

REPORT ON MACHINERY.

No. 10622

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Date of writing Report 23. 3. 1920 When handed in at Local Office 19. 3. 1920 Port of Middlesbrough

No. in Survey held at Middlesbrough Date, First Survey 26th Feb. 1919. Last Survey 18th March. 1920.
Reg. Book. on the S.S. "Audalusier" ex "War Vigor" (Number of Visits 26)Gross 6548.29
Tons Net 4059.16

Master A. W. Harrison Built at Hariton Hill-on-Tees By whom built Suters & Co. & Fabricating Co. When built 1920

Engines made at Newcastle By whom made Parsons Marine Turbine Co. (No. 165) when made 1920.

Boilers made at Glasgow By whom made Balcrook & Wilson (No. 403) when made 1920.

Registered Horse Power Owners Lloyd Royal Belge (quasi British) Ltd. Port belonging to

Shaft Horse Power at Full Power 2900. Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

See True Report No. 71697. **TURBINE ENGINES, &c.**—Description of Engines *Geared Turbines* No. of Turbines 2.

Diameter of Rotor Shaft Journals, H.P. 4 1/2" L.P. 4 1/2" Diameters of Pinion Shafts 1st gear 4 1/2" 2nd gear 9"
 Diameters of Journals 1st gear 4 1/2" 2nd gear 9" Distance between Centres of Bearings 1st gear 2' 3" 2nd gear 10 1/2" Diameters of Pitch Circles 1st gear 4 1/2" 2nd gear 9"
 Diameter of Wheel Shafts 1st gear 2' 1 1/4" 2nd gear 3' 9 1/2" Distance between Centres of Bearings 1st gear 2' 2" 2nd gear 3' 9 1/2" Diameter of Pitch Circle of Wheels 54.966" x 46.584"
 Width of Face 1st gear 2 1/2" 2nd gear 1 1/2" Diameter of Thrust Shaft under Collars 14 3/4" Diameter of Tunnel Shaft as per rule 13.46" as fitted 13 7/8"
 No. of Screw Shafts One C.L. Diameter of same as per rule 15 1/8" as fitted 15 1/8" Diameter of Propeller 14' 9" Pitch of Propeller 16' 6"
 No. of Blades 4 State whether Moveable No. Total Surface 100 sq. ft. Diameter of Rotor Drum, H.P. 24 1/2" 26 1/2" 22' 30" as fitted 24 1/2" 26 1/2" 22' 30"
 Thickness at Bottom of Groove, H.P. Solid L.P. Solid Astern Solid Revs. per Minute at Full Power, Turbine 3500 Propeller 78

PARTICULARS OF BLADING.

	H.P. Impulse			L.P. Reaction			H.P. ASTERN.		
	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.
1ST EXPANSION	1" x 1 1/4"	29 1/4" x 29 1/4"	2	2 1/8"	26 1/4"	2	1 1/4" x 2	29 1/2" x 30 1/4"	2
2ND	3/4"	29"	1	2 5/8"	27 1/4"	2	L.P. Astern		
3RD	1"	29 1/4"	1	3 1/4"	28 1/2"	2	1 st Impulse 2 3/4"	30 1/8"	1
4TH	1 3/8"	29 3/8"	1	2 3/8"	34 3/4"	1	2 nd do 4 1/8"	32"	1
5TH	1 7/8"	30 1/8"	1	2 7/8"	35 3/4"	1	3 rd Reaction 1 3/4"	23 1/2"	1
6TH	2 1/2"	31 3/4"	1	3 1/2"	37"	1	2 nd do 2 1/2"	25"	1
7TH				4 1/4"	38 1/2"	3	3 rd do 3 1/2"	27"	3
8TH									

No. and size of Feed pumps 2 @ 11 1/2" x 8" x 24"

No. and size of Bilge pumps 1 @ 7" x 8" x 12" & 1 @ 10 1/2" x 14" x 12"

No. and size of Bilge suction in Engine Room 1 @ 3 1/2" & 2 @ 2 1/2" in Engine Room Well

In Holds, &c. The holds 6 @ 3 1/2" dup Tank 2 @ 3 1/2"

aft holds 4 @ 3 1/2" Tunnel well 1 @ 2 1/2" centrifugal

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 2 @ 3 1/2"

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 Shellia deck level.

See 9th Rept. No. 38663.**BOILERS, &c.**—(Letter for record S) Manufacturers of Steel Coburn & Sons Ltd. Co. of Scotland

Total Heating Surface of Boilers 9636 sq. ft. Is Forced Draft fitted Yes No. and Description of Boilers 3 Balcrook & Wilson

Working Pressure 200 Tested by hydraulic pressure to 250 lb. per sq. in. 25/2/20 No. of Certificate 6089

Can each boiler be worked separately Yes Area of fire grate in each boiler 853 sq. ft. No. and Description of Safety Valves to

each boiler 2 direct spring Area of each valve 9.62 sq. ft. 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" Mean dia. of boilers 4' 0" Length 15' 1 1/4" Material of shell plates Steel

Thickness 9/16" Range of tensile strength 28-32 Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams D.R. lap.

long. seams T.R. S. Butt Diameter of rivet holes in long. seams 29/32 Pitch of rivets 3.537" Lap of plates or width of butt straps 1 1/4"

Per centages of strength of longitudinal joint rivets 76.7 plates 74.4 Working pressure of shell by rules 238 Size of manhole in shell 15" x 11"

Size of compensating ring 7 1/8" x 18 1/4" x 2 1/4" No. and Description of Furnaces in each Boiler 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

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space

Material Steel 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 Material of lower back plate Steel Thickness 1 1/32 Greatest pitch of stays None Working pressure of plate by rules

No. of tubes 14 x 2 1/2 Pitch of tubes 24 1/2 x 2 1/2 Material of tube plates Steel Thickness: Front 1 1/6 Back Mean pitch of stays

Pitch cross 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

004382-004386-0202

SUPERHEATER. Type No. 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 & gear wheel bearings. 1 set of coupling bolts of each size used. 1/20 of total number of bolts (or studs & nuts) for turbine & gear case joints. Two thermometers for oil circulating system. 1 bearing bushes for rotor, pinion & wheel shafts. 1 set of labyrinth packing for each gland. Sufficient for Mitchell thrust block, 1 set of turbine thrust & adjusting bushes with rings. 1/4 set feed valves. 1/2 set lubricating pump valves. A quantity of assorted bolts & nuts bars & plates. 1 iron propeller and additional spare parts as per specification for N. Class of vessel.

The foregoing is a correct description,

Manufacturer.

Dates of Survey while building { During progress of work in shops -- 1919 Feb. 26. Apr. 2. 7. 15. May 15. Jun. 27. Oct. 30. Nov. 4. 6. 10. 13. 19. 25. Dec. 1. 10. 12. Jan. 8. 13. 23. Feb. 3. 17. 28. Mar. 2. 10. 12.
 { During erection on board vessel --- 26.
 Total No. of visits 26.

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Casings 11.10.18 Rotors 3.10.18 Blading 25.11.18 Gearing 25.11.18
 Rotor shafts 3.10.18 Thrust shaft 20.9.18 Tunnel shafts 7.2.19 Screw shaft 19.12.18 Propeller 27.6.19
 Stern tube 27.6.19 Steam pipes tested 19.12.19 Engine and boiler seatings 15.5.19 Engines holding down bolts 3.2.19
 Completion of pumping arrangements 3.3.20 Boilers fixed 27.6.19 Engines tried under steam 10.18.19 & 19.12.19
 Main boiler safety valves adjusted 3.3.20 Thickness of adjusting washers P. B2 P 1/4 S 1/31 C. B2 P 5/16 S 1/4 S B2
 Material and tensile strength of Rotor shafts Steel 35-38.2 Tons Identification Mark on Do. J.F. 10.18
 Material and tensile strength of Pinion shaft Nickel steel 42.8 to 47.2 Tons Identification Mark on Do. J.F. 10.18
 Material of Wheel shaft Steel Identification Mark on Do. J.F. 10.18 Material of Thrust shaft Steel Identification Mark on Do. 20.18
 Material of Tunnel shafts Steel Identification Marks on Do. 7.2.19. W.M. Material of Screw shafts Steel Identification Marks on Do. 20.18
 Material of Steam Pipes Steel 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 (N. class)

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

The Machinery of this vessel has been built under special Survey See Rept No. 71697 and q/s Rept No. 38663, and has been satisfactorily fitted & loaded by the builders Messrs Parsons Marine Locomotive Co Ltd. The materials & work 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 the notation of + L MC 3-20 subject to water tube boilers being surveyed annually. This vessel is fitted with electric light and wireless.

The amount of Entry Fee ... £ 36. 7. 7 When applied for, 27/3/19
 Special ... £ : :
 Donkey Boiler Fee ... £ : :
 Travelling Expenses (if any) £ : : When received, 11/5/19

J. Goodfellow
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. MAR 26 1920

Assigned

+ L. MC 3:20 T.D.
2 Steam Turbines. W.T. Bls

