

REPORT ON MACHINERY.

No. 1224

Received at London Office

Date of writing Report 23-7-1921 When handed in at Local Office 23-7-1921 Port of Nantes

No. in Survey held at St. Nazaire Reg. Book.

Date, First Survey 30-1-1920 Last Survey Aug 19 1921

Letter No. 23/8/21

on the Steel screw steamer UNION

Master C. Fourchon Built at St. Nazaire By whom built C. & A. de Penhoët

Tons Gross 6339.54 Net 3813.41 When built 1920-1

Engines made at St. Nazaire By whom made Ch. et Ate. de Penhoët

when made 1920

Boilers made at St. Nazaire By whom made Chantiers & Ateliers de Penhoët

when made 1920

Registered Horse Power 490 Owners Cie. Fr. d'Arm^t et d'Imp. de N. de S. Port belonging to Dunkirk

Nom. Horse Power as per Section 28 490 560 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Vertical Trip. Exp. Surf. Cond. No. of Cylinders 3 No. of Cranks 3
Dia. of Cylinders 690-1130-1900 Length of Stroke 1295 Revs. per minute 80/85 Dia. of Screw shaft as per rule 370 Material of screw shaft F.I.S.
as fitted 410

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 equal to 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 1525

Dia. of Tunnel shaft as per rule 346 as fitted 356 Dia. of Crank shaft journals as per rule 363 as fitted 380 Dia. of Crank pin 390 Size of Crank webs 440 Dia. of thrust shaft under collars 376 Dia. of screw 4900 Pitch of Screw 4680 No. of Blades 4 State whether moveable Yes Total surface 7m² 49

No. of Feed pumps 2 Diameter of ditto 205 Stroke 535 Can one be overhauled while the other is at work Yes
No. of Bilge pumps 2 Diameter of ditto 114 Stroke 688 Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps 254 x 305 x 254 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 4 x 90 In Holds, &c. No. 1-2 x 90 No. 2-2 x 90 No. 3-2 x 90

No. of Bilge Injections 1 sizes 200 Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size 2 x 150

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 used

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 both

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

What pipes are carried through the bunkers None holds bilges & No. peak suction. How are they protected Steel casings

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 18.6.21 of Stern Tube 30-8-20 Screw shaft and Propeller 18.6.21

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from above L.W.L.

OILERS, &c.—(Letter for record S) Manufacturers of Steel Usines Metall. de la Basse Loire, Tignac

Total Heating Surface of Boilers 8950 m² Is Forced Draft fitted Yes No. and Description of Boilers 3 cylindrical Working Pressure 12k. 500 Tested by hydraulic pressure to 22k. 500 Date of test 29.25.10-20 No. of Certificate 54, 55, 56

Can each boiler be worked separately Yes Area of fire grate in each boiler 6m² 300 No. and Description of Safety Valves to each boiler 2 Spring Area of each valve 113 cm² Pressure to which they are adjusted 182 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 300 Mean dia. of boilers 5000 Length 3547 Material of shell plates Steel

Thickness 30 Range of tensile strength 52-57k Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Double

any. seams Thick. & B.S. Diameter of rivet holes in long. seams 32 Pitch of rivets 189.8 Lap of plates or width of butt straps 452

Per centages of strength of longitudinal joint rivets 85.8 plate 83.3 Working pressure of shell by rules 12k. 800 Size of manhole in shell 400 x 300

Size of compensating ring 900 x 800 No. and Description of Furnaces in each boiler 3 Gurley Material Steel Outside diameter 1300

Length of plain part top bottom Thickness of plates crown bottom 15.5 Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 12k. 2 Combustion chamber plates: Material Steel Thickness: Sides 19 Back 19 Top 19 Bottom 19

Pitch of stays to ditto: Sides 240 x 200 Back 225 x 210 Top 240 x 225 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 16k. 5

Material of stays Steel Diameter at smallest part 39 Area supported by each stay 54000 Working pressure by rules 14k. 8 End plates in steam space:

Material Steel Thickness 28 Pitch of stays 440 x 425 How are stays secured nuts & screws Working pressure by rules 16k. 4 Material of stays Steel

Diameter at smallest part 65 Area supported by each stay 184000 Working pressure by rules 14k. Material of Front plates at bottom Steel

Thickness 25 Material of Lower back plate Steel Thickness 25 Greatest pitch of stays 500 dia. Working pressure of plate by rules 15k. 8

Diameter of tubes 63.5 Pitch of tubes 100 x 92 Material of tube plates Steel Thickness: Front 25 Back 22 Mean pitch of stays 200 x 184

Pitch across wide water spaces 370 Working pressures by rules 12k. 3 Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 240 x 2 x 20 Length as per rule 801 Distance apart 225 Number and pitch of stays in each 20 240

Working pressure by rules 21k. 6 Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked

separately Yes Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet

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

stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes

Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes



W59-0029

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:— 2 top end bolts; 2 bottom end bolts; 2 main bearing bolts; 1 set coupling bolts; 1 set feed & bilge pump valves; 1 set each H.P., M.P. and L.P. piston rings; assorted bolts, nuts, washers, 1 section of crank shaft; 1 propeller shaft; 2 eccentric straps; 1 valve spindle; 1 air pump rod; 1 pair top end bearings; 1 pair bottom end bearings; 1 pair main bearings; Condenser tubes; boiler plain & stay tubes; 3 safety valve springs; 2 propeller blades; junk ring studs &c

The foregoing is a correct description,

Wm. J. ... Manufacturer.

Dates of Survey while building	During progress of work in shops	1920. Jan. 30, Feb. 2-11-23, Mar. 6-12-16-18-24-27, Apr. 20-28, May 5-28, June 1-3-4-11-21-24-25, July 1-7-9
	During erection on board vessel	Nov. 9-15-23, Dec. 1-3-13-17-21-28-1921, Jan. 20-24-26, Feb. 1-5-22, Mar. 4-8-11-15-18-31, Apr. 8-19-27, May 2-4-17, June 11-16-18-23-30, July 4-15-21-22
	Total No. of visits	

Is the approved plan of main boiler forwarded herewith **yes**

Is the approved plan of donkey boiler forwarded herewith **yes**

Dates of Examination of principal parts—	Cylinders	17-12-20	Slides	17-12-20	Covers	15-11-20	Pistons	21-12-20	Rods	27-4-21	
Connecting rods	27-4-21	Crank shaft	15-4-21	Thrust shaft	15-4-21	Tunnel shafts	15-4-21	Screw shaft	15-4-21	Propeller	19-4-21
Stern tube	30-8-20	Steam pipes tested	15-3-21	Engine and boiler seatings	11-3-21	Engines holding down bolts	11-3-21				
Completion of pumping arrangements	27-1-21	Boilers fixed	4-5-21	Engines tried under steam							
Main boiler safety valves adjusted	Thickness of adjusting washers										
Material of Crank shaft	F.I.S. Identification Mark on Do.	123	Material of Thrust shaft	F.I.S. Identification Mark on Do.	123						
Material of Tunnel shafts	F.I.S. Identification Marks on Do.	123	Material of Screw shafts	F.I.S. Identification Marks on Do.	123						
Material of Steam Pipes	Solid drawn steel		Test pressure	37 kilos. 500							

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

The Boilers of this vessel have been specially surveyed during construction, the Main Engines, which were built for another vessel, have been opened up & examined in the Shop, as approved by the Secretary's letters E of 22-10-20 and E of the 2-11-20 found good

These Boilers and Machinery are in accordance with the approved plans and letters, they have been fitted onboard in accordance with the Rules and will be eligible, in my opinion, for the record of + L.M.C.-7-21 when the survey is completed

All mechanical tests of the material have been made by the Surveyors to the Bureau Veritas as agreed to by the Paris office of the Society.

Certificate (if required) to be sent to Paris office

The amount of Entry Fee	£ 285	When applied for,	24-8-21
Special	£ 4898	When received, at no.	7-9-21
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£ 1967		

Committee's Minute
Assigned

FRI. 26 AUG. 1921

+ L.M.C. 8 21 subject
70 8L

Geo. A. ... for Self
and *G. Demant*
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

