

REPORT ON MACHINERY.

Port of *Nagasaki*Received at London Office *APR 9 1903*in Survey held at *Nagasaki*
Book.Date, first Survey *2nd Jan'y 1902* Last Survey *3rd March 1903*

(Number of Visits)

on the

*Steel Screw Steamer "Aki Maru"*Tons { Gross *6443*
Net *3995*by *J. W. Ekstrand*Built at *Nagasaki*By whom built *Mitsu Bishi Dockyard & Eng. Works* When built *1903*

engines made at

*Nagasaki*By whom made *M. Mitsu Bishi Dockyard & Eng. Works* when made *1903*

engines made at

"

By whom made " " " " " when made *1903*

Registered Horse Power

*580*Owners *Mr. Nippon Yusen Kaisha*Port belonging to *Tokyo*

Horse Power as per Section 28

*580*Is Electric Light fitted *Yes.*

MACHINERY, &c.—Description of Engines

Twin Screws. Triple Expansion

No. of Cylinders

Six

Diameter of Cylinders

20" 33 1/2" 56"

Length of Stroke

48"

Revolutions per minute

85

Diameter of Screw shaft

as per rule *12.07*
as fitted *12 13/16"*

Diameter of Tunnel shaft

as per rule *10.9*
as fitted *12"*

Diameter of Crank shaft journals

12 1/2"

Diameter of Crank pin

12 1/2"

Size of Crank webs

8 1/2" x 19"

Diameter of screw

15" 0"

Pitch of screw

17" 3/8" 17" 0" P.

No. of blades

4

State whether moveable

Yes

Total surface

68.8" each set

of Feed pumps

4

Diameter of ditto

3 3/4"

Stroke

24"

Can one be overhauled while the other is at work

Yes

of Bilge pumps

4

Diameter of ditto

3 3/4"

Stroke

24"

Can one be overhauled while the other is at work

Yes

of Donkey Engines

Four

Sizes of Pumps

Ballast 9 1/8" x 12" x 10"
Wm. tank 10" x 8" x 2 1/2" Pump
8" Small Dapt. Pump

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

Engine Room

*Four 3 3/4" dia.*In Holds, &c. *Two 3 1/2" suction to each of Nos. 1, 2, 3 & 4 holds*

of bilge injections

2

sizes

6 3/4" 3 3/4"

Connected to condenser, or to circulating pump

circ. p.

Is a separate donkey suction fitted in Engine room & size

Yes 3 1/2"

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

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

Yes

Are they Valves or Cocks

larger valves smaller cocks

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

Forward bilge suction

How are they protected

Strong wooden casing

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

when were stern tube, propeller, screw shaft, and all connections examined in dry dock

Yes

Is the screw shaft tunnel watertight

Yes

is it fitted with a watertight door

*Yes*worked from *Upper Eng. Rm. platform*

BOILERS, &c.—

(Letter for record *3*)

Total Heating Surface of Boilers

10,000 sq ft

Is forced draft fitted

No

No. and Description of Boilers

Two Double & two single ended

Working Pressure

*200 lb*Tested by hydraulic pressure to *400 lb*

date of test

7-10-02

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

106 2/3 sq ft

No. and Description of safety valves to

each boiler

*Two direct spring**3 1/2" & 2 1/2"*

Area of each valve

10.2 & 5.4

Pressure to which they are adjusted

200 lb

Are they fitted

with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

Slown fat

Mean diameter of boilers

13" 9"

length

17" 0"

Material of shell plates

Steel

Thickness

1 1/32"

Description of riveting: circum. seams

Mid. Groe.

long. seams

*Double Straps**Sub. no.*

diameter of rivet holes in long. seams

1 1/16"

Pitch of rivets

9 7/8 outside rows

Lap of plates or width of butt straps

21 3/4"

percentages of strength of longitudinal joint

89.1

plate

85.0

Working pressure of shell by rules

220 lb

Size of manhole in shell

16" x 12"

size of compensating ring

2" 10" x 2" 6"

No. and Description of Furnaces in each boiler

*Six Morrison**type*

Material

Steel

Outside diameter

43 3/16"

length of plain part

top 1 1/32"
bottom 1 1/32"

Thickness of plates

19/32"

Description of longitudinal joint

Welded

No. of strengthening rings

Yes

Working pressure of furnace by the rules

218 lb

Combustion chamber plates: Material

Steel

Thickness: Sides

7/16"

Back

39/64"

Top

45/64"

Bottom

7/8"

Pitch of stays to ditto: Sides

9"

Back

8 7/8"

Top

9 7/8" x 8"

If stays are fitted with nuts or riveted heads

Nuts

Working pressure by rules

Material of stays

Steel

Diameter at smallest part

1 3/8" x 1 1/2"

Area supported by each stay

75" x 62"

Working pressure by rules

220

End plates in steam space:

Material

Steel

Thickness

1 23/32"

Pitch of stays

18 3/4" x 17 1/2"

How are stays secured

Strap nuts

Working pressure by rules

249

Material of stays

Steel

Diameter at smallest part

3"

Area supported by each stay

300"

Working pressure by rules

230

Material of Front plates at bottom

Steel

Thickness

29/32"

Material of Lower back plate

Steel

Thickness

1 1/16"

Greatest pitch of stays

As appd

Working pressure of plate by rules

200

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/16" x 4 3/8"

Material of tube plates

Steel

Thickness: Front

1 1/16"

Back

25/32"

Mean pitch of stays

9 1/16"

Pitch across wide water spaces

14"

Working pressures by rules

200 lb

Girders to Chamber tops: Material

Steel

Depth and

4" 8" DE

Thickness of girder at centre

7" 4 1/2" x 1" plate

Length as per rule

3' 0" DE

Distance apart

9 7/8" x 7"

Number and pitch of Stays in each

2" 9" DE

Working pressure by rules

200 lb

Superheater or Steam chest; how connected to boiler

Yes

Can the superheater be shut off and the boiler worked

Yes

separately

Diameter

Length

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet

holes

Pitch of rivets

Working pressure of shell by rules

Diameter of flue

Material of flue plates

Thickness

End plates: Thickness

How stayed

if stiffened with rings

Distance between rings

Working pressure by rules

End plates: Thickness

How stayed

Are they fitted with easing gear

Yes

Working pressure of end plates

Area of safety valves to superheater

Yes

Are they fitted with easing gear

Yes

Working pressure of end plates

Area of safety valves to superheater

Yes

Are they fitted with easing gear

Yes

Working pressure of end plates

Area of safety valves to superheater

Yes

Are they fitted with easing gear

Yes

Working pressure of end plates

Area of safety valves to superheater

Yes

DONKEY BOILER— Description *None.*

Made at _____ By whom made _____ When made _____ Where fixed _____
Working pressure _____ tested by hydraulic pressure to _____ No. of Certificate _____ Fire grate area _____ Description of safety valves _____
No. of safety valves _____ Area of each _____ Pressure to which they are adjusted _____ If fitted with easing gear _____ If steam from main boilers can
enter the donkey boiler _____ Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____
Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____
Lap of plating _____ Per centage of strength of joint _____ Rivets _____ 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 _____ Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____
Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— 1 Piston rod. Packing ring for each piston. 1/3 Crank shaft
2 Propeller shafts, & 4 blades. 2 brasses & 2 bolts & nuts for crank pins. 2 pr. Xhd brasses & 4 bolts & nuts.
Pair main bearing bushes & 2 bolts & nuts. 4 Xhd guide shoes. Pair ecc. shafts & rods. 2 S.V. spindles.
Quadrant block. Set coup. bolts. Set feed & bilge valves & seats. Sprung for safety & escape valves.
The foregoing is a correct description, Air pump valves. Boiler tubes. Condenser tubes.
1.1. Maruta For Gen. Manager Manufacturer. Fire bars. 2 Stern bushes. Bolts & nuts. Assorted iron etc.
Mitsui Bishi Docking Works

Dates { During progress of work in shops - - - 2nd Jan'y 1902 to October 1902
of Survey { During erection on board vessel - - - Oct 1902 to February 1903. Vessel leaves Nagasaki 3rd Mar 03
while building { Total No. of visits Continuous attendance

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

ENGINES—Length of stern bush 3' 9" Diameter of crank shaft journals as per rule 17 1/2" as fitted 12 1/2" Diameter of thrust shaft under collars 12"

BOILERS—Range of tensile strength 26-30 Are they welded or flanged No DONKEY BOILERS—No. Range of tensile strength

Is the approved plan of main boiler forwarded herewith Yes. Is the approved plan of donkey boiler forwarded herewith

The Machinery has been made & fitted under special survey & complies with the requirements of the Rules. The workmanship has been found good throughout. The machinery is a replicate of that fitted in the sister vessels "Kaga Maru" & "Iyo Maru".

The report on the Electric Lighting will be sent shortly.

The machinery is in my opinion eligible for the record & L.M.C. 303 (red) in the Register.

It is submitted that this vessel is eligible for THE RECORD. LMC 303. ELEC LIGHT.

Bal
9.4.03

9.4.03

The amount of Entry Fee. £ 3 : - : When applied for,
Special £ 73 : 10 : 2.3.03
Donkey Boiler Fee £ : : When received,
Travelling Expenses (if any) £ : : 3.3.03

Committee's Minute

WED. 15 APR 1903

Assigned

+ LMC 303

MACHINERY CERTIFICATE
WRITTEN.



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