

REPORT ON MACHINERY.

No. 62532

Received at London Office

TUE. JUN. 25. 1912

Date of writing Report 20th June 1912 When handed in at Local Office 21st June 1912 Port of Newcastle on Tyne
No. in Survey held at Newcastle Date, First Survey 8th Sept Last Survey 21st June 1912
Reg. Book 147 the Machinery of the S.S. Comanche Number of Visits 53 Gross 5588
Master When built 1912 Built at Newcastle By whom built Armstrong Whitworth Tons Net 3420
Engines made at Newcastle By whom made A. E. Marine Eng. Co. when made 1912
Boilers made at " By whom made " when made 1912
Registered Horse Power Owners Anglo American Oil Co. Ltd. Port belonging to Newcastle
Nom. Horse Power as per Section 28 505 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Quadruple No. of Cylinders 4 No. of Cranks 4
Dia. of Cylinders 23" 32 1/2" 47" & 68" Length of Stroke 48 Revs. per minute 75 Dia. of Screw shaft as per rule 14 1/4" 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 5'-5"
Dia. of Tunnel shaft as per rule 12 1/2" Dia. of Crank shaft journals as per rule 13 1/8" Dia. of Crank pin 13 7/8" Size of Crank webs 28 1/4" x 8 1/2" Dia. of thrust shaft under collars 13 7/8" Dia. of screw 17'-6" Pitch of Screw 17'-3" No. of Blades 4 State whether moveable no Total surface 104 sq ft
No. of Feed pumps 2 Weirs Diameter of ditto 8" Stroke 24" Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 26" Can one be overhauled while the other is at work Yes
No. of Donkey Engines 2 Sizes of Pumps 7 1/2" x 5" x 6" & 6" x 8" x 8" No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room 5 of 3 1/2" dia In Holds, &c. 2 of 3 1/2" dia in cross bunker & oil cargo pumps
No. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine room & size 2 of 3 1/2"
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 no
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 none How are they protected ✓
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 28/5/12 of Stern Tube 28/5/12 Screw shaft and Propeller 29/5/12
Is the Screw Shaft Tunnel watertight none Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record S) Manufacturers of Steel J. Spencer & Sons
Total Heating Surface of Boilers 7377 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 Single-ended
Working Pressure 220 lbs Tested by hydraulic pressure to 440 lbs Date of test 16/4 & 6/5/12 No. of Certificate 8303 & 8312
Can each boiler be worked separately Yes Area of fire grate in each boiler 54.4 sq ft No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 7.26 sq ft Pressure to which they are adjusted 225 lbs Are they fitted with easing gear Yes
Smallest distance between boilers or uptakes and bunkers or woodwork 1'-10 1/2" Mean dia. of boilers 15'-0" Length 12'-0" Material of shell plates steel
Thickness 1 1/2" Range of tensile strength 28 3/4 - 32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. r. lap long. seams d. r. d. butt Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10" Lap of plates or width of butt straps 2 1/4"
Per centages of strength of longitudinal joint 87.6 Working pressure of shell by rules 234.2 lbs Size of manhole in shell 16" x 12"
Size of compensating ring flanged No. and Description of Furnaces in each boiler 3 Suspension Material steel Outside diameter 3'-10"
Length of plain part top Thickness of plates crown 1 1/16" Description of longitudinal joint welded No. of strengthening rings ✓
Working pressure of furnace by the rules 246 lbs Combustion chamber plates: Material steel Thickness: Sides 2 3/32" Back 2 3/32" Top 2 3/32" Bottom 1 1/16"
Pitch of stays to ditto: Sides 8" x 8" Back 8" x 8" Top 8" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 254 lbs
Material of stays steel Diameter at smallest part 1 7/8" Area supported by each stay 64 sq in Working pressure by rules 243 lbs End plates in steam space: Material steel Thickness 1 1/32" Pitch of stays 21" x 15 1/4" How are stays secured d. n. & w. Working pressure by rules 224 lbs Material of stays steel
Diameter at smallest part 8.29" Area supported by each stay 320.25 sq in Working pressure by rules 268 lbs Material of Front plates at bottom steel
Thickness 1 1/16" Material of Lower back plate steel Thickness 1 1/32" Greatest pitch of stays 16" x 8" Working pressure of plate by rules 230 lbs
Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates steel Thickness: Front 1 1/16" Back 1 3/16" Mean pitch of stays 7 1/2"
Pitch across wide water spaces 14 1/2" Working pressures by rules 220 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 1/8" x 2" Length as per rule 36" Distance apart 8" Number and pitch of stays in each 3, 8"
Working pressure by rules 222 lbs 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 ✓

00829-008136-0034

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 Safety
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
Working pressure of shell by rules	Thickness of shell crown plates	Radius of do.	No. of stays to do.	Dia. of stays	Plates
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:— 2 top & 2 bottom end bolts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of fuel & bilge pump valves, 1 set of piston rings for H.P. & I.P. pistons, bolts nuts & assorted iron, spare propeller shaft, spare propeller, 1 set of crank pin bearings, eccentric strap &c.

The foregoing is a correct description,
NORTH EASTERN MARINE ENGINEERING CO., LTD.

Manufacturer.		1911		1912	
Dates of Survey while building	During progress of work in shops	During erection on board vessel	Total No. of visits	Is the approved plan of main boiler forwarded herewith	
Secretary.		53		yes	

Dates of Examination of principal parts—Cylinders 12/2/12 Slides 12/4/12 Covers 23/3/12 Pistons 9/2/12 Rods 17/11/11
Connecting rods 13/11/11 Crank shaft 9/1/12 Thrust shaft 29/12/11 Tunnel shafts none Screw shaft 29/11/11 Propeller 26/3/12
Stern tube 11/12/11 Steam pipes tested 1/4/12 Engine and boiler seatings 20/5/12 Engines holding down bolts 30/5/12
Completion of pumping arrangements 15/6/12 Boilers fixed 30/5/12 Engines tried under steam 15/6/12
Main boiler safety valves adjusted 15/6/12 Thickness of adjusting washers Ford R¹/₁₆ F¹/₁₆ P P³/₈ S³/₈ S P³/₈ S³/₈
Material of Crank shaft *steel* Identification Mark on Do. 14/3/12 *do* Material of Thrust shaft *steel* Identification Mark on Do. 29/12/11 *do*
Material of Tunnel shafts *none* Identification Marks on Do. *✓* Material of Screw shafts *Iron* Identification Marks on Do. 30/1/12 *do*
Material of Steam Pipes *Lap welded iron* Test pressure 660 lbs

General Remarks (State quality of workmanship, opinions as to class, &c.)
The machinery of this vessel has been built under special survey, the materials used are good and the workmanship is satisfactory; it has been properly fitted on board and secured, and seen running under full power. In my opinion the vessel is eligible for the record of **L.M.C. 6/12**

NEWCASTLE ON TYNE

Certificate (if required) to be sent to
(The Surveyor is requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee	£ 3	When applied for.
Special	£ 45 5	
Donkey Boiler Fee	£	When received.
Travelling Expenses (if any)	£	10.7.12

Committee's Minute

Assigned

FRI. JUN. 28. 1912

+ L.M.C. 6/12

Charles Cooper
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.



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Surveyor's Signature