

## REPORT ON MACHINERY

No. 2906

Received at London Office

FRI. AUG. 20 1920

Date of writing Report June 18<sup>th</sup> 20 When handed in at Local Office

Port of Kobe

No. in Survey held at Osaka  
Reg. Book.Date, First Survey July 16<sup>th</sup> 1919 Last Survey June 14<sup>th</sup> 1920

on the Steel Single Screw Steamer "EASTERN LEADER"

(Number of Visits 36)

Gross 4074.02

Net 2444.39

Master Built at Osaka

By whom built Fujinagata Shipbuilding Yd

When built 1920

Engines made at Osaka

By whom made Fujinagata Shipbuilding Yd

when made 1920

Boilers made at do

By whom made do

when made 1920

Registered Horse Power

Owners U. S. Shipping Board Emergency Fleet Corp.

Nom. Horse Power as per Section 28 342

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted yes

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

Triple Expansion

No. of Cylinders Three No. of Cranks 3

Dia. of Cylinders 23" 38" 64"

Length of Stroke 48"

Revs. per minute 75

Dia. of Screw shaft as per rule 14.56

Material of steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no liner

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

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 tipped or protected between the liners

Length of stern bush 5'-1 3/8"

Dia. of Tunnel shaft as per rule 12.49

Dia. of Crank shaft journals as per rule 13.12

Dia. of Crank pin 14"

Size of Crank web 8 3/4 x 25 1/2

Dia. of thrust shaft under

collars 13 1/2"

Dia. of screw 16'-8"

Pitch of Screw 18'-0"

No. of Blades 4

State whether moveable yes

Total surface 87.1'

No. of Feed pumps Two

Diameter of ditto 4 1/2"

Stroke 24"

Can one be overhauled while the other is at work yes

No. of Bilge pumps Two

Diameter of ditto 4 1/2"

Stroke 24"

Can one be overhauled while the other is at work yes

No. of Donkey Engines 7

Sizes of Pumps Main feed 6" x 8" x 21" Two

Gen. serv. 4" x 7" x 6"

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 4 @ 3 1/2"

In Tunnel Well 1 @ 2 1/2"

In Holds, &amp;c. No. 1, 2, 3 + 4 two each @ 3 1/2"

No. of Bilge Injections 1

sizes 8"

Connected to circulating pump yes

Is a separate Donkey Suction fitted in Engine room &amp; 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

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 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

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 The Illinois Stl. Co. The Carnegie Steel Co.

Total Heating Surface of Boilers 4396.2'

Is Forced Draft fitted yes

No. and Description of Boilers Two Single Ended

Working Pressure 200 lbs.

Tested by hydraulic pressure to 400 lbs.

Date of test 26-Apr-20

No. of Certificate

Can each boiler be worked separately yes

Area of fire grate in each boiler 53.3'

No. and Description of Safety Valves to

each boiler 2 spring loaded

Area of each valve 8.296

Pressure to which they are adjusted 205 lbs.

Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 12"

Mean dia. of boilers 14'-0"

Length 11'-6"

Material of shell plates Steel

Thickness 1 5/16"

Range of tensile strength 28-32 tons

Are the shell plates welded or flanged no

Descrip. of riveting: cir. seams Double riveted

long. seams Double straps

Diameter of rivet holes in long. seams 1 3/8"

Pitch of rivets 9 1/2" + 4 3/4"

Lap of plates or width of butt straps 1'-8 1/2" x 1 1/2" (ex)

Per centages of strength of longitudinal joint rivets 88.5

plate 85.5

Working pressure of shell by rules 212 lbs.

Size of manhole in shell 12" x 16"

Size of compensating ring 2'-9" x 3'-1 1/2" x 1 1/2"

No. and Description of Furnaces in each boiler 3 Morrison's

Material Steel

Outside diameter 3'-4 5/8"

Length of plain part top

Thickness of plates crown 9/16"

Description of longitudinal joint Weld

No. of strengthening rings

Working pressure of furnace by the rules 219 lbs.

Combustion chamber plates: Material Steel

Thickness: Sides 3/4"

Back 3/4"

Top 3/4"

Bottom 1 1/2"

Pitch of stays to ditto: Sides 10 3/4" x 7 1/2"

Back 10 8/9" x 9"

Top 11 1/2" x 7"

If stays are fitted with nuts or riveted heads nuts

Working pressure by rules 211 lbs.

Material of stays Steel

Area at smallest part 2.07"

Area supported by each stay 90.625"

Working pressure by rules 205 lbs.

End plates in steam space:

Material Steel

Thickness 1 3/32"

Pitch of stays 18" x 20"

How are stays secured Double nuts

Working pressure by rules 214 lbs.

Material of stays Steel

Area at smallest part 7.669"

Area supported by each stay 362"

Working pressure by rules 220 lbs.

Material of Front plates at bottom Steel

Thickness 3 1/32"

Material of Lower back plate Steel

Thickness 3 1/32"

Greatest pitch of stays 19" x 11"

Working pressure of plate by rules 235 lbs.

Diameter of tubes 3 1/4"

Pitch of tubes 4 3/8" x 4 1/2"

Material of tube plates Steel

Thickness: Front 3 1/32"

Back 2 7/32"

Mean pitch of stays 10"

Pitch across wide water spaces 13 3/4"

Working pressures by rules 216 lbs.

Girders to Chamber tops: Material Steel

Depth and

thickness of girder at centre 10 1/2" x 1 3/4"

Length as per rule 30 29/32"

Distance apart 11 1/2"

Number and pitch of stays in each 3 @ 7"

Working pressure by rules 242 lbs.

Steam dome: description of joint to shell

% 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 Wheeler Heat

Date of Approval of Plan

Tested by Hydraulic Pressure to 650 lbs.

Date of Test 26-11-19. W. V. S.

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler yes

Diameter of Safety Valve 2"

Pressure to which each is adjusted 210 210 lbs.

Is Easing Gear fitted no



IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:-

2 Connecting Rod top end + 2 bottom end bolts + nuts 2 Main bearing bolts. 1 Set of Coupling bolts.  
1 Set feed + bilge pump valves. 1 Set of piston springs. 1 spare Crank section. 1 propeller shaft + nut.  
4 C.P. Propeller blades. 6 Propeller studs + nuts. 1 pair connecting rod braces. 1 pair crosshead braces.  
1 Air pump rod. 1 Circulating pump impeller shaft. 2 Valve spindles. 1 Set check valves.  
6 Junk ring bolts. 16 plain + stay boiler tubes. 36 condenser tubes + 72 ferrules.  
3 cylinder escape valves + springs. 2 Safety valve springs.

The foregoing is a correct description,

Fujinagata Zosensho

Manufacturer.

Dates of Survey while building  
During progress of work in shops - July 16, 30; Aug. 10, 22, 25, 30; Sept. 3, 23, 30; Oct. 30; Nov. 6, 29; Dec. 20; Jan. 20, 26, 29; Febr. 2, 7, 12, 16, 20; Mar. 16, 20, 23, 30.  
During erection on board vessel - Apr. 5, 7, 16, 26; May 3, 10, 18, 27; June 3, 9, 14.  
Total No. of visits 36.

Is the approved plan of main boiler forwarded herewith yes

" " " donkey " " "

Dates of Examination of principal parts - Cylinders 30/9/19, 20/12/19 etc. Slides 20/12/19 etc. Covers 20/12/19 etc. Pistons 30/10/19 etc. Rods 30/8/19 etc.  
Connecting rods 16/7/19 etc. Crank shaft 20/3/20 etc. Thrust shaft 20/3/20 etc. Tunnel shafts 12/2/20 etc. Screw shaft 12/2/20 etc. Propeller 16/3/20  
Stern tube 29/1/20 Steam pipes tested 27/5/20 Engine and boiler settings 16/4/20 Engines holding down bolts 28/5/20  
Completion of pumping arrangements 2/6/20 Boilers fixed 27/5/20 Engines tried under steam 9-6-20  
Completion of fitting sea connections 30-3-20 Stern tube 16-3-20 Screw shaft and propeller 30-3-20  
Main boiler safety valves adjusted 9-6-20 Thickness of adjusting washers Lock nuts.

Material of Crank shaft Steel Identification Mark on Do. Lloyd's 20-3-20  
Material of Thrust shaft Steel Identification Mark on Do. Lloyd's 20-3-20  
Material of Tunnel shafts Steel Identification Marks on Do. Lloyd's 13-3-20  
Material of Screw shafts Steel Identification Marks on Do. Lloyd's 13-3-20

Material of Steam Pipes Solid drawn Copper Test pressure 400 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 No If so, state name of vessel

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

The Shafting was forged + rough turned at the Ohshima Steel Works + finished at Fujinagata Shipyard.

The Engines + Boilers were built under Special Survey in accordance with the requirements of the Rules + the materials + workmanship have been found good.

This vessel is eligible in my opinion to the record L.M.C. 6-20.

submitted that this vessel is eligible for THE RECORD + L.M.C. 6.20 F.D. Fitted for Oil fuel 6.20 F.P. above 150°F.

The amount of Entry Fee Yen 30.- : When applied for, June 16<sup>th</sup> 1920  
Special ... £ 649.- :  
Donkey Boiler Fee ... £ : : When received, 20/7/20  
Travelling Expenses (if any) £ 12.2.- :  
Committee's Minute TUE AUG. 31 1920  
Assigned + L.M.C. 6.20 F.D. Fitted for oil fuel 6.20 F.P. above 150°F.

W. Lawson  
Engineer Surveyor to Lloyd's Register of Shipping.

Lloyd's Register Foundation