

## REPORT ON MACHINERY.

No. 27977

Received at London Office

Date of writing Report 5-10-14 10 When handed in at Local Office 8-10 1914 Port of Hull MON OCT. 12 1914

No. in Survey held at Hull Date, First Survey 15-1-14 Last Survey 29-9-14 19  
Reg. Book. 395 on the steel screw steamer Tiernoe (h<sup>2503</sup>) (Number of Volls 26)Master Built at Lelby By whom built Cochran & Sons Ltd Gross 273  
Engines made at Hull By whom made Amos & Smith Ltd Net 145  
Boilers made at Hull By whom made Amos & Smith Ltd When built 1914-9Registered Horse Power Owners Arche S. & Co. Ltd Port belonging to Grimsby  
Nom. Horse Power as per Section 28 79 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

No. of Cylinders Three No. of Cranks 3

Description of Engines Triple Expansion Dia. of Cylinders 12 1/2 - 21 1/2 - 35 1/4 Length of Stroke 24 Revs. per minute 72 Dia. of Screw shaft 7 1/2 Material of screw shaft Iron

Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes 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 lapped or protected between the liners Length of stern bush 36

Dia. of Tunnel shaft as per rule 6 1/4 Dia. of Crank shaft journals as per rule 6 7/8 Dia. of Crank pin 7 Size of Crank webs 13 3/4 x 4 3/8 Dia. of thrust shaft under

collars 7 Dia. of screw 8-9 Pitch of Screw 11-0 No. of Blades 4 State whether moveable no Total surface 29

No. of Feed pumps one Diameter of ditto 2 3/4 Stroke 12 Can one be overhauled while the other is at work

No. of Bilge pumps one Diameter of ditto 3 Stroke 12 Can one be overhauled while the other is at work

No. of Donkey Engines one &amp; 2 Sizes of Pumps 6 1/4 x 4 3/4 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 2" dia. In Holds, &amp;c. one 2" in each compartment

Holds suction also coupled to Engine

No. of Bilge Injections one size 3 Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room &amp; size 2" dia.

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 none

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 Forward suction 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

Dates of examination of completion of fitting of Sea Connections 9-7-14 of Stern Tube 9-7-14 Screw shaft and Propeller 9-7-14

Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

OILERS, &amp;c. (Letter for record S) Manufacturers of Steel Phoenix &amp; Holder &amp; Co. Ltd

Total Heating Surface of Boilers 1400 Is Forced Draft fitted no No. and Description of Boilers one single ended

Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 2-9-14 No. of Certificate 3017

Can each boiler be worked separately Area of fire grate in each boiler 45 sq ft No. and Description of Safety Valves to

each boiler Two spring loaded Area of each valve 4.9 Pressure to which they are adjusted 180 lbs Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 7 Mean dia. of boilers 13-0 Length 10-2 Material of shell plates steel

Thickness 1/32 Range of tensile strength 29-33 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double

long. seams L.P. &amp; B. Diameter of rivet holes in long. seams 1/8 Pitch of rivets 7.63 Lap of plates or width of butt straps 16 1/4

Per centages of strength of longitudinal joint rivets 94 plate 85.2 Working pressure of shell by rules 180 Size of manhole in shell 16 x 12

Size of compensating ring 9 x 1/32 No. and Description of Furnaces in each boiler Three plain Material steel Outside diameter 37 1/2

Length of plain part top 78 bottom 76 Thickness of plates crown 3 3/4 Description of longitudinal joint welded No. of strengthening rings one pt

Working pressure of furnace by the rules 196 Combustion chamber plates: Material steel Thickness: Sides 1/16 Back 1/16 Top 1/16 Bottom 1/16

Pitch of stays to ditto: Sides 9 1/2 x 7 Back 9 1/2 x 7 1/4 Top 9 x 7 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 207

Material of stays steel Diameter at smallest part 1 7/8 Area supported by each stay 66.5 Working pressure by rules 212 End plates in steam space

Material steel Thickness 1/32 Pitch of stays 18 x 17 1/2 How are stays secured N &amp; W Working pressure by rules 180 Material of stays steel

Diameter at smallest part 6 1/0 Area supported by each stay 31.5 Working pressure by rules 201 Material of Front plates at bottom steel

Thickness 3/32 Material of Lower back plate steel Thickness 1/16 Greatest pitch of stays 14 x 9 Working pressure of plate by rules 220

Diameter of tubes 3 1/2 Pitch of tubes 4 1/16 x 5 Material of tube plates steel Thickness: Front 3/32 Back 2/32 Mean pitch of stays 9 1/16

Pitch across wide water spaces 14 Working pressures by rules 184 lbs Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 9 x 1 3/4 Length as per rule 2-9 Distance apart 9 Number and pitch of stays in each Three 7

Working pressure by rules 196 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

oles 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



IS A DONKEY BOILER FITTED? no ✓

If so, is a report now forwarded? ✓

*SPARE GEAR.*

**SPARE GEAR.** State the articles supplied:— Two top end bolts & nuts, two bottom end bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set of feed & bilge pump valves, & a quantity of bolts & nuts & nuts of various sizes

*The foregoing is a correct description,*

FOR AMOS & SMITH LTD.

*Manufacturer.*

Dates of Survey while building	During progress of work in shops - -	1914 - Jan 15 23 Apr 1 27 May 28 Jun 12 23 Jul 3 4 9 15 31 Aug 10 24 26
	During erection on board vessel - - -	28 Sept 2 9 14 15 16 22 23 28 29
	Total No. of visits	26

Is the approved plan of main boiler forwarded herewith yes ✓

Is the approved plan of main boiler forwarded herewith *yes* ✓ *12/10/18*  
 " " " donkey " " " *please return for dealing with sister vessels*

Dates of Examination of principal parts—Cylinders 24-8-14 Slides 28-8-14 Covers 9-9-14 Pistons 24-8-14 Rods 24-8-14

Connecting rods 1-9-14 Crank shaft 24-8-14 Thrust shaft 1-9-14 Tunnel shafts ✓ Screw shaft 4-7-14 Propeller 4-7-14

Storm tube 4-7-14 Steam pipes tested 16-9-14 Engine and boiler seatings 9-7-14 Engines holding down bolts 22-9-14

Completion of pumping arrangements 22-9-14      Boilers fixed 22-9-14      Engines tried under steam 29-9-14

Main boiler safety valves adjusted 23-9-14 Thickness of adjusting washers  $P \frac{1}{4}$  S  $\frac{9}{32}$

Material of Crank shaft Steel Identification Mark on Do. 260 FLS Material of Thrust shaft steel Identification Mark on Do. 270 FLS

Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts *Iron* ✓ Identification Marks on Do. *246 JGM*

Material of Steam Pipes solid drawn copper ✓ Test pressure 400 lbs ✓

Is an installation fitted for burning oil fuel

Is the flash point of the oil to be used over 150°F. ☒

Have the requirements of Section 49 of the Rules been complied with. ✓

Is this machinery duplicate of a previous case Yes If so, state name of vessel Orinda

**General Remarks** (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been constructed under special survey, in accordance with the approved plans & the rules of this society. The materials & workmanship are good. The boiler & steam pipes have been tested as above & found sound & good. The machinery has been properly fitted & secured on board & on completion was tested under steam & found satisfactory. The safety valves have been adjusted & tested for accumulation which did not exceed 186 lbs.

In my opinion the vessel is eligible for the record + L. N. 6914

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC. 9 14

The amount of Entry Fee . . . £ 1 : 0 : ) When applied for,

Special ... £ 11 : 17 : 9-10-14

Donkey Boiler Fee ... £ ..... When received, *3.10.11*

Travelling Expenses (if any) £ : *4-2* ..... 19*11*

Committee's Minute FRI. OCT. 16, 1914

*Assigned*

MACHINERY CERTIFICATE  
WRITTEN.



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Foundation