

REPORT ON MACHINERY.

No. 1421

Received at London Office

THU. SEP. 16. 1913

Date of writing Report 30th Sept 1913 When handed in at Local Office

10 Port of Shanghai

in Survey held at Shanghai

Date, First Survey 26th Oct 1913

Last Survey 20th Sept 1913

g. Book.

(Number of Visits)

on the Steel screw Icebreaker "Tung-ling"

Gross 342.01

Net 101.86

When built 1913-9

Built at Shanghai

By whom built Kingnan Dock & Eng Works

When made 1913-9

Engines made at Shanghai

By whom made Kingnan Dock & Eng Works

when made 1913-9

Motors made at Glasgow

By whom made Lindsay Burnett & Co

when made 1913.

Registered Horse Power

Owners Hai Ho Boonweay Co. Ltd. Port belonging to Liechten

Horse Power as per Section 28 119

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted Yes

INDICES, &c.—Description of Engines Triple Surface Condensing No. of Cylinders 3 No. of Cranks 3

No. of Cylinders 12 1/2, 21, 36 Length of Stroke 24" Revs. per minute 135 Dia. of Screw shaft as per rule 7 1/2" Material of screw shaft as fitted 8" (Mild steel)

Screw shaft fitted with a continuous liner the whole length of the stern tube No liner fitted Is the after end of the liner made water tight

propeller boss — If the liner is in more than one length are the joints burned — If the liner does not fit tightly at the part

on the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive — If two

are fitted, is the shaft lapped or protected between the liners — Length of stern bush 2' 8 3/4"

Dia. of Tunnel shaft as per rule 6 5/8" Dia. of Crank shaft journals as per rule 6 9/16" Dia. of Crank pin 7 1/4" Size of Crank webs 13 1/2 x 5 1/2" Dia. of thrust shaft under

as fitted 6 3/4" as fitted 7 1/4" Dia. of screw 8 1/2" Pitch of Screw 10 1/2" No. of Blades 4 State whether moveable No Total surface 26 sq ft

of Feed pumps 3 aux Diameter of ditto 2 1/4" Stroke 10 1/2" Can one be overhauled while the other is at work Yes (Kept pumps for main engines)

of Bilge pumps 2 Diameter of ditto 2 1/4" Stroke 10 1/2" Can one be overhauled while the other is at work Yes

of Donkey Engines Seven Sizes of Pumps 5 x 3 x 4 1/2" No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room One each port & starboard 2" In Holds, &c. One 2"

Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes 2"

Are 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 connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves

Are they fitted 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

Are the pipes carried through the bunkers ballast & forehold bilge How are they protected wood 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

Date of examination of completion of fitting of Sea Connections 16th May of Stern Tube 16th May. Screw shaft and Propeller 20th May

Screw Shaft Tunnel watertight not tunnel Is it fitted with a watertight door — worked from —

INDICES, &c.—(Letter for record) Manufacturers of Steel

Heating Surface of Boilers 2454 Is Forced Draft fitted No No. and Description of Boilers 2 Scotch Return tubular

Working Pressure 195 lbs. Tested by hydraulic pressure to 390 lbs. Date of test 12th & 19th April 1913 No. of Certificates 12062-12077

Can each boiler be worked separately Yes Area of fire grate in each boiler 46 No. and Description of Safety Valves to

boiler 2 Spring loaded Area of each valve 4.9 Pressure to which they are adjusted 195 Are they fitted with easing gear Yes

Least distance between boilers or uptakes and bunkers or woodwork 5" Mean dia. of boilers 12'-1" Length 10'-0" Material of shell plates

Material Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

Material Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Stages of strength of longitudinal joint rivets Working pressure of shell by rules Size of manhole in shell

Compensating ring No. and Description of Furnaces in each boiler Material Outside diameter

Thickness of plates top crown bottom Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Area of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space:

Area Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Area at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

Material 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

holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

of 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

VERTICAL DONKEY BOILER— Manufacturers of Steel

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 easing 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 _____ Plates _____

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:— One pr crank pin brasses complete with bolts + nuts. 1 pair crosshead brass plates. 1 set coupling bolts. 4 on main leading bolts. 1 set of rings for HP. MP + LP pistons. 1 eccentric shaft complete. 1 pair eccentric rod top end brasses complete. one valve spindle complete. one fold & hinge pump valves. one spare length crank shaft. One spare propeller shaft. one spare propeller. 1 set safety valve spindles. 12 feed check valves. 17 gauge glasses. 25 condenser tubes. 50 firebricks. 24 boiler half set fire bars for one boiler. Assorted sheet + bar iron + bolts and nuts

The foregoing is a correct description,

R. B. Mauchaw

Manufacturer.

Dates of Survey while building

During progress of work in shops—	1912 Oct 26. 31. Nov 2. 7. 11. 16. 20. 28. Dec 3. 5. 11. 24. 1913. Jan 22. 23. 28. Feb 10. 17. 25. March 4. 11.
	April 3. 15. 24. May 1. 5. 9.
	During erection on board vessel—
Total No. of visits	41.

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—

Cylinders	13 th March	Slides	17 th Feb	Covers	4 th March	Pistons	17 th Feb	Rods	17 th Feb
Connecting rods	17 th Feb	Crank shaft	17 th Feb	Thrust shaft	26 th March	Tunnel shafts	26 th March	Screw shaft	1 st May
Stern tube	16 th May	Steam pipes tested	20 th Aug	Engine and boiler seatings	20 th May	Engines holding down bolts	23 rd June	Engines tried under steam	20 th Sept.
Completion of pumping arrangements	18 th Sept	Boilers fixed	23 rd June	Engines tried under steam	20 th Sept.				
Main boiler safety valves adjusted	20 th Sept	Thickness of adjusting washers	Star 13. to 1/16 AV 9/32. P.B. to 1/4 A						

Material of Crank shaft *In Steel* Identification Mark on Do. *Shi No 2* Material of Thrust shaft *In Steel* Identification Mark on Do. *Shi No 2*

Material of Tunnel shafts *In Steel* Identification Marks on Do. *Shi No 2* Material of Screw shafts *In Steel* Identification Marks on Do. *Shi No 2*

Material of Steam Pipes *Copper* Test pressure *390 lbs per sq. in.*

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

A bederwall gland, to Owner's drawings, has been fitted to the stern tube. The vessel is fitted with two Weir feed pumps + which are fitted with float tanks. The Machinery of this vessel has been built under Special Survey in accordance with the Rules, the material + workmanship is good and the machinery has been tried satisfactorily under steam. In my opinion the vessel is eligible for the record **LMC 9.13**

It is submitted that this vessel is eligible for THE RECORD. + LMC 9.13.

The amount of Entry Fee	£12	When applied for,	25. 9. 1913
Special	£185	When received,	22/10/13
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£20		

H. L. Fletcher
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute FRI. OCT. 24. 1913

Assigned

+ LMC 9.13

MACHINERY CERTIFICATE WRITTEN.

Certificate (if required) to be sent to the Surveyors and registered not to write on or below the space for Committee's Minute.

