

REPORT ON MACHINERY.

THU. 11 MAR. 1920

No. 10610

Date of writing Report 4.3.20 When handed in at Local Office 6.3.20 Port of MIDDLESBRO
 No. in Survey held at Middleborough & Hartlepool Date, First Survey 25th Sept. 1919 Last Survey 26th February 1920.
 Reg. Book. on the S.S. "Roma" ex. "War Craft" (Number of Visits 31.)

Master Leonardo Belgiam Built at Middleborough By whom built Turners S.B. Co Tons { Gross 6521.43
 Engines made at West Hartlepool By whom made Richardson, West & Co Ltd Net 4069.85
 Boilers made at Glasgow By whom made Babcock & Wilcox When built 1920.
 Registered Horse Power Owners Roma Società di Navigazione when made 1920.
 Shaft Horse Power at Full Power 2900 Is Refrigerating Machinery fitted for cargo purposes Port belonging to Genoa.
 Is Electric Light fitted Yes.

TURBINE ENGINES, &c.—Description of Engines.

See Hartlepool Report No. 15642. Double gland Impulse Turbines No. of Turbines Two
 Diameter of Rotor Shaft Journals, H.P. 4 1/2" L.P. 5 3/4" Diameter of Pinion Shaft 1 1/2" pinion 5 3/4" between Helixes.
 Diameter of Journals 3 1/2" Distance between Centres of Bearings 12 1/2" pinion 12 1/2" between Helixes.
 Diameter of Wheel Shaft 3 1/2" Distance between Centres of Bearings 12 1/2" pinion 12 1/2" between Helixes.
 Width of Face 3 1/2" Diameter of Thrust Shaft under Collars 3 1/2" Diameter of Pitch Circle 13 3/4" 1st wheel 49.656
 No. of Screw Shafts one Diameter of same as per rule 15 1/8" C.L. Diameter of Pitch Circle of Wheel 2nd wheel 76.765
 No. of Blades 4 State whether Moveable No. Total Surface 100 sq ft Diameter of Tunnel Shaft as per rule 13 1/8"
 Thickness at Bottom of Groove, H.P. Solid L.P. Solid Astern Discs Revs. per Minute at Full Power, Turbine 3127 Propeller 71
 At Sea trial with about 3/4 propeller immersion " " " " 3740 " 84

PARTICULARS OF BLADING.

H.P. (P.C.D. = 24")				L.P. (P.C.D. = 36")			ASTERN.		
1ST EXPANSION	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
2ND	3/4" and 1 1/4"	24 3/16 and 25 1/8"	2.	2 3/4"	38 3/4"	1.	7/8" and 1 1/2"	30 7/8 and 31 1/2"	4
3RD	1 1/2"	25 1/2"	1.	3 7/8"	39 1/8"	1.	1 1/2" and 1 3/4"	32 1/4 and 33 1/2"	1
4TH	1 3/4"	25 3/4"	1.	4 3/4"	40 3/4"	1.	1 3/4" and 1 7/8"	34 1/4 and 35 1/2"	1
5TH	2"	26"	1.	5 1/8"	42 1/8"	1.	1 7/8" and 2"	36 1/4 and 37 1/2"	1
6TH	2 1/4"	26 1/4"	1.	5 3/4"	43 1/4"	1.	2" and 2 1/4"	38 1/4 and 39 1/2"	1
7TH	2 1/2"	26 1/2"	1.	6 1/4"	44 1/4"	1.	2 1/4" and 2 3/4"	40 1/4 and 41 1/2"	1
8TH	—	—	—	6 3/4"	45 1/4"	1.	2 3/4" and 3"	42 1/4 and 43 1/2"	1

No. and size of Feed pumps 2 @ 1 1/2" x 8" x 24"
 No. and size of Bilge pumps 1 @ 4" x 8" x 12" and 1 @ 10 1/2" x 14" x 24"
 No. and size of Bilge suction in Engine Room 1 @ 3 1/2" and 2 @ 2 1/2" in Engine room wall.

Offin holds 4 @ 3 1/2" Tunnel well 1 @ 2 1/2" In Holds, &c. The holds 6 @ 3 1/2" deep Tank 2 @ 3 1/2"
 No. of Bilge Injections 1 sizes 1 1/4" Connected to condenser, or to circulating pump. Yes Is a separate Donkey Suction fitted in Engine Room & size 1 @ 8"
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes
 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 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
 What pipes are carried through the bunkers Suctions to forward holds How are they protected Close 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
 Is the Screw Shaft Tunnel watertight See hull report Is it fitted with a watertight door Yes worked from Shell deck level.

OILERS, &c.—(Letter for record S) Manufacturers of Steel D. Colville & Steel Co of Scotland
 Total Heating Surface of Boilers 9636 sq ft Is Forced Draft fitted Yes No. and Description of Boilers Three Babcock & Wilcox
 Working Pressure 200 Tested by hydraulic pressure to 250 at date of test 25 Oct. 1919 No. of Certificate 6040
 Can each boiler be worked separately Yes Area of fire grate in each boiler 85 3/4 sq ft No. and Description of Safety Valves to
 each boiler 2 dried spring Pressure to which they are adjusted 205 Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 5' 3" Inside steam drums 4' 0" Length 15' 1/4 Material of shell plates Steel
 Thickness 9/16 x 1/16 Range of tensile strength 28-32 Tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams D.R. lap.
 Long. seams T.R. S.B.W. Diameter of rivet holes in long. seams 29/32 Pitch of rivets 3.534 Lap of plates or width of butt straps 1 1/4
 Percentage of strength of longitudinal joint rivets 76.7 Working pressure of shell by rules 238 Size of manhole in shell 15' x 11'

Size of compensating ring 7/8 x 28 3/4 x 22 1/4 No. and Description of Furnaces in each Boiler None Material Outside diameter
 Length of plain part top Thickness of plates crown Description of longitudinal joint No. of strengthening rings
 bottom Thickness of plates bottom Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom
 Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space
 Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules Material of stays
 Thickness 13/16 Pitch of stays How are stays secured Working pressure by rules 240 Material of stays
 Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom
 Thickness 1 1/2" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays None Working pressure of plate by rules
 Diameter of tubes 1 1/2" Pitch of tubes 25/32 - 25/32 Material of tube plates Steel Thickness: Front 1 1/16 Back Mean pitch of stays
 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 3/4 Material Steel Description of longitudinal joint Diameter of rivet holes Pitch of rivets
 Working pressure of shell by rules Crown plates: Thickness How stayed

SUPERHEATER.

Date of Approval of Plan

Tested by Hydraulic Pressure to

Date of Test

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve

Pressure to which each is adjusted

Is Easing Gear fitted

IS A DONKEY BOILER FITTED? No

If so, is a report now forwarded?

SPARE GEAR.

State the articles supplied:—2 bolts & nuts (or studs & nuts) for each size of rotor, pinion and gear wheel bearings, 1 set of coupling bolts of each size used, 1/20 of total number of bolts & nuts (or studs & nuts) for turbine & gear case joints. Two thermometers for oil circulating system. 1 set of bearing bushes for rotor, pinion, and wheel shafts. 1 set of labyrinth packing for each gland. Sufficient pads for Mitchell thrust block. 1 set turbine thrust & adjusting bushes with rings. 1/4 set feed pump valves, 1/2 set pump valves. A quantity of assorted bolts & nuts, studs, bars, plates, 1 cast iron propeller and additional spare parts as per specification for N1 class of vessel.

The foregoing is a correct description.

Manufacturer.

1919
Dates of Survey while building { During progress of work in shops -- Sep. 25-26, Oct. 1, 9-15-21, Nov. 3, 6-18-21-25, Dec. 2-9-16-17-18-22, Jan. 9-12-14-16-20-21-22-23-28-29-30, Feb. 2-5-26.
During erection on board vessel ---
Total No. of visits 31.

Is the approved plan of main boiler forwarded herewith

" " " donkey " " "

Dates of Examination of principal parts—Casing 5/4/18 to 22/4/19 Rotors 6/9/18 to 20/3/19 Blading 6/9/18 to 9/4/19 Gearing 25/3/19 to

Rotor shaft 6/9/18 to 20/3/19 Thrust shaft 6/12/18 Tunnel shafts 28/7/19 Screw shaft Propeller 9/12/19

Stern tube 3/11/19 Steam pipes tested 18/12/19 Engine and boiler seatings 9/10/19 Engines holding down bolts 16/12/19

Completion of pumping arrangements 16/12/19 Boilers fired 16/12/19 Engines tried under steam 2/2/20

Main boiler safety valves adjusted 20/1/20 Thickness of adjusting washers P. B? P 3/8 S 1/4 C B? P 1/4 S 5/16 St. B? P

Material and tensile strength of Rotor shafts Steel 32.66-34.6 Identification Mark on Do.

Material and tensile strength of Pinion shaft High speed - Nickel Steel 48.56 to 50 Identification Mark on Do. No 198

Material of Wheel shaft Steel Identification Mark on Do. L10VOS 104 3/19 AC Material of Thrust shaft Steel Identification Mark on Do. L10VOS 104 3/19 AC

Material of Tunnel shafts Steel Identification Marks on Do. 28/7/19 C.O. H. Material of Screw shafts Steel Identification Marks on Do. 5/6/19

Material of Steam Pipes Steel (lap welded) Test pressure 600 lbs.

Is an installation fitted for burning oil fuel No. 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 a duplicate of a previous case Yes If so, state name of vessel s/s Danier (Standard No. 1)

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

The machinery of this vessel has been built under special Survey, see Hpl. Report No. 15642 & Gls Report No. 38645. and has been satisfactorily fitted & tested by Messrs Richardson, Westgarth & Co. Ltd. Middlesbrough. The materials and workmanship are good. The engines, boilers, and auxiliary machinery have been examined under full working conditions, and found satisfactory, and the machinery is eligible, in my opinion, to have a notation of + L.C.C. 2-19 subject to the water tube boilers being surveyed annually. This vessel is fitted with electric light & wireless.

The amount of Entry Fee ... £ : :
Special ... £ : :
Fitting on board ... £ 36 : 4 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When applied for, 12/3/19
When received, 28/3/19

Geo. P. Brown

Engineer Surveyor to Lloyd's Register of Shipping.

MACHINERY CERTIFICATE
DATED

Committee's Minute

FRI. 12 MAR. 1920

Assigned

+ L. M. C. 2-20 J. D.

(2 Steam Turbines geared to 1 Sc. Shaft)
Water Tube Boilers



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Foundation