

REPORT ON MACHINERY.

Received at London Office

4 MAR 1925

Date of writing Report 2nd Mar. 1925 When handed in at Local Office 2nd Mar. 1925 Port of GLASGOW.

No. in Survey held at Glasgow Date, First Survey 16.9.24 Last Survey 2nd March 1925

Reg. Book 90975 on the Steel Twin Screw Steamer "TIEN KWANG" (Number of Visits 26) Gross Tons 731 Net Tons 285

Master [Signature] Built at Glasgow By whom built Yarrow & Co. Ltd. (N° 1497) When built 1925-3.

Engines made at Glasgow By whom made Yarrow & Co. Ltd. (N° 1497) when made 1925-3.

Boilers made at Renfrew By whom made Babcock & Wilcox Ltd. (N° M. 395) when made 1919. Fitted 1925.

Registered Horse Power [Blank] Owners Anglo-Saxon Petroleum Co. Ltd. Port belonging to London.

Nom. Horse Power as per Section 28 397 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Vertical Triple Expansion (W.S.V. Balance) No. of Cylinders 8 No. of Cranks 8

Dia. of Cylinders 18" 26" 30" 30" (Main) Length of Stroke 18" Revs. per minute 280 Dia. of Screw shaft 7" Material of screw shaft 36-40 ton steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Bilge plates fitted 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 2' 9 1/4"

Dia. of Tunnel shaft 6 1/2" Dia. of Crank shaft journals 6 1/2" Dia. of Crank pin 6 1/2" Size of Crank webs 7 1/2" Dia. of thrust shaft under collars 6 1/2" Dia. of screw 6-5" Pitch of Screw 8'-0" No. of Blades 3 State whether moveable no Total surface 3130 sq. ins. (incl. propeller)

No. of Feed pumps 2 Diameter of ditto 8" Stroke 22" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 6" Stroke 15" Can one be overhauled while the other is at work yes

No. of Donkey Engines — Sizes of Pumps — No. and size of Suctions connected to both Bilge and Donkey pumps 10 @ 2 1/2" in each trimming

Engine Room Tank + the P. & S. aft cargo holds. In Holds, &c. 10 @ 2 1/2" in each trimming

No. of Bilge Injections One size 5" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size 2. included above

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 yes

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 no. 1 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

How are they protected none

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 doors yes worked from upper deck.

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Glasgow Iron & Steel Co.

Total Heating Surface of Boilers 6990 sq. ft. Is Forced Draft fitted yes No. and Description of Boilers 2-Water Tube - Yarrow type.

Working Pressure 250 lb./sq. in. Tested by hydraulic pressure to 425 lb./sq. in. Date of test 23-9-24 No. of Certificate 314884

Can each boiler be worked separately yes Area of fire grate in each boiler fitted for oil only. No. and Description of Safety Valves to each boiler 2: full bore Area of each valve 2.76 ins.² Pressure to which they are adjusted 250 lb./sq. in. Are they fitted with easing gear yes

Thickness	Range of tensile strength	Are the shell plates welded or flanged	Descrip. of riveting: cir. seams
			<u>55</u>
Long. seams	Diameter of rivet holes in long. seams	Pitch of rivets	Lap of plates or width of butt straps
Percentage of strength of longitudinal joint	Working pressure of shell by rules	Size of manhole in shell	
No. and Description of Furnaces in each boiler			
Length of plain part	Thickness of plates	Description of longitudinal joint	No. of strengthening rings
Working pressure of furnace by the rules	Combustion chamber plates: Material	Thickness: Sides	Back
Pitch of stays to ditto: Sides	Back	Top	If stays are fitted with nuts or riveted heads
Material of stays	Area at smallest part	Area supported by each stay	Working pressure by rules
Material	Thickness	Pitch of stays	How are stays secured
Area 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
Diameter of tubes	Pitch of tubes	Material of tube plates	Thickness: Front
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	Steam dome: description of joint to shell		% of strength of joint
Diameter	Thickness of shell plates	Material	Description of longitudinal joint
Pitch of rivets	Working pressure of shell by rules	Crown plates	Thickness

SUPERHEATER. Type Separate Date of Approval of Plan [Blank] Tested by Hydraulic Pressure to [Blank]

Date of Test [Blank] Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler [Blank]

Diameter of Safety Valve [Blank] Pressure to which each is adjusted [Blank] Is Easing Gear fitted [Blank]

IS A DONKEY BOILER FITTED?

No ✓

If so, is a report now forwarded? ✓

SPARE GEAR. State the articles supplied:

- 4 - connecting rod top-end bolts + nuts: ✓
- 4 - connecting rod bottom-end bolts + nuts: ✓
- 2 - main bearing bolts: ✓
- 6 - coupling bolts: ✓
- 1 set - feed + bilge pump valves: ✓ And
- A quantity of assorted bolts, studs + nuts etc. etc. ✓



The foregoing is a correct description,

Manufacturer.

Dates of Survey while building

During progress of work in shops 7-
 During erection on board vessel - - -
 Total No. of visits 26.

1924 Sept 16. 19. 23. 24. Oct 8. 15. 23. Nov 3. 11. 12. 20. Dec 4. 11. 16. 19.
 1925 Jan 9. 20. 27. Feb 5. 6. 12. 17. 19. 20. 26. Mar 2.

Is the approved plan of main boiler forwarded herewith? ✓

Dates of Examination of principal parts

Cylinders { 3+12-11-24 } Slides 12-11-24 Covers { 3-11-24 } Pistons { 11-12-11-24 } Rods 20-11-24
 4. 16+19-12-24

Connecting rods 16-12-24 Crank shafts 11-12-24 Thrust shafts 11-12-24 Tunnel shafts 11-12-24 Screw shafts 16-12-24 Propellers 16-12-24

Stern tubes 11-12-24 Steam pipes tested 5-2-25 Engine and boiler seatings 11-12-24 Engines holding down bolts 12-2-25

Completion of pumping arrangements 26-2-25 Boilers fixed 12-2-25 Engines tried under steam 26-2-25

Completion of fitting sea connections 9-1-25 Stern tubes 16-12-24 Screw shafts and propellers 9-1-25

Main boiler safety valves adjusted 19-2-25 Thickness of adjusting washers Ford. Ph. 9/32". 7/16" S. Std. Ph. 7/16" S.

Material of Crank shaft 36/40 ton steel Identification Mark on Do. ✓ Material of Thrust shaft 36/40 ton steel Identification Mark on Do. ✓

Material of Tunnel shafts 36/40 ton steel Identification Marks on Do. ✓ Material of Screw shafts 36/40 ton steel Identification Marks on Do. ✓

Material of Steam Pipes S.S. Steel (Cold finished). Test pressure 750 lbs. per sq. in.

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 48 of the Rules been complied with Yes ✓

Is this machinery duplicate of a previous case? No ✓ If so, state name of vessel "S.S. 'Shu Kwang'"

General Remarks (State quality of workmanship, opinions as to class, &c. In accordance with London Letter "E" of 23rd January 1924)

These Engines have been surveyed during construction. The material + workmanship are good. The two "Yarrow" Water Tube Boilers - originally intended for Minesweepers + reported in G.S. Rpt. 39455 - have been examined thro' out and found in new condition - in accordance with instructions in London letter "E" of 6-6-24. The Boilers have been tested to 425 lbs./in² hydraulic pressure. This installation is designed for a drop pressure of 30 lbs./in² between the Boilers + the Engines and the high pressure cylinder relief valves are adjusted accordingly.

This Machinery has been properly fitted on board, tried under steam with satisfactory result and is eligible, in my opinion, to be classed in the Register Book with notations: -
 B. & M.S. - 3.25; T.S. - P.S. - O.G.; also fitted for oil fuel 3.25 F.P. above 150°Fahr. - all as per above instructions.

The amount of Entry Fee ... £ 5 - -
 3/5^{ths} Special ... £ 50:14/0
 Donkey Boiler Fee ... £ - - -
 Travelling Expenses (if any) £ - - -

When applied for, 9 MAR 1925 from London
 When received, 15 MAR 1925

J. D. Boyle
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 3-MAR 1925
 Assigned B & M.S. 3.25 7A

Fitted for oil fuel 3.25 F.P. above 150°F.



Glasgow 2/3/25

The Surveys are requested not to write on or below the space for Committee's Minute.