

REPORT ON BOILERS.

No. 32132

Received at London Office

JUL - 9 1937

Date of writing Report

192

When handed in at Local Office

- 8 JULY 1937

Port of

SUNDERLAND.

No. in Survey held at
Reg. Book.

SUNDERLAND.

Date, First Survey

Last Survey

1st July 1937

(Number of Visits

Gross

5249

Tons

Net

2977

Master

Built at

Sunderland

By whom built

J.H. Thompson & Co. Ltd.

No. 580

When built

1937

Engines made at

Sunderland

By whom made

N.E. Marine Eng. Co. Ltd.

Engine No. 2875

When made

1937

Boilers made at

Sunderland

By whom made

N.E. Marine Eng. Co. Ltd.

Boiler No. 2875

When made

1937

Nominal Horse Power

409

Owners

Macdonald & McIntyre

Port belonging to

Glasgow

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

The Steel Company of Scotland

(Letter for Record

S

Total Heating Surface of Boilers

5682 sq

Is forced draught fitted

yes

Coal or Oil fired

coal

No. and Description of Boilers

Three multitubular

Working Pressure

220 lbs.

Tested by hydraulic pressure to

380 lbs.

Date of test

23/4/37

No. of Certificate

4223

Can each boiler be worked separately

Area of Firegrate in each Boiler

46.3 sq

No. and Description of safety valves to each boiler

2 Direct Spring

Improved high lift

Area of each set of valves per boiler

per Rule

as fitted

6.28 sq

Pressure to which they are adjusted

220 lbs.

Are they fitted with easing gear

yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

1' 0"

Is oil fuel carried in the double bottom under boilers

no

Smallest distance between shell of boiler and tank top plating

2' 0"

Is the bottom of the boiler insulated

yes

Largest internal dia. of boilers

14' 6 7/32"

Length

11' 9"

Shell plates: Material

Steel

Tensile strength

29/32 tons/sq

Thickness

1 25/64"

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end

D.R.L.

long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams

1 7/16"

long. seams

Pitch of rivets

4 1/4"

10"

Percentage of strength of circ. end seams

plate

66.1

rivets

43.5

Percentage of strength of circ. intermediate seam

plate

85.6

rivets

86.7

Percentage of strength of longitudinal joint

plate

85.6

rivets

86.7

combined

88.59

Working pressure of shell by Rules

220.2 lbs.

Thickness of butt straps

outer

1 1/16"

inner

1 3/16"

No. and Description of Furnaces in each Boiler

3 Single conugated, stephen goulding

Material

Steel

Tensile strength

26/30 tons/sq

Smallest outside diameter

3' 5 21/32"

Length of plain part

top

bottom

yes

Thickness of plates

crown

4 5/16"

bottom

Description of longitudinal joint

weld

Dimensions of stiffening rings on furnace or c.c. bottom

yes

Working pressure of furnace by Rules

247 lbs.

End plates in steam space: Material

Steel

Tensile strength

26/30 tons

Thickness

1 1/32"

Pitch of stays

1' 8 1/4" x 1' 6 7/8"

How are stays secured

double nuts

Working pressure by Rules

220.7 lbs.

Tube plates: Material

front

Steel

back

Steel

Tensile strength

26/30 tons/sq

Thickness

29/32"

31/32"

Mean pitch of stay tubes in nests

9' 5"

Pitch across wide water spaces

1' 5"

Working pressure

front

233 lbs.

back

342 lbs.

Girders to combustion chamber tops: Material

Steel

Tensile strength

28/32 tons/sq

Depth and thickness of girder

at centre

1 1/2" x 1' 8"

Length as per Rule

3' 9"

Distance apart

9"

No. and pitch of stays

in each

4", 8 3/4"

Working pressure by Rules

223 lbs.

Combustion chamber plates: Material

Steel

Tensile strength

26/30 tons/sq

Thickness: Sides

25/32"

Back

25/32"

Top

25/32"

Bottom

25/32"

Pitch of stays to ditto: Sides

10 3/4" x 8 3/4"

Back

10 7/8" x 8 13/16"

Top

9" x 8 3/4"

Are stays fitted with nuts or riveted over

nuts fitted.

Working pressure by Rules

220.6 lbs.

Front plate at bottom: Material

Steel

Tensile strength

26/30 tons/sq

Thickness

29/32"

Lower back plate: Material

Steel

Tensile strength

26/30 tons/sq

Thickness

31/32"

Pitch of stays at wide water space

1' 3 1/4" x 8 13/16"

Are stays fitted with nuts or riveted over

nuts fitted.

Working Pressure

223 lbs.

Main stays: Material

Steel

Tensile strength

28/32 tons/sq

Diameter

At body of stay,

3/8"

or

Over threads

3 1/2"

No. of threads per inch

6

Area supported by each stay

1' 8 1/4" x 1' 6 7/8"

Working pressure by Rules

223 lbs.

Screw stays: Material

Steel

Tensile strength

26/30 tons/sq

Diameter

At turned off part,

2 1/8"

or

Over threads

2 1/8", 1 7/8", 1 3/4"

No. of threads per inch

9

Area supported by each stay

12' 4" x 10' 4", 10' 8" x 8 13/16"

Lloyd's Register
Foundation

current protection devices been tested under working conditions —

Joint Boxes, Section and Distribution Boards, is the

construction, protection, insulation, material, and position of these as per rule *yes*

Cables: Single, twin, concentric, or multicore *single wire* are the cables insulated and protected as per Tables IV, V, X or XI of the Rules *yes*

If the cables are insulated otherwise than as per Rule, are they of an approved type —

Fall of Pressure, state maximum between bus bars and

any point of the installation under maximum load *3.5 volts*

Cable Sockets, are the ends of all cables having a sectional

area of 0.04 square inch and above provided with soldering sockets *yes*

Paper Insulated and Varnished Cambric Insulated Cables,

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound —, or waterproof insulating tape —

Cable Runs, are the cables fixed as far as possible in accessible positions

not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage *yes* Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *yes*

Support and Protection of Cables, state how the cables are supported and protected *V.I.R. cables taped & braided in pipes in turntable; L.C.A.B. cables clipped up in engine room; L.C. cables clipped up in accom.*

If cables are run in wood casings, are the casings and caps secured by screws —, are the cap screws of brass —, are the cables run in separate grooves —. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII *yes*

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements *yes*

Joints in Cables, state if any, and how made, insulated, and protected *none made*

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands

yes Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed *yes* state the material of which the bushes are made *lead & fibre*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas

are their connections made as per Rule *yes*

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *yes*

Emergency Supply, state

position and method of control of the emergency supply and how the generator is driven

Navigation Lamps, are these separately wired *yes*, controlled by separate switch and separate fuses *yes*, are the fuses double pole *yes*

are the switches and fuses grouped in a position accessible only to the officers on watch *yes*

has each navigation lamp an automatic indicator as per Rule *yes*

Secondary Batteries, are they constructed and fitted as per Rule —

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight *yes*

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected —

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected —

how are the cables led

where are the controlling switches situated —

are all fittings suitably ventilated *yes*, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *yes*

Heating and Cooking Appliances, are they constructed and fitted as per Rule —, are air heaters constructed and fitted as per Rule —

Searchlight Lamps, No. of —, whether fixed or portable —, are their fittings as per Rule —

Arc Lamps, other than searchlight lamps, No. of —, are their live parts insulated from the frame or case —, are their fittings as per Rule —

Motors, are their working parts readily accessible *yes*, are the coils self-contained and readily removable for replacement *yes*

are the brushes, brush holders, terminals and lubricating arrangements as per Rule *yes*, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material *yes*, are they protected from mechanical injury and damage from water, steam or oil *yes*

are their axes of rotation fore and aft *yes*, if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type —

if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing — Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *yes*

Lightning Conductors, where lightning conductors

are required, are these fitted as per Rule — Ships carrying Oil having a Flash Point less than 150 F. Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings — are all fuses of the filled cartridge type — are they of an approved type —

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office —

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *yes*

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	12.5	110	114	550	single cylinder steam engine		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	1	1	19	.083	114	118	12	V.I.R.	L.C.A.B.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM									
BOILER ROOM	1	.0045	7	.029	12.5	18.2	30	V.I.R.	L.C.A.B.
AUXILIARY SWITCHBOARDS									
navigation	1	.0045	7	.029	4	18.2	352	V.I.R.	L.C.A.B. & L.C.
ACCOMMODATION	1	.0145	7	.052	23	37	248	V.I.R.	L.C.A.B. & L.C.
WIRELESS	1	.0045	7	.029	12	18.2	352	V.I.R.	In pipe
SEARCHLIGHT									
MASTHEAD LIGHT	1	.0015	1	.044	.36	6.1	540	V.I.R.	In pipe
SIDE LIGHTS	1	.0015	1	.044	.36	6.1	60	V.I.R.	L.C.
COMPASS LIGHTS	1	.0015	1	.044	.14	6.1	30	V.I.R.	L.C.
STERN LIGHT	1	.0015	1	.044	.36	6.1	368	V.I.R.	In pipe
CARGO LIGHTS	1	.0017	23	.0076	1.8	3.0	80	V.I.R.	Cable type
FLOOD LAMPS	1	.0017	30	.0076	2.7	8.5	16	V.I.R.	Cable type
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										
Refrigerator Motor	1	1	.01	7	.044	27.25	31	352	V.I.R.	In pipe

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

M^{rs} Sunderland Forge & Co Ltd
A. S. Gurney

Electrical Engineers.

Date 1st - 4 - 1937.

COMPASSES.

Distance between electric generators or motors and standard compass 176 feet

Distance between electric generators or motors and steering compass 168 feet

The nearest cables to the compasses are as follows:—

A cable carrying .14 Ampères on the feet from standard compass 8 feet from steering compass.

A cable carrying .14 Ampères 8 feet from standard compass on the feet from steering compass.

A cable carrying Ampères feet from standard compass feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power yes

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted yes

The maximum deviation due to electric currents was found to be 1/2 degrees on every course in the case of the standard compass, and 1/2 degrees on every course in the case of the steering compass.

FOR AND ON BEHALF OF
JOSEPH L. THOMPSON & SONS, LIMITED.

R. C. Thompson

Builder's Signature.

Date 2-7-1937

Managing Director.

Is this installation a duplicate of a previous case yes If so, state name of vessel S.S. "Loch Du"

General Remarks (State quality of workmanship, opinions as to class, &c. The above installation has

been fitted out under special survey. The materials used and the workmanship are good. On completion the dynamo, governor, main board, switches, fuses, cables, motors and fittings were examined and tested under working conditions and found satisfactory and suitable for a classed vessel. This vessel is eligible, in my opinion, to have the notations D.F. and E.S.D. in the Register Book.

Noted

Yours

17.7.37

Total Capacity of Generators 12.5 Kilowatts.

The amount of Fee ...

£ 13 : -

When applied for,

6 July 1937

When received,

6.8.37

Travelling Expenses (if any) £

Committee's Minute

TUE 13 JUL 1937

Assigned

See other F.E. report

S. J. Santesson

Surveyor to Lloyd's Register of Shipping.



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Foundation