

REPORT ON MACHINERY

N.Y.K. No.

S.Fo. No. 2298.

Received at London Office

Date of writing Report

19

When handed in at Local Office

19

Port of

New York, San Francisco

Survey held at

Schenectady

Date, First Survey

27 July 1915

Last Survey

March 8th 1916

Log. Book.

on the Union Iron Works cos no 122

s/s "LA BREA"

(Number of Visits)

Gross 6945

Net 4257

When built 1916.

Description of Sater

T.A. Grant,

Built at San Francisco,

By whom built Union Iron Works Co.

Engines made at Schenectady

By whom made General Electric Company

when made 1915

Boilers made at San Francisco,

By whom made Union Iron Works Co.

when made 1915.

Registered Horse Power 2600.

Owners Union Oil Co. of California.

Port belonging to SAN FRANCISCO.

Horse Power as per Section 28

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

GINES, &c.—Description of Engines

Burtis Turbine, geared

No. of Cylinders

No. of Cranks

Dia. of Cylinders

Length of Stroke

Revs. per minute

3552 turkims

Dia. of Screw shaft

Material of

the screw shaft fitted with a continuous liner the whole length of the stern tube

707-2

as per rule

Material of

the propeller boss

90 propeller

Is the after end of the liner made water tight

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

boiler tubes are fitted, is the shaft lapped or protected between the liners

Length of stern bush

Dia. of Tunnel shaft

Dia. of Crank shaft journals

Dia. of Crank pin

Size of Crank webs

Dia. of thrust shaft under

Pitches

Dia. of screw

Pitch of Screw

No. of Blades

State whether moveable

Total surface

No. of Feed pumps

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Bilge pumps

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

No. of Donkey Engines

Sizes of Pumps

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

Engine Room

In Holds, &c.

No. of Bilge Injections

Connected to condenser, or to circulating pump

Is a separate Donkey Suction fitted in Engine room & size

Are all the bilge suction pipes fitted with roses

Are the roses in Engine room always accessible

Are the sluices on Engine room bulkheads always accessible

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

Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates

Are the Discharge Pipes above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel

Are the Blow Off Cocks fitted with a spigot and brass covering plate

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

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

Dates of examination of completion of fitting of Sea Connections

of Stern Tube

Screw shaft and Propeller

Is the Screw Shaft Tunnel watertight

Is it fitted with a watertight door

worked from

MILERS, &c.—(Letter for record)

Manufacturers of Steel

Total Heating Surface of Boilers

Is Forced Draft fitted

No. and Description of Boilers

Working Pressure

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

Percentage 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

Thickness of plates

crown

Description of longitudinal joint

No. of strengthening rings

Working pressure of furnace by the rules

Combustion chamber plates: Material

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

Material of stays

Diameter at smallest part

Area supported by each stay

Working pressure by rules

End plates in steam space:

Material

Thickness

Pitch of stays

How are stays secured

Working pressure by rules

Material of stays

Diameter at smallest part

Area supported by each stay

Working pressure by rules

Material of Front plates at bottom

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

Superheater or Steam chest; how connected to boiler

Can the superheater be shut off and the boiler worked

Separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

Pitches

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

Stiffened with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

Working pressure of end plates

Area of safety valves to superheater

Are they fitted with easing gear

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W982-0178

VERTICAL DONKEY BOILER—

Manufacturers of Steel

N.Y.K. No.

pt. 9a.

ort of

New York.

Continuation of Report No.

dated

on the

2

pinions which gear into the discs fitted to the slow speed shaft.

Shafting (High tensile steel)

Diameter of turbine shaft (25000) = 6" Rule 3.36"
do of flexible do (10000) = 5 5/8" do 3.2"
do of High Speed shaft (110000) = 6" with 4.125 hole do 5.67" with 4.125 hole
do of 2nd speed do (75000) = 6" do 5.61"
do of 2nd flexible do (100000) = 4.875" do 4.33"
do hollow do (90000) = 9" with 6" hole do (6.8 solid)
Low speed do 11" do (7.77 solid = fitted) do 13.4"

Bearings

Turbine shaft (head) 8" x 8"
do do (exhaust) 8" x 10"
High Speed shaft 6" x 8" (2).
2nd speed do 6" x 8" (2) (2)
do do do 9" x 14" (2) (2)
Low speed do 14" x 18" (2).

Centres of bearings from centres of gears

High speed shaft = 9 9/16"
2nd do do = 15 5/8"
Low do do = 17 5/8"

Gears

High speed pinion 6.5" pitch diameter.
do do discs 2'-8.667" do do.
Low speed pinion 10.15" do do.
do do wheel 6'-6.65" do do.

Size of bucket wheels

No 1 - 1st stage ahead 2'-9.75" outside diameter.
No 2 - 2nd do do 3'-7.375" do do
No 3 - 3rd do do 3'-8.25" do do
No 4 - 4th do do 3'-8.5" do do
No 5 - 5th do do 3'-7" do do
No 6 - 2nd do astern 2'-10.75" do do
No 7 - 1st do do 3'-1.1875" do do

Size of Buckets (height.)

No 1. - 2.469" 2.969" ahead
No 2. - 2.344" do
No 3. - 2.969" do
No 4. - 4.25" do
No 5. - 7.75" do
No 6. - 2.531" 3.219" astern
No 7. - 4.969"

No. Description
Made at By whom made When made Where fixed
Working pressure tested by hydraulic pressure to Date of test No. of Certificate Fire grate area Description of
Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment
If fitted with casing gear If steam from main boilers can enter the donkey boiler Dia. of donkey boiler Length
Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams
Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Rivets
Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays
Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint
Working pressure of furnace by rules Thickness of furnace crown plates Radius of do. Stayed by
Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,

Ed. Dickson for Manufacturer. General Electric Co.

Dates of Survey: During progress of work in shops -- July 27-28 - Aug. 17 - Sep. 28 - Nov. 5 - Dec. 8 - 17 - 1915
During erection on board vessel -- Aug. 4 - 1915 (Cleveland)
Total No. of visits

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts: Casing 8.17.00/15. " " " donkey " " "
Connecting rods ✓ Shafting 8.17.00/15. Thrust shaft ✓ Tunnel shafts ✓ Screw shaft ✓ Propeller ✓
Stern tube ✓ Steam pipes tested ✓ Engine and boiler seatings ✓ Engines holding down bolts ✓
Completion of pumping arrangements ✓ Boilers fixed ✓ Engines tried under steam ✓
Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓
Material of Shafting Steel Identification Mark on Do. Material of Thrust shaft Identification Mark on Do.
Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Marks on Do.
Material of Steam Pipes Test pressure

General Remarks (State quality of workmanship, opinions as to class, &c. This installation consists of a Curtis Turbine, having 5 stages ahead and 2 stage reverse, the turbine speed being reduced by 1 stage from 3552 revolutions per minute, to a speed of 90 revolutions at the propeller.

The turbine shaft is coupled to a straight shaft, which passes through a hollow shaft the inner and outer shafts being coupled together at one end. On the hollow shaft is the high speed pinion, gearing into the gear discs fitted to straight shafts, on either side of it. Both of these shafts are coupled to straight shafts which pass through hollow shafts, the inner and outer shafts being also coupled together. On these hollow shafts are fitted the low speed

The amount of Entry Fee .. £ : : When applied for, at 50b. Mar. 24. 19. 16
Special .. £ : :
Donkey Boiler Fee .. £ : :
Travelling Expenses (if any) N.Y.K. \$29.55
Rev. \$5.80 : : When received, .. 19..

Committee's Minute WED. 26 APR. 1916

Assigned See minute S. Geo. J. R. P. No 2298

FRI. 16 JUN. 1916

A. W. Murray
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

New York.

Continuation of Report No.

dated

on the

3.

the casings of the turbine have been tested under water pressure to N.P. casing 350 lbs Astern casing 100 lbs and Low pressure (exhaust) 30 lbs, per sq inch and all proved good and sound.

The materials and workmanship are both of good quality.

this turbine has now been shipped to San Francisco, to be fitted on board the vessel designated No 122 building by the Union Iron Works.

plans approved see Secy's letter 2nd September 1915.

C.W.H.