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REPORT ON WATER TUBE BOILERS.

No. 11.382

Received at London Office 15 OCT 1934

of writing Report 19 When handed in at Local Office 13 - 10 - 1934 Port of Belfast

Visits included in first entry michy.

No. in Reg. Bk. 59 Survey held at Belfast Date, First Survey Last Survey 19

Number of Visits

on the TWIN Sc. ASTURIAS Tons Gross Net

Built at Belfast By whom built Harland & Wolff Ld. When built 1925

Engines made at Belfast By whom made Harland & Wolff Ld. When made 1934

Boilers made at Belfast By whom made Harland & Wolff Ld. When made 1934

Registered Horse Power Owners Royal Mail Lines, Ltd. Port belonging to Belfast

WATER TUBE BOILERS—MAIN, ~~AUXILIARY, OR DONKEY~~.—Manufacturers of Steel Drums Brown & J. Jack Ltd.

Register for Record 5) Date of Approval of plan 23 - 2 - 34 **Number and Description or Type of Boilers** Three Johnson Type Working Pressure 450 lbs" Tested by Hydraulic Pressure to 725 lbs" Date of Test 4th-9th-20th June 1934

Date of Certificate 974-5-6 Can each boiler be worked separately Yes **Total Heating Surface of Boilers** Boilers 24780 ☐' Splrs 5850 ☐'

Is forced draught fitted Yes **Area of fire grate (coal) in each Boiler** None Total grate area of boilers in vessel including Main and Auxiliary ✓ No. and type of burners (oil) in each boiler ✓ Seven No and description of safety valves on

3 Springloaded 450 lbs"

1 " " 1 Springloaded pilot Area of each valve 9·6 ☐" ✓ 3·140 ☐" ✓ 1·772 ☐" Pressure to which they are adjusted 435 lbs" 435 lbs" pilot

Are they fitted with easing gear Yes ✓ In case of donkey boilers state whether steam from main boilers can enter the donkey boiler No.

Smallest distance between boilers or uptakes and bunkers or woodwork 3'-0" ✓ Height of Boiler 7'-0" Width and Length at 11'-0" × 12'-6"

Steam Drums:—Number in each boiler One Inside diameter 4'-5 3/4" ✓ Material ~~of plates~~ Solid Steel Forging Thickness 2 9/32" (1")

Tensile Strength 34 - 38 Tons ☐" Are drum shell plates welded or flanged ✓ Description of riveting:—

Cir. seams / long. seams ✓ Diameter of rivet holes in long. seams ✓ Pitch of Rivets ✓

Lap of plate or width of butt straps ✓ ✓ ✓ Thickness of straps ✓ ✓ Percentage strength of long. joint:—Plate ✓ Rivet ✓

Diameter of tube holes in drum 1 1/4" 1 3/4" 2 1/4" 4" Pitch of tube holes 1 7/8" 2 5/8" 3 3/8" 6" Percentage strength of shell in way of tubes 33 1/3

Is Drum has a flat side state method of staying ✓ Depth and thickness of girders at centre (if fitted) ✓ Distance apart ✓ Number and pitch of stays in each ✓ Working pressure by rules approved for 450 lbs"

Steam Drum Heads or Ends:—Material Thickness 4 1/8" Radius ~~or how stayed~~ Solid 19"

Size of Manhole ~~or Handhole~~ 16"×12" **Water Drums:**—Number in each boiler One Inside Diameter 36"

Material ~~of plates~~ Steel Solid Forging Thickness 1 7/8" Range of tensile strength 34 - 38 Tons ☐" Are drum shell plates welded or flanged ✓ Description of riveting:—Cir. seams ✓ long. seams ✓ Diameter of Rivet Holes in Cir. seams ✓ Pitch of rivets ✓ Lap of plates or width of butt straps ✓ Thickness of straps ✓

Percentage strength of long. joint:—Plate ✓ Rivet ✓ Diameter of tube holes in drum as Steam drum Pitch of tube holes as Steam Drum

Percentage strength of drum shell in way of tubes 33 1/3 **Water Drum Heads or Ends:—Material** ✓ Thickness 3/8"

Radius ~~or how stayed~~ Solid 10" Size of manhole ~~or handhole~~ 16"×12" **Headers or Sections:**—Number ✓

Material ✓ Thickness ✓ Tested by Hydraulic Pressure to ✓ Material of Stays ✓

Area at smallest part ✓ Area supported by each stay ✓ Working Pressure by Rules ~~Applied~~ for 450 lbs **Tubes:**—Diameter 1/4"-1 1/4"-2 1/4"-4"

Thickness No. 11. No. 9. No. 6 WG + 1/4" Number 1176-87-194-16 **Steam Dome or Collector:**—Description of Joint to Shell ✓

Percentage 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 or End Plates:**—Material ✓ Thickness ✓ How stayed ✓

SUPERHEATER. Type Superheater Co. Ltd Johnson Date of Approval of Plan 24 - 2 - 34 Tested by Hydraulic Pressure to 900 lbs"

Date of Test 5th + 7th July 1934 Is a safety valve fitted to each section of the superheater which can be shut off from the Boiler ✓

Diameter of Safety Valve 3 of 3 1/2" See above ✓ Pressure to which each is adjusted 450 lbs" Is easing gear fitted Yes

Is a drain cock or valve fitted at lowest point of superheater Yes Number, diameter, and thickness of tubes 80-1 1/2" d × No 9. 620-1 1/8" d × No. 11. ✓

Spare Gear. Tubes 7 Gaskets or joints:—Manhole Handhole Handhole plates

See list of Spare gear attached to mchy Rpt.

The foregoing is a correct description,

For HARLAND AND WOLFF, LIMITED.

A. J. Marshall

Assistant Secretary

Manufacturer.

Plates { During progress of work in shops - - } Is the approved plan of boiler forwarded herewith

Survey while building { During erection on board vessel - - - } Total No. of visits

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

These Boilers have been constructed under Special Survey to approved designs. The materials and workmanship are good. They have been efficiently installed, the safety valves adjusted under steam, the oil fuel installation and pressure lines tested & tried out under working conditions. No accumulation was noticeable. They are eligible, in my opinion, for the Society's class.

Survey Fee ... ... £ : : When applied for, 19

Travelling Expenses (if any) £ : : When received, 19

R Lee Jones

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 16 OCT 1934

Signed See J. E. Gracey

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