

REPORT ON MACHINERY

No. 41392

Received at London Office WED. OCT. 5 1921

Date of writing Report 19. 7. 21. When handed in at Local Office 1. 10. 1921. Part of Glasgow

No. in Survey held at 13933 on the S/S "Diplomat" Date, First Survey 30. 9. 1919. Last Survey 29. 9. 1921

Registered Horse Power 871 Owners Blarney S/S Co Ltd Port belonging to Liverpool

Shaft Horse Power at Full Power 4540 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted Yes

Engines made at Glasgow By whom made Brown Boveri & Cie Ltd (1882) when made 1921

Boilers made at ditto By whom made ditto (1882) when made 1921

Master Built at Glasgow By whom built Brown Boveri & Cie Ltd (1882) When built 1921

TURBINE ENGINES, &c. — Description of Engines

Brown Curtis OR Grand Turbine No. of Turbines 3 (H.P. & L.P.)

Diameter of Rotor Shaft Journals H.P. 3" L.P. 4" LP 6 3/4" Diameter of Pinion Shaft H.P. 6 7/8" LP 10 1/8"

Diameter of Journals H.P. 1 1/2" L.P. 1 1/2" Distance between Centres of Bearings H.P. 7 1/2" L.P. 7 1/2" Diameter of Pitch Circle H.P. 18.707" L.P. 11.026" 18.707"

Diameter of Wheel Shaft 16 3/4" Distance between Centres of Bearings 6-11 1/2" Diameter of Pitch Circle of Wheel 60.75" MW 98.67"

Width of Facel 18" MANV 33 Diameter of Thrust Shaft under Collars 16 1/4" Diameter of Tunnel Shaft as per rule 15 3/8"

No. of Screw Shafts 1 Diameter of same as per rule 16 2/4" as fitted 14 1/4" Diameter of Propeller 18.6" Pitch of Propeller 17.3"

No. of Blades 4 State whether Moveable Yes Total Surface 108 sq ft Diameter of Rotor Drum, H.P. L.P. Astern 80

Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine LP 2975 RPM Propeller 80

PARTICULARS OF BLADING.

	H. P.			L. 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									
2ND									
3RD									
4TH									
5TH									
6TH									
7TH									
8TH									

No. and size of Feed pumps 3 1 Pair of 9x12x24" ou Lamont. Harbour Fed 4x6x6"

No. and size of Bilge pumps 2 1 Lamont 6x6x6 1 Lamont Oil Service 9x10x10"

No. and size of Bilge suction in Engine Room 2. 2 3 1/2" Stakehold 2. 2 3 1/2" Tunnel 2. 1-3" Spudal 1-3 1/2"

Hubbell 1-3 1/2" In Holds, &c. 2. 3 1/2" in each hold. 2. 6-2 2-3 1/2"

No. of Bilge Injections ou sizes 9" Connected to circulating pump Yes Is a separate Donkey Suction fitted in Engine Room & size 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 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 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

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper ER Platform

BOILERS, &c. — (Letter for record)

Total Heating Surface 2DE + 2SE Boilers = 13452 sq ft Manufacturers of Steel Steel Co of Scotland

Working Pressure 200 Tested by hydraulic pressure to 350 No. and Description of Boilers 2 Double Ended

Can each boiler be worked separately Yes Area of fire grate in each boiler 126.5 sq ft No. and Description of Safety Valves to each boiler 2 Double 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 21" Mean dia. of boilers 15.9" Length 17.6" Material of shell plates S

Thickness 1 1/2" Range of tensile strength 30/34 Are the shell plates welded or flanged Yes Descrip. of riveting: cir. seams TR

long. seams TR + DBS Diameter of rivet holes in long. seams 19.16" Pitch of rivets 10 1/2" Length of plate or width of butt straps 22 1/2"

Per centages of strength of longitudinal joint plates rivets 84.5% Working pressure of shell by rules 210 Size of manhole in shell 16x12"

Size of compensating ring 8x1 1/2" No. and Description of Furnaces in each Boiler 6 Bourgeois Material S Outside diameter 40"

Length of plain part top 213" Thickness of plates crown 21 1/2" bottom 32" Description of longitudinal joint weld No. of strengthening rings 15/16"

Working pressure of furnace by the rules 213 Combustion chamber plates: Material S Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 15/16"

Pitch of stays to ditto: Sides 9 1/2x9 1/2" Back 9 1/2x9 1/2" Top 9 1/2x9 1/2" If stays are fitted with nuts or riveted heads Yes Working pressure by rules 218

Material of stays S Thickness at smallest part 1.085" Area supported by each stay 87.89" Working pressure by rules 203 End plates in steam space

Material S Thickness 1 1/4" Pitch of stays 2 1/4x1 1/2" How are stays secured DN Working pressure by rules 212 Material of stays S

Diameter at smallest part 7.49" Area supported by each stay 334.6" Working pressure by rules 232 Material of Front plates at bottom S

Thickness 1 1/8" Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules 218

Diameter of tubes 3 1/4" Pitch of tubes 49/16x4 1/2" Material of tube plates S Thickness: Front 1 1/8" Back 7/8" Mean pitch of stays 1.25"

Pitch across wide water spaces 14 1/4" Working pressures by rules 224 Girders to Chamber tops: Material S Depth and

Thickness of girder at centre 10 1/2x2" Length as per rule 40 1/4" Distance apart 93/8" Number and pitch of stays in each 3 at 93/8"

Working pressure by rules 202 Steam dome: description of joint to shell % of strength of joint Diameter

Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets

Working pressure of shell by rules Crown plates: Thickness How stayed

253
126
379

W382-0075

SUPERHEATER. Type *Schmidt* Date of Approval of Plan *see Col. attached* Tested by Hydraulic Pressure to *600lb*
 Date of Test *see Col. attached* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *yes*
 Diameter of Safety Valve *2"* Pressure to which each is adjusted *20* Is Easing Gear fitted *yes*

IS A DONKEY BOILER FITTED? *NO* If so, is a report now forwarded?

SPARE GEAR. State the articles supplied: *2 Balls nuts for each size of Rotor Bearing, ditto for Main Gear Shaft. 2 Balls nuts for Pinion Bearing. 1 Set of Coupling bolts of each size used. 1/20" of total No. of bolts nuts for each gear. 1/20" of total No. of bolts nuts for each Turbine Pinion joint. 2 Turn screws for oil circulating system. 1 Set of Main Bearing for the gear shaft. 1 Set of Bearing washers for Rotor. 1 Set of Bearing washers for Pinion shaft. One half set of rings for each gland of Rotor shaft. 1 half set of Springs fitted. Sufficient Parts for one pair of Mitchell Thrust. 1 Set of adjusting block of different thicknesses. 1 Set of Fuel pump gaskets. ditto for Bilge. 1 Set of Lubrication oil pump. 1 Bucket for lubricating oil pump. 1 Brass valve opening for each valve fitted a quantity of ammonia bolts nuts studs Bars plates of Steel*

DUNSMUIR & JACKSON, Limited.
 The foregoing is a correct description,
James Fletcher Manufacturer.

Dates of Survey while building
 During progress of work in shops -- *1919 Sep 30. Oct 9. Nov 18. 25. Dec 5. 8. 16. 19. 1920 Jan 12. 16. 21. 28. 30. Feb 5. 10. 17. 26. Mar 2. 9. 11. 15. 17. 23. Apr 1. 18. 20.*
 During erection on board vessel -- *May 3. 18. 19. 23. 25. Jun 4. 9. 17. 21. 23. 29. July 7. 13. 14. Aug 11. 27. 31. Sep 8. 10. 15. 16. 17. 21. 28. Oct 1. 5. 14. 18. 21. 25. Nov 3. 12. 16. 22. 24. 26. 29. Dec 2. 6. 9. 10. 13. 17. 20. 25. 30. (1921) Jan 13. 19. 21. 24. 25. 27. Feb 2. 7. 9. 10. 15. 16. 18. 22. 23. 25. 28. Mar 1. 2. 3. 4. 7. 11. 22. 31. Apr 14. 27. Sep 15. 29.*
 Total No. of visits *104.* Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Casings *5. 10. 20* Rotors *24. 11. 20* Blading *14. 10. 20* Gearing *25. 10. 20*
 Rotor shaft *13. 12. 20* Thrust shaft *6. 12. 20* Tunnel shafts *13. 12. 20* Screw shaft *12. 11. 20* Propeller *24. 11. 20*
 Stern tube *24. 11. 20* Steam pipes tested *10. 2. 21* Engine and boiler settings *13. 12. 20* Engines holding down bolts *3. 3. 20*
 Completion of pumping arrangements *22. 3. 21* Boilers sized *16. 2. 21* Engines tried under steam *29. 9. 21*

Main boiler safety valves adjusted *31. 3. 21* Thickness of adjusting washers *SOE PDE PSE AIS E 5/16 P 3/8 S 1/32*
 Material and tensile strength of Rotor shaft *S 31. 35 ksi* Identification Mark on Do. *LLOYDS RMC*
 Material and tensile strength of Pinion shaft *S 40. 45 ksi* Identification Mark on Do. *H82 WGM*
 Material of Wheel shaft *S* Identification Mark on Do. *LLOYDS H82* Material of Thrust shaft *S* Identification Mark on Do. *LLOYDS WGM*
 Material of Tunnel shafts *S* Identification Marks on Do. *WGM H82* Material of Screw shafts *S* Identification Marks on Do. *H82*
 Material of Steam Pipes *9.10.21* Test pressure *600lb*

Is an installation fitted for burning oil fuel *yes* Is the flash point of the oil to be used over 150°F. *yes*
 Have the requirements of Section 49 of the Rules been complied with *yes*
 Is this machinery a duplicate of a previous case *910* If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, etc.) *These Engines Boilers have been built under special survey in accordance with the approved plans. The workmanship, material are of good quality. They have been securely fitted on board. Found in all respects satisfactory, are in my opinion eligible for the record of LMC 9.21. fitted with oil fuel 9.21 F.P. above 150°F*
It is submitted that this vessel is eligible for THE RECORD. + LMC 9.21. CL.

2 Steam Turbines geared to 1 Screw Shaft.
 Fitted for oil fuel 9.21. F.P. above 150°F.
W. Gordon-Muclint
 Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee	£ 6 - -	When applied for,	4.10.21
Special	£ 118 - 11		
Donkey Boiler Fee	£ - -	When received,	8.10.21
Travelling Expenses (if any)	£ - -		

Committee's Minute *GLASGOW 4-OCT 1921*
 Assigned *+ LMC 9.21. Fitted for oil fuel 9.21 F.P. above 150°F*
 MACHINERY DEPT. WRITTEN 6.10.21 ed 13.10.21

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