

## REPORT ON MACHINERY.

No. 16386

Date of writing Report May 24<sup>th</sup> 1919 When handed in at Local Office

Port of New York N.Y.

No. in Survey held at Schenectady N.Y.

Date, First Survey 8 Oct

Last Survey

May 1919

on the Steamer "St. Lorain".

(Number of Visits)

Gross 6849  
Net 4268

Master A. B. Hunley Built at Kearny, N.J.

By whom built Federal S. B. Co.

When built 1919

Engines made at Schenectady N.Y.

By whom made General Electric Corp.

when made 1918

Boilers made at Kearny, N.J.

By whom made Federal S. B. Co.

when made 1919

Registered Horse Power 619.2

Owners U. S. Shipping Board

Port belonging to Kearny, N.J.

Shaft Horse Power at Full Power 2600

Is Refrigerating Machinery fitted for cargo purposes No.

Is Electric Light fitted Yes

## TUBINE ENGINES, &amp;c.—Description of Engines

Grand turbine gear 13540.

No. of Turbines One

Diameter of Rotor Shaft Journals, H.P.

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

Width of Face

Diameter of Thrust Shaft under Collars

No. of Screw Shafts

Diameter of same

as per rule

Diameter of Propeller

Pitch of Propeller

No. of Blades

State whether Moveable

Total Surface

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

Propeller

## PARTICULARS OF BLADING.

	ACTIVE H.P.			L.P.			ACTIVE 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	75-125	2'-15"	2				825-15	3'-3"	2
TD	625	3'-9"	1				3375	3'-9"	1
ED	125	3'-10"	1						
TH	2'-6"	4'-0"	1						
TH	6	4'-2"	1						
TH									
TH									
TH									

No. and size of Feed pumps

Two 10"x4"x24" Davidson type.

No. and size of Bilge pumps

Three 8"x5"x6" - 12"x8"x12" - 12"x10"x12".

No. and size of Bilge suction in Engine Room

Three 3 1/2" Tunnel well: one 3"

In Holds, &amp;c.

No. one 3". No. two 3". No. three 3". No. four 3".

No. of Bilge Injections

One sizes 10"

Connected to condenser, or to circulating pump

Are all the bilge suction pipes fitted with roses

Yes

Is a separate Donkey Suction fitted in Engine Room &amp; size

Yes 3 1/2"

Are all connections with the sea direct on the skin of the ship

Yes

Are the roses in Engine room always accessible

Yes

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

Are all pipes carried through the bunks

None

How are they protected

Yes

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, &amp;c.—(Letter for record)

S.

Manufacturers of Steel

Carnegie &amp; Illinoian Steel Co.

Total Heating Surface of Boilers

8934

Is Forced Draft fitted

Yes

No. and Description of Boilers

3 S.C. Scotch Marine

Working Pressure

210 lbs. per sq. in.

Tested by hydraulic pressure to

316 lbs. per sq. in.

Date of test

20-3-19 - 24-3-19

No. of Certificate 150-151-152

Is each boiler worked separately

Yes

Area of fire grate in each boiler

Oil fired

No. and Description of Safety Valves to

Is each boiler

Two 3 1/2" Crane

Area of each valve

9-62"

Pressure to which they are adjusted

210 lbs. per sq. in.

Are they fitted with easing gear

Yes

Greatest distance between boilers or uptakes and bunks 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

60,716,50 lbs. per sq. in.

Are the shell plates welded or flanged

Yes

Descrip. of riveting: cir. seams

D.R. Lap.

Seams

T.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

plates 82.6

Working pressure of shell by rules

237 lbs. per sq. in.

Size of manhole in shell

23"x19"

Is compensating ring

38"x34"x1 1/4"

No. and Description of Furnaces in each Boiler

3 Morrison

Material

Steel

Outside diameter

49 5/16"

Is plain part

top

bottom

Thickness of plates

2 1/8"

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"

Is stays to ditto: Sides

6 1/2"x7"

Back

6 1/2"x7"

Top

8"x7"

If stays are fitted with nuts or riveted heads

riveted heads

Material of stays

Steel

Diameter at smallest part

1-26"

Area supported by each stay

6 1/2"x7"

Working pressure by rules

221 lbs.

Thickness

1 3/16"

Pitch of stays

14 1/2"x16"

How are stays secured

Dbl. nuts

Working pressure by rules

225 lbs.

Diameter at smallest part

3"

Area supported by each stay

14 1/2"x16"

Working pressure by rules

227 lbs.

Material of Front plates at bottom

Steel

Thickness

25/32"

Material of Lower back plate

Steel

Thickness

1 1/16"x5/8"

Greatest pitch of stays

13"x7"

Working pressure of plate by rules

235 lbs.

Diameter of tubes

2 3/4"

Pitch of tubes

3 3/4"x4"

Material of tube plates

Steel

Thickness: Front

25/32"

Back

25/32"

Mean pitch of stays

12"x7 1/2"

Working pressures by rules

230 lbs.

Girders to Chamber tops: Material

Steel

Depth and

Distance apart

8"

Number and pitch of stays in each

4-7"

Working pressure by rules

262 lbs.

Steam dome: description of joint to shell

%

of strength of joint

Diameter

Pitch of rivets

Material

Description of longitudinal joint

Diameter of rivet holes

Pitch of rivets

Working pressure of shell by rules

Crown plates: Thickness

How stayed

Material

Description of longitudinal joint

Diameter of rivet holes

Pitch of rivets

Working pressure of shell by rules

Crown plates: Thickness

How stayed

Material

Description of longitudinal joint

Diameter of rivet holes

Pitch of rivets

Working pressure of shell by rules

Crown plates: Thickness

How stayed

Material

Description of longitudinal joint

Diameter of rivet holes

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Pitch of rivets

Working pressure of shell by rules

Crown plates: Thickness

How stayed

Material

Description of longitudinal joint

Diameter of rivet holes

Pitch of rivets



SUPERHEATER. Type *Milne* Date of Approval of Plan *26-12-17* Tested by Hydraulic Pressure to *630 lbs* Rpt.  
Date of Test *FINAL - 8-4-19* 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.* Is Easing Gear fitted *Yes*  
IS A DONKEY BOILER FITTED? *No.* If so, is a report now forwarded?

SPARE GEAR. State the articles supplied: *2 Studs & nuts each Rotor bearing. 2 Bolts & nuts main gear wheel bearing. 2 Bolts & nuts Pinion bearing. Complete set of coupling bolts. 1/20 number of bolts for gear & turbine casing joints. 2 Thermometers for oil circ. system. 1 Set of bearing for each gear wheel, Rotor & Pinion. Shaft. 1/2 set of Labrynth rings (packing). Complete set of pads for Kingsbury Thrust bearing. 1 set of liners. 1 set of Stud, Bilge & Lub oil pump valves. 1 Bolt & rod Lub. oil pump. Escape valve springs for each size used. Spare Propeller. Quantities of assorted Bolts, nuts, studs, bars & plates of Iron & steel, number of boiler tubes & heater coils. Complete set of frames & too for coal fuel.*  
The foregoing is a correct description,

*General Electric Co.*  
*per S. A. Berg.*

Manufacturer.

*The Federal Shipbuilding Co.,*  
*N. W. Smith, Ch. Engr.*

Dates of Survey while building  
During progress of work in shops - *1918. Feb. 28 Mar. 1, 7, 13, 19.*  
During erection on board vessel - *Apr. 21, Oct. 21, Nov. 6, 15, 24, 27, Dec. 21, 30, 1919, Feb. 3, 11, Mar. 3, 4, 5, 11, 12, 14, 19, 20, 26, 31, Apr. 3, 4, 7, 8, 10, 11, 14, 15, 16, 21, 30, May 7, 1920.*  
Total No. of visits *45*

Is the approved plan of main boiler forwarded herewith *Retained Reference*

Dates of Examination of principal parts - Casings *28-10-18* Rotors *7-11-18* Blading *4-11-18* Gearing *13-11-18*  
Rotor shaft *28-10-18* Thrust shaft *19-3-19* Tunnel shafts *19-3-19* Screw shaft *15-6-18* Propeller *3-2-19*  
Stern tube *3-2-19* Steam pipes tested *8-5-19* Engine and boiler seatings *5-3-19* Engines holding down bolts *13-5-19*  
Completion of pumping arrangements *20-5-19* Boilers fired *30-4-19* Engines tried under steam *20-5-19*  
Main boiler safety valves adjusted *21-5-19* Thickness of adjusting washers *Not used*  
Material and tensile strength of Rotor shaft *Steel 80,000 lbs. 1" minimum* 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. 92*  
Material of Tunnel shafts *Steel* Identification Marks on Do. *C.F.M. 92* Material of Screw shafts *Steel* Identification Marks on Do. *J.F. 1810*  
Material of Steam Pipes *Steel* Test pressure *630 lbs. per sq. in.*

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 *S/S Liberty Report 75694.*

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 material and workmanship are sound and good. The engines have been forwarded to New York N.Y. to be fitted on board. These boilers have been constructed under Special Survey in accordance with approved plans (12-18). The workmanship & materials are good & efficient. On completion the boilers satisfactorily withstood a hydrostatic test of 375 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 notation of L.M.C (5-1919) & fitted for fuel oil F.P. above 150°F. (5-1919) in the Register.*

The amount of Entry Fee ... *\$ 15.00*  
Special ... *\$ 254.75*  
Donkey Boiler Fee ... *£*  
Travelling Expenses (if any) *£*

When applied for,

*18 June 1919*

When received,

*3/7/19*

*H. Donald C. T. Macdonald*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *New York JUN 17 1919*

Assigned

*+ L.M.C. 5.19*

*Fitted for oil fuel 5.19*

*F.P. above 150°F.*

MACHINERY CERTIFICATE  
WRITTEN

*3/7/19*



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