey in accordance with the approved plans. The materials and workmanship are good
The turbine has been shipped to Newark, N.J. to be fitted on board the vessel.
The tail shaft fitted with a continuous line, the machinery fitted aboard the S.S. Subacato under special
in a satisfactory manner. In my opinion is worthy of the class. + L.M.C. (7) 20 Fitted for oil fuel 6
F.P. above 150° F

THE RECORD + L.M.C. 6.20 F.D.

1 Geared Steam Turbine.

2 Watertube Boilers

Fitted for oil fuel 6.20 F.P. above 150° F.

Subject to the Water Tube Boilers.

being surveyed annually.

The amount of Entry Fee £ 100.00
Special £ 250.00

Donkey Boiler Fee £

Travelling Expenses (if any) £

Committee's Minute

Assigned

When applied for,

When received,

Engineer Surveyor to Lloyd's Register of Shipping.

MACHINERY DEPT

WRITTEN

12/8/20



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