

# REPORT ON MACHINERY.

Received at London Office

TUE. MAY 5 - 1914

Date of writing Report 1st May 1914 When handed in at Local Office 2nd May 1914 Port of Sunderland MUN. JUN. 15. 1914

No. in Survey held at Sunderland Date, First Survey 6 Jan 1914 Last Survey 28 April 1914

Reg. Book. No. 82 on the new steel S/S "EDWIN HUNTER" (Number of Visits 27 + 2 = 29) Gross 1337 Tons Net 719

Master Built at Newcastle By whom built Wood Skinner & Co. (S/S No. 188) When built 1914

Engines made at Sunderland By whom made George Rank Ltd (No. 10005) when made 1914

Boilers made at Sunderland By whom made George Rank Ltd (No. 10005) when made 1914

Registered Horse Power Owners Gool & W. Ridingskin Shippy Co. Ltd Port belonging to Gool

Nom. Horse Power as per Section 28 176 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 18 1/2" 30" 50" Length of Stroke 33 Revs. per minute 85 Dia. of Screw shaft as per rule 10.93 as fitted 11 3/8" Material of screw shaft 9. Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube no liners Is the after end of the liner made water tight in the 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 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 3'-10 3/4"

Dia. of Tunnel shaft as per rule 9.13 as fitted 9 7/16" Dia. of Crank shaft journals as per rule 9.89 as fitted 9 7/8" Dia. of Crank pin 9 7/8" Size of Crank webs 5 x 6 1/4" Dia. of thrust shaft under collars 10" Dia. of screw 13'-0" Pitch of Screw 13'-0" No. of Blades 4 State whether moveable no Total surface 52 sq ft

No. of Feed pumps 2 Diameter of ditto 2 3/4" Stroke 18" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 3" Stroke 18" Can one be overhauled while the other is at work yes

No. of Donkey Engines 3 Sizes of Pumps 20 9/8 x 8 x 8 & 10 5/8 x 5 1/2 x 5 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 4 @ 3" In Holds, &c. Forward hold - 2 @ 3" After hold -

No. of Bilge Injections 1 sizes 4" Connected to condenser, or to circulating pump b.p. Is a separate Donkey Suction fitted in Engine room & size yes 4"

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 hold 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 7.4.14 of Stern Tube 16.9.14 Screw shaft and Propeller 17.4.14

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

BOILERS, &c.—(Letter for record (3)) Manufacturers of Steel Seldenkuchen Benckwerts & Co. of the Ruhr

Total Heating Surface of Boilers 2984 sq ft Is Forced Draft fitted no No. and Description of Boilers Two single ended marine

Working Pressure 180 LBS Tested by hydraulic pressure to 360 LBS Date of test 27.3.14 No. of Certificate 3201

Can each boiler be worked separately yes Area of fire grate in each boiler 49 sq ft No. and Description of Safety Valves to each boiler Two disk spring Area of each valve 7.06 sq ft Pressure to which they are adjusted 185 LBS Are they fitted with easing gear yes

Smallest distance between boiler or uptakes and bunkers on woodwork 1'-8" Mean dia. of boilers 13'-0" Length 10'-6" Material of shell plates steel

Thickness 1" Range of tensile strength 29.5-33 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams B.R. long. seams B.S. TR Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 7/8" Lap of plates or width of butt straps 16"

Per centages of strength of longitudinal joint rivets 89.6 plate 85.6 Working pressure of shell by rules 180 Size of manhole in shell 16" x 12"

Size of compensating ring flanged 3 1/2" No. and Description of Furnaces in each boiler 3 plain Material steel Outside diameter 3'-2 1/2"

Length of plain part top 16'-5 1/2" bottom 6'-2" Thickness of plates crown 2 1/2" bottom 2 1/2" Description of longitudinal joint welded No. of strengthening rings none

Working pressure of furnace by the rules 180 Combustion chamber plates: Material steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 1/32

Pitch of stays to ditto: Sides 8 3/4" x 10" Back 9" x 10" Top 8 3/4" x 10" If stays are fitted with nuts or riveted heads nut heads Working pressure by rules 180

Material of stays steel Diameter at smallest part 2030" Area supported by each stay 900" Working pressure by rules 203 End plates in steam space:

Material steel Thickness 1 3/16" Pitch of stays 18" x 19" How are stays secured B.N. Working pressure by rules 184 Material of stays steel

Diameter at smallest part 541" Area supported by each stay 3130" Working pressure by rules 180 Material of Front plates at bottom steel

Thickness 1 3/16" Material of Lower back plate steel Thickness 2 3/32" Greatest pitch of stays 16 1/2" x 9 3/8" Working pressure of plate by rules 181

Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 3/8" Material of tube plates steel Thickness: Front 1 3/16" Back 3/4" Mean pitch of stays 10 1/4"

Pitch across wide water spaces 14 1/2" x 1 1/2" Working pressures by rules 264 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 20 7/8" x 7/8" Length as per rule 2'-6" Distance apart 10" Number and pitch of stays in each 20 8 3/4"

Working pressure by rules 184 Superheater or Steam chest; how connected to boiler none 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

If 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			When made	Where fixed
Made at	By whom made				
Working pressure	tested by hydraulic pressure to	Date of test	No. of Certificate	Fire grate area	Description of Safety
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 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:—Two connecting rod top and bottom end bolts and nuts, two main bearing bolts, 1 set coupling bolts, 1 set feed & bilge pump valves, 1 Propeller, Bolts & nuts assorted and iron of sizes

The foregoing is a correct description,  
**FOR GEORGE CLARK, LIMITED** *W. S. Spence*  
 Manufacturer of the main Engines & Boilers

Dates of Survey while building  
 During progress of work in shops: 1914 Jan. 6-12-14 Feb. 5-6-13-19-20-23-25-27 Mar. 10-13-17-20-23-27-30-31  
 During erection on board vessel: Apr. 3-6-16-17-21-23-24-28 at work. Apr. 7. May 27. Jun. 2  
 Total No. of visits: 27 + 3 Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders 27-3-14 Slides 20-3-14 Covers 13-2-14 Pistons 10-3-14 Rods 27-3-14  
 Connecting rods 31-3-14 Crank shaft 6-2-14 Thrust shaft 27-2-14 Tunnel shafts 25-2-14 Screw shaft 6-4-14 Propeller 31-3-14  
 Stern tube 3-4-14 Steam pipes tested 21-4-14 Engine and boiler seatings Engines holding down bolts 24-4-14  
 Completion of pumping arrangements 27-5-14 Boilers fixed 23-4-14 Engines tried under steam 28-4-14  
 Main boiler safety valves adjusted 28-4-14 Thickness of adjusting washers *For Bl. P 3/8 S 1 1/2 Std Bl. P 1/2 S 9/32*  
 Material of Crank shaft *Steel* Identification Mark on Do. *80AL114* Material of Thrust shaft *Steel* Identification Mark on Do. *76MB1011*  
 Material of Tunnel shafts *Steel* Identification Marks on Do. *116AL114* Material of Screw shafts *Steel* Identification Marks on Do. *107AL114*  
 Material of Steam Pipes *Solid drawn copper 2 @ 3 3/4 x 6 r/s* Test pressure *400 lbs per sq"*

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

To complete the survey the spare gear requires to be made complete. The tunnel made watertight and its well suction to be fitted.

The vessel has left this port for the Tyne. Newcastle Surveyors advised.

The materials and workmanship are good.

The machinery has been made under special survey and is eligible in our opinion for classification and the record + LMC (with date) when the survey is complete  
*Newcastle - on Tyne*  
*2nd June 1914*

The tunnel well suction fitted & spare gear examined

It is submitted that this vessel is eligible for **THE RECORD. + LMC 6.14.**

The amount of Entry Fee .. £2 : : When applied for,  
 Special .. £26.8 : : 4-5-1914  
 Donkey Boiler Fee .. £ : :  
 Travelling Expenses (if any) £ : : 9-6-14

*J. W. D.*  
*15/6/14*  
*Thomas Field*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. JUN. 19, 1914

Assigned

MACHINERY CERTIFICATE  
 WRITTEN



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 Foundation