

# REPORT ON MACHINERY.

No. 16606

17064

REC'D NEW YORK 21-1919.

Date of writing Report 19 When handed in at Local Office 19 Port of New York

No. in Survey held at Schmutzdy 7.7 Date, First Survey 11 Oct 18 Last Survey 10 July 1919

Reg. Book. on the Sin. Ser. Str. "CLAIRTON" (Number of Visits)

Master J. W. Irvine Built at Kearny, N. J. By whom built Federal S. B. Co.

Engines made at Schmutzdy 7.7 By whom made General Electric Co.

Boilers made at Kearny, N. J. By whom made Federal S. B. Co.

Registered Horse Power 619.2 Owners U. S. Shipping Board.

Shaft Horse Power at Full Power 2500 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

Tons Gross 6848 Net 4259

When built 1919-7

when made 1919

when made 1919-7

Port belonging to Kearny, N. J.

URBINE ENGINES, &c.—Description of Engines Liquid turbine gear 13569. No. of Turbines One

Diameter of Rotor Shaft Journals, H.P. 8" L.P. 3 3/4"

Diameter of Journals 4.5" Distance between Centres of Bearings 4.5" Diameter of Pitch Circle 4.5" 4.612

Diameter of Wheel Shaft 14" Distance between Centres of Bearings 4.5" 6.34" Diameter of Pitch Circle of Wheel 4.5" 11.402

Width of Face 20.44" Diameter of Thrust Shaft under Collars 13 3/4" Diameter of Tunnel Shaft as per rule 12.48" as fitted 13" 1"

No. of Screw Shafts One Diameter of same as per rule 13.34" as fitted 14.25" Diameter of Propeller 17'0" Pitch of Propeller 13'1"

FITTED WITH CONTINUOUS ONE PIECE LINER.

No. of Blades Four State whether Moveable No. Total Surface 77.140m Diameter of Rotor Drum, H.P. L.P. astern

Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine 3234 Propeller 90

ARTICULARS OF BLADING.

	ACTIVE H.P.			L.P.			ACTIVE ASTERN.		
	HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	PITCH DIAMETER AT TIP.	NO. OF ROWS.
ST EXPANSION	75-125	2' 11 1/2"	2				8125-1.5	3'-3"	2
ND	625	3'-9"	1				3.375	3'-3"	1
ED	125	3'-10 1/2"	1						
TH	2.5	4'-0"	1						
TH	6.0	4'-2"	1						
TH									
TH									

To. and size of Feed pumps Two. 10" x 7" x 24" Davidson type.

To. and size of Bilge pumps Three. 6" x 5 3/4" x 6" - 12" x 8 1/2" x 12" - 14" x 5 1/2" x 12"

To. and size of Bilge suction in Engine Room Three. 3 1/2". Tunnel well. One. 3"

In Holds, &c. No. 1. One. 3" No. 2. One. 3" No. 3. Two. 3" No. 4. Two. 3"

No. 5. Two. 3" Emergency Screw down, Non-return valves in Ford holds.

To. of Bilge Injections One sizes 10" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine Room & size Yes. 3 1/2"

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 Both.

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 Below

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

That pipes are carried through the bunkers 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

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Top platform

BOILERS, &c.—(Letter for record S.) Manufacturers of Steel Carnegie & Ilinois Steel Co.

Total Heating Surface of Boilers 8934" Is Forced Draft fitted Yes No. and Description of Boilers 3. S. E. Scotch Marine.

Working Pressure 210 lbs. per sq. in. Tested by hydraulic pressure to 315 lbs. per sq. in. Date of test 28.4.19 - 24.4.19 No. of Certificate 152-153-154.

Are all boilers worked separately Yes Area of fire grate in each boiler 1.549 61.80 sq. ft. No. and Description of Safety Valves to each boiler Two. 3 1/2" Crane Area of each valve 9.62 sq. ft. Pressure to which they are adjusted 210 lbs. per sq. in. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 14" Mean dia. of boilers 15'6" Length 11'6" Material of shell plates Steel

Thickness 1 1/4" Range of tensile strength 60/71680 lbs Are the shell plates welded or flanged Descrip. of riveting: cir. seams D. R. Lap.

g. seams J. R. D. B. S. Diameter of rivet holes in long. seams 1 5/8" Pitch of rivets 9 3/8" Lap of plates or width of butt straps 23 3/8"

Percentages of strength of longitudinal joint rivets 100.1 plates 82.6 Working pressure of shell by rules 237 lbs. per sq. in. Size of manhole in shell 23" x 19"

No. of compensating ring 38" x 34" x 1 1/4" No. and Description of Furnaces in each Boiler 3. Morison. Material Steel Outside diameter 49 5/16"

Length of plain part top bottom Thickness of plates crown bottom 2 1/32" Description of longitudinal joint Welded. No. of strengthening rings 600.

Working pressure of furnace by the rules 217 lbs. Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 1"

Pitch of stays to ditto: Sides 6 1/2" x 7" Back 6 1/2" x 7" Top 5" x 7" If stays are fitted with nuts or riveted heads Riveted heads Working pressure by rules 240 lbs.

Material of stays Steel Diameter at smallest part 1.26" Area supported by each stay 6 1/2" x 7" Working pressure by rules 221 lbs. End plates in steam space

Material Steel Thickness 13/16" Pitch of stays 17 1/2" x 16" How are stays secured Dbl. nuts Working pressure by rules 225 lbs. Material of stays Steel

Diameter at smallest part 3" Area supported by each stay 17 1/2" x 16" Working pressure by rules 227 lbs. Material of Front plates at bottom Steel.

Thickness 25/32" Material of Lower back plate Steel Thickness 11/16" x 5/8" Greatest pitch of stays 13" x 7" Working pressure of plate by rules 235 lbs.

Diameter of tubes 2 3/4" Pitch of tubes 3 3/4" x 4" Material of tube plates Steel Thickness: Front 25/32" Back 25/32" Mean pitch of stays 12" x 7 1/2"

Ch across wide water spaces 13" Working pressures by rules 230 lbs. per sq. in. Girders to Chamber tops: Material Steel Depth and

Thickness of girder at centre 10" x 13 1/2" Length as per rule 2'10" Distance apart 8" Number and pitch of stays in each Four. 7"

Working pressure by rules 262 lbs. Steam dome: description of joint to shell % 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



SUPERHEATER. Type *Milne* Date of Approval of Plan *26-12-17* Tested by Hydraulic Pressure to *630 lbs. per*  
Date of Test *Final 17-5-19* 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 *225 lbs. per sq. in.* Is Easing Gear fitted *Yes*

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

SPARE GEAR. State the articles supplied:— *Two studs & nuts for each Rotor Bearing. Two bolts & nuts Main Gear wheel  
Pinion bearings. Complete set of coupling bolts. 50% of bolts & nuts Gear & Turbine casing joints. 3  
Thermometers for oil circ. system. Set of bearing bushes each, Gear wheel, Pinion & Rotor shaft. 1/2 set of  
Labyrinth rings (Packing). Complete set of Pads for Kingsbury Thrust bearing. Set of Liners. Set of Feed,  
Bilge & Lub. oil pump valves. One lkt. & red oil pump. Escape valve springs for each size used. Spare  
Propeller (L.S.). Quantity of assorted bolts, nuts, studs, bars & plates of Iron & Steel. No. of Boiler & superheater  
condenser & oil cooler tubes. Two Bh. check valves.*

The foregoing is a correct description,

*General Electric Co.*

Manufacturer.

*The Federal Shipbuilding Co.,  
M.D. Smith, Ch. Engr.*

Dates of Survey while building { During progress of work in shops -- *Feb. 11, 19, 24, 28, March 14, 13, 31, April 1, 14.*  
During erection on board vessel -- *1918. Oct. 11, 1919. Jan. 2, 11, 14, 15, 16, 22, 24, 28, 30, May 4, 12, 15, 16, 17, 19, 21, 24, 26, 27, 28, June 3, 7, 9, 11, 14, 18, 25, 28, July 8, 9, 10*  
Total No. of visits *44* Is the approved plan of main boiler forwarded herewith *Retained for Reference.*

Dates of Examination of principal parts—Casings *11-2-19* Rotors *28-2-19* Blading *28-2-19* Gearing *1-4-19*  
Rotor shaft *11-2-19* Thrust shaft *16-4-19* Tunnel shafts *16-4-19* Screw shaft *16-4-19* Propeller *19-5-19*  
Stern tube *27-5-19* Steam pipes tested *28-6-19* Engine and boiler seatings *7-6-19* Engines holding down bolts *8-7-19*  
Completion of pumping arrangements *8-7-19* Boilers fixed *18-6-19* Engines tried under steam *8-7-19*  
Main boiler safety valves adjusted *9-7-19* Thickness of adjusting washers *Not used.*  
Material and tensile strength of Rotor shaft *Steel 80,000 lbs. 7" diameter* Identification Mark on Do. *T.G.D.*  
Material and tensile strength of Pinion shaft *" 85,000 " "* Identification Mark on Do. *T.G.D.*  
Material of Wheel shaft *Steel* Identification Mark on Do. *T.G.D.* Material of Thrust shaft *Steel* Identification Mark on Do. *C.F.M.*  
Material of Tunnel shafts *Steel* Identification Marks on Do. *C.F.M.* Material of Screw shafts *Steel* Identification Marks on Do. *(45) A.B.4*  
Material of Steam Pipes *Steel* Test pressure *630 lbs. per sq. in.*

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 *yes* If so, state name of vessel *S/S Liberty, N.Y. Report No. 15697*

General Remarks (State quality of workmanship, opinions as to class, etc.) *These engines have been constructed under Special Survey in accordance with the approved plans. The workmanship and materials are sound and good. The engines have been forwarded to the Federal Shipbuilding Co. to be fitted on board. These Boilers have been constructed under Special Survey in accordance with approved plans. The workmanship & materials are good & efficient. On completion the Boilers satisfactorily withstood a static test of 315 lbs. per sq. in. The whole of the machinery has now been efficiently placed on board & examined under working conditions & proved satisfactory. The case is submitted for the notation of L.M. (1919-7.) in the Register Book.*

The amount of Entry Fee ... *\$ 15 : 00* : When applied for, *17 July 1919*  
Special ... *\$ 254 : 75* :  
Donkey Boiler Fee ... *\$ :* : When received, *1/8/19*  
Travelling Expenses (if any) *\$ :* :

Committee's Minute

Assigned

*+ L.M.C. 7.19*

New York JUL 29 1919

MAINTENANCE CERTIFICATE  
21/8/19



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Foundation