

Rpt. 4.

## REPORT ON MACHINERY.

No. 540

Date of writing Report

Dec 6<sup>th</sup> 1917

When handed in at Local Office

Dec 6<sup>th</sup> 1917

Port of

Seattle Wash USA

No. in Survey held at

Seattle

Date, First Survey

August 3<sup>rd</sup>

Last Survey

October 22 1917

Reg. Book

FIRST ENTRY

on the Steel Screw Steamer

"INDIANA"

(Builders yard No. 9)

Tons

Gross 5742.6

Net 4409.1

Master J. M. Lane

Built at Seattle

By whom built

Skinner &amp; Eddy Corporation

When built

1917

Engines made at Schenectady NY

By whom made

General Electric Company

when made

1917

Boilers made at Seattle

By whom made

Commercial Order Works

when made

1917

Registered Horse Power 2500

Owners

US Shipping Board Emergency Fleet Corp

Port belonging to

Seattle

Nom. Horse Power as per Section 28

417

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

yes

ENGINES, &c.—Description of Engines *Curtis Turbine Double Reduction Gear* No. of Cylinders *1* No. of Cranks *—*

Dia. of Cylinders *—* Length of Stroke *—* Revs. per minute *90* Propeller *✓* Dia. of Screw shaft *13-8* as per rule *13-8* Material of *Steel* as fitted *14* screw shaft

Is the screw shaft fitted with a continuous liner the whole length of the stern tube *yes* Is the after end of the liner made water tight

in the propeller boss *yes* If the liner is in more than one length are the joints burned *yes* If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *—* If two liners are fitted, is the shaft lapped or protected between the liners *—* Length of stern bush *4-7"*

Dia. of Tunnel shaft *12-4* as per rule *12-4* Dia. of Crank shaft journals *12-4* as per rule *12-4* Dia. of Crank pin *—* Size of Crank webs *—* Dia. of thrust shaft under collars *13-4* Dia. of screw *16-5* Pitch of Screw *13-6"* No. of Blades *4* State whether moveable *yes* Total surface *80.5*

No. of Feed pumps *2* Diameter of ditto *8* Stroke *18* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *1* Duplex Diameter of ditto *5-3/4* Stroke *6* Can one be overhauled while the other is at work *—*

No. of Donkey Engines *1* Duplex Sizes of Pumps *12" x 8-1/2" x 12"* No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room *4-3-1/2* Boilers *4-3-1/2* In Holds, &c. *2-3-1/2 No. 1 Hold. 2-3-1/2 No. 2 Hold*

*4-3-1/2 No. 3 Hold. 1-3-1/2 Shaft tunnel*

No. of Bilge Injections *1* sizes *10* Connected to *—* circulating pump *yes* 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 the sluices on Engine room bulkheads always accessible *None*

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 *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*

What pipes are carried through the bunkers *Bridge Fresh Water Fire Sanitary Steam & Exhaust to deck Machinery* How are they protected *Wood Casings*

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 *Engine room platform in line of upper deck*

BOILERS, &c.—(Letter for record *New York (7)* Manufacturers of Steel *Lukens Steel Company*

Total Heating Surface of Boilers *8055* Is Forced Draft fitted *No* No. and Description of Boilers *3 Single ended Scotch Marine*

Working Pressure *210* Tested by hydraulic pressure to *315* Date of test *Sept. 20<sup>th</sup>* No. of Certificate *—*

Can each boiler be worked separately *yes* Area of fire grate in each boiler *65* No. and Description of Safety Valves to each boiler *2 Ashton* Area of each valve *7-6* Pressure to which they are adjusted *210* Are they fitted with easing gear *yes*

Smallest distance between boilers or uptakes and bunkers *12* Mean dia. of boilers *14-10-1/2* Length *11-0* Material of shell plates *Steel*

Thickness *1-1/2* Range of tensile strength *28 to 32 Tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *Double* long. seams *Triple* Diameter of rivet holes in long. seams *1-7/16* Pitch of rivets *10"* Lap of plates or width of butt straps *22-3/8* Upper Back End *12" x 16"*

Per centages of strength of longitudinal joint *95* Working pressure of shell by rules *228* Size of manhole in shell *12" x 16"*

Size of compensating ring *Flanged* No. and Description of Furnaces in each boiler *3 Morrison* Material *Steel* Outside diameter *48-7/8*

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

Working pressure of furnace by the rules *222* Combustion chamber plates: Material *Steel* Thickness: Sides *1/16* Back *1/16* Top *4/16* Bottom *5/16*

Pitch of stays to ditto: Sides *7" x 8"* Back *7-1/4" x 7-1/4"* Top *7" x 8"* If stays are fitted with nuts or riveted heads *1-1/2* Working pressure by rules *214*

Material of stays *Ward* Area at smallest part *1-3/4* Area supported by each stay *56-25* Working pressure by rules *225* End plates in steam space: Material *Steel* Thickness *1-1/4* Pitch of stays *16-3/8 x 1-1/2* How are stays secured *Double Nuts* Working pressure by rules *243* Material of stays *Steel*

Area at smallest part *8-29* Area supported by each stay *286-5* Working pressure by rules *300* Material of Front plates at bottom *Steel*

Thickness *1-3/16* Material of Lower back plate *Steel* Thickness *1-3/16* Greatest pitch of stays *12* Working pressure of plate by rules *350*

Diameter of tubes *3"* Pitch of tubes *4" x 4-1/2"* Material of tube plates *Steel* Thickness: Front *1-3/16* Back *1-3/16* Mean pitch of stays *8-1/2 x 12*

Pitch across wide water spaces *13* Working pressures by rules *268* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *11" x 1-1/2* Length as per rule *34* Distance apart *8* Number and pitch of stays in each *4-7* centers

Working pressure by rules *292* Steam dome: description of joint to shell *None* % of strength of joint *—*

Diameter *—* Thickness of shell plates *—* Material *—* Description of longitudinal joint *—* Diam. of rivet holes *—*

Pitch of rivets *—* Working pressure of shell by rules *—* Crown plates *—* Thickness *—* How stayed *—*

SUPERHEATER. Type *Foster* Date of Approval of Plan *—* Tested by Hydraulic Pressure to *630 lbs*

Date of Test *Buffalo NY. 29<sup>th</sup> July 1917* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *yes*

iameter of Safety Valves *1-1/2* Pressure to which each is adjusted *211 lbs* Is Easing Gear fitted *yes*



IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

TURBINE SPARES

- 1 High speed pinion with shaft and coupling ✓  
1 Complete set labyrinth packing rings for turbine heads and diaphragms. ✓  
1 Lubricating oil pump complete ready for immediate use.

- 1 Tail shaft <sup>LLOYD'S 17-001-17</sup> ✓  
1 Set (8) Coupling bolts ✓  
40 Condenser tubes ✓  
A quantity of bolts, nuts and iron of various sizes.

ELECTRIC SPARES

- 1 Armature ✓  
1 Field coil ✓  
2 Set brushes ✓  
1 Set brush holders ✓  
1 " Main bearings ✓  
1 " Crank pin bushes ✓  
1 Piston ✓  
1 Set wrist pin braces ✓  
1 " Piston rings ✓  
1 Piston rod and nut ✓  
1 Piston valve ✓  
1 Valve stem with nut ✓  
1 Governor spring ✓

The foregoing is a correct description,

Skinner + Eddy Corporation,  
by C. M. McCallum Ch. Engr. Manufacturer.

Dates of Survey while building { During progress of work in shops -- August 3-9-16-23. Sept 5-11-14  
During erection on board vessel -- Sept 5-14-15-20-25-27. Oct. 2-5-11-15-17-18-20-22  
Total No. of visits 21

Is the approved plan of main boiler forwarded herewith Copy

" " " donkey " " "

Dates of Examination of principal parts—Cylinders — Slides — Covers — Pistons — Rods —  
Connecting rods — Crank shaft — Thrust shaft Sept 11 Tunnel shafts Sept 11 Screw shaft Sept 5 Propeller Sept 11  
Stern tube Sept 5-14 Steam pipes tested Oct 18 Engine and boiler seatings Sept 14 Engines holding down bolts Oct 17  
Completion of pumping arrangements Oct 18 Boilers fixed Oct 2 Engines tried under steam Oct 20  
Completion of fitting sea connections Sept 5-14 Stern tube Sept 5-14 Screw shaft and propeller Sept 5-11  
Main boiler safety valves adjusted Oct 22 Thickness of adjusting washers S. 578-.561 C. 554-.472 P. 556-.589  
Material of Crank shaft — Identification Mark on Do. — Material of Thrust shaft Steel Identification Mark on Do. <sup>LLOYD'S 332 WC 27-6-17</sup>  
Material of Tunnel shafts Steel Identification Marks on Do. <sup>1012 WS 24-7-17 45-34 13-9-17</sup> Material of Screw shafts Steel Identification Marks on Do. <sup>LLOYD'S 117 RS 6-17 1001 17-7-17</sup>  
Material of Steam Pipes Steel ✓ Test pressure 630 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 duplicate of a previous case. Yes ✓ If so, state name of vessel "JEANNETTE SKINNER" - "LIEUTENANT DE MISSIE"

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Turbine and reduction gears inspected during Construction by a Surveyor to the Society. Shipped to this port and installed on board with all shafting, fittings, auxiliaries and connections under special survey in accordance with the approved plans.

The Boiler built with all mountings and fittings and installed under special survey in accordance with the approved plans. The material and workmanship are both of good quality. The Machinery seen tried under steam and found satisfactory.

The Machinery and Boilers eligible in my opinion to have the record of + LMC 10.17 made in the Register Book, and fitted for oil fuel 10.17 F.P. above 150°F. in the case of this vessel.

MARKS	Turbine Case	Rotor Shaft	High speed gear shaft	High speed gear shaft	Pinion Shaft	Main Gear Shaft
LLOYD'S	519851	519851	519851	519851	519851	519851
8-15-17	1653519	1653519	1653519	1653519	1653519	1653519
T.G.D.	07983	07983	07983	07983	07983	07983
Pressures	53940	53940	53940	53940	53940	53940
400						
100						
15						

The amount of Entry Fee ... \$ 73 : 05 :  
Special ... \$ 204 : 25 :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) \$ 41 : 00 :  
When applied for, Dec 1st 1917  
When received, 19

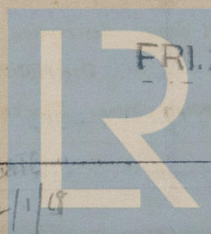
Committee's Minute

New York DEC 18 1917

Assigned

+ Lmc 10.17  
Fitted for oil fuel 10.17 F.P. above 150°F.  
Elec. light

James Fowler  
Engineer Surveyor to Lloyd's Register of Shipping.



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MACHINERY CERTIFICATE  
WRITTEN, 22/1/19