

REPORT ON MACHINERY

No. 11594
WFD. 6.11.1923

Received at London Office

Date of writing Report

19

When handed in at Local Office

2.6.23

Port of MIDDLESBROUGH

No. in Survey held at
Reg. Book.

South Bank, Middlesbrough

Date, First Survey 20th February

Last Survey 24th May

1923

(Number of Visits 28)

on the Single Screw Steel S.S. "DONALD STEWART"

Master

Built at South Bank, Mdbro.

By whom built Smith's Dock Co. Ltd. (Ship No 779)

Tons { Gross
Net

When built 1923.

Engines made at

South Bank, Middlesbrough.

By whom made Smith's Dock Co. Ltd. (Eng. No 235)

when made 1923.

Boilers made at

Newcastle-on-Tyne

By whom made R & W. Hawthorn Leslie & Co

when made 1923.

Registered Horse Power

Owners

J. F. M. Stewart

Port belonging to Middlesbrough

Nom. Horse Power as per Section 28

189

Is Refrigerating Machinery fitted for cargo purposes

No.

Is Electric Light fitted

Yes.

ENGINES, &c.—Description of Engines

Inverted Triple Expansion

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

16", 26", 44"

Length of Stroke

33"

Revs. per minute

85

Dia. of Screw shaft

as per rule 9.55"
as fitted 9.3"

Material of screw shaft

S.M.I. Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

Yes.

Is the after end of the liner made water tight

in the propeller boss

Yes

If the liner is in more than one length are the joints burned

Yes

If the liner does not fit tightly at the part

between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

Yes

If two

liners are fitted, is the shaft lapped or protected between the liners

Yes

Length of stern bush

3'-7"

Dia. of Tunnel shaft

as per rule 8.35"
as fitted 8.25"

Dia. of Crank shaft journals

as per rule 8.741"
as fitted 8.13"

Dia. of Crank pin

8 13/16"

Size of Crank webs

5 1/2" x 4 1/2"

Dia. of thrust shaft under

collars

8 13/16"

Dia. of screw

12'-0"

Pitch of Screw

11'-6"

No. of Blades

4

State whether moveable

Yes

Total surface

55 sq ft

No. of Feed pumps

2

Diameter of ditto

2 3/4"

Stroke

1'-4 1/2"

Can one be overhauled while the other is at work

Yes

No. of Bilge pumps

2

Diameter of ditto

2 3/4"

Stroke

1'-4 1/2"

Can one be overhauled while the other is at work

Yes

No. of Donkey Engines

2

Sizes of Pumps

FEED 6" x 4" x 6" VERT.
BALAST 2" x 1 1/2" x 10" VERT.

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

3 @ 4" each.

In Holds, &c. Nos 1 Hold, 4" to each of Port and Starboard.

No. 2 Hold, 4" to each of Port and Starboard.

No. 3 Hold, 4" to each of Port and Starboard.

No. of Bilge Injections

1

sizes

6"

Connected to condenser, or to circulating pump

Is a separate Donkey Suction fitted in Engine room & size

Yes - 4"

Are all the bilge suction pipes fitted with roses

Yes

Are the roses in Engine room always accessible

Yes

Are the sluices on Engine room bulkheads always accessible

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

Above

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

Yes

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

Mech. lift

Is it fitted with a watertight door

Yes

worked from

Yes

SEE NEWCASTLE REPORT No 76529.

BOILERS, &c.—(Letter for record

S.)

Manufacturers of Steel

John Spencers & Co.

2.S.B.

Total Heating Surface of Boilers

2850 sq ft

Is Forced Draft fitted

Yes

No. and Description of Boilers

2-cylindrical, Multitubular, Single-headed.

Working Pressure

180 lbs/sq in

Tested by hydraulic pressure to

320 lbs/sq in

Date of test

26-2-23

No. of Certificate

9732.

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

39 sq ft approx

No. and Description of Safety Valves to

each boiler

2 - Direct Acting Spring Loaded

Area of each valve

4.9 in²

Pressure to which they are adjusted

184 lbs/sq in

Are they fitted with easing gear

Yes

Smallest distance between boilers or uptakes and bunkers or woodwork

12" approx.

Mean dia. of boilers

12'-6"

Length

10'-6"

Material of shell plates

Steel

Thickness

1 1/2"

Range of tensile strength

28-32 tons/sq in

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

D.R. lap.

long. seams

D.B.S.T.R.

Diameter of rivet holes in long. seams

1 1/8"

Pitch of rivets

8 13/16"

Length of plates

16' 5/8"

Width of butt straps

16' 5/8"

Per centages of strength of longitudinal joint

rivets 94.7
plate 85.6

Working pressure of shell by rules

180 lbs/sq in

Size of manhole in shell

16" x 20"

Size of compensating ring

7 1/4" x 1 1/8"

No. and Description of Furnaces in each boiler

2 - Daylight

Material

Steel

Outside diameter

42 5/8"

Length of plain part

top 2' 1/2"
bottom 2' 1/2"

Thickness of plates

crown 3/16"
bottom 3/16"

Description of longitudinal joint

Welded

No. of strengthening rings

Yes

Working pressure of furnace by the rules

191 lbs/sq in

Combustion chamber plates: Material

Steel

Thickness: Sides

3/32"

Back

3/32"

Top

3/32"

Bottom

1"

Pitch of stays to ditto: Sides

9 1/4" x 8 1/2"

Back

9" x 9"

Top

9 1/4" x 8 1/2"

If stays are fitted with nuts or riveted heads

Nuts

Working pressure by rules

190 lbs/sq in

Material of stays

Steel

Area at smallest part

2.03 in²

Area supported by each stay

81 in²

Working pressure by rules

212 lbs/sq in

Material

Steel

Thickness

1 3/32"

Pitch of stays

17" x 16 1/2"

How are stays secured

Double Nuts

Working pressure by rules

197 lbs/sq in

Material of stays

Steel

Diam. at smallest part

2 3/4"

Area supported by each stay

280 in²

Working pressure by rules

197 lbs/sq in

Material of Front plates at bottom

Steel

Thickness

1 1/32"

Material of Lower back plate

Steel

Thickness

7/8"

Greatest pitch of stays

13 1/2" x 9"

Working pressure of plate by rules

238 lbs/sq in

Diameter of tubes

3 1/4"

Pitch of tubes

4 1/2" x 4 1/2"

Material of tube plates

Steel

Thickness: Front

1 1/32"

Back

3/4"

Mean pitch of stays

9"

Pitch across wide water spaces

14 1/2"

Working pressures by rules

Back - 247 lbs/sq in

Girders to Chamber tops: Material

Steel

thickness of girder at centre

6 1/2" x 1 1/2"

Length as per rule

31.59"

Distance apart

8 1/2"

Number and pitch of stays in each

2 @ 9 1/4"

Working pressure by rules

200 lbs/sq in

Steam dome: description of joint to shell

Yes

% of strength of joint

Yes

Diameter

Yes

Thickness of shell plates

Yes

Material

Yes

Description of longitudinal joint

Yes

Diam. of rivet holes

Yes

Pitch of rivets

Yes

Working pressure of shell by rules

Yes

Crown plates

Yes

Thickness

Yes

How stayed

Yes

IS A DONKEY BOILER FITTED?

no ✓

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 2 Bottom End Bolts and Nuts; 2 Top End Bolts and Nuts; 2 Main Bearing Bolts and Nuts; 1 Set Coupling Bolts and Nuts; 2 Feed Pump Valves for each of main and auxiliary pumps; 2 Bilge Pump Valves; 6 Condenser Tubes; 50 Condenser Ferrules; 1 Set Air Pump Valves; 1 Set Ballast Pump Valves; 2 Main and Donkey Check Valve Lids; 1 Set Sanitary Pump Valves; 50 lbs Iron Plate $\frac{1}{8}$ " and $\frac{1}{4}$ " thick; Assorted Lengths of Iron Bars; 4 Propeller Blades and one set studs and nuts for one blade; 1 Set Ramsbottom Rings for H.P. Piston.

The foregoing is a correct description,

FOR SMITH'S DOCK COMPANY

Manufacturer.

Engine Works Museum

28/5/23.

<i>Dates of Survey while building</i>	{	<i>During progress of work in shops - -</i>	}
		<i>During erection on board vessel - - -</i>	
		<i>Total No. of visits</i>	

1033 4 26 30 May 3 16 23 27 28 11 14 20 23 24 25 30 May 2 4 5 7 9 11 14 15 16 17 18 23 24 25 29

Is the approved plan of main boiler forwarded herewith

“ “ “ *donkey* “ “ “

Dates of Examination of principal parts—Cylinders 27/3/23. *Slides* 11/4/23. *Covers* 27/3/23. *Pistons* 11/4/23. *Rods* 23/3/23.

Connecting rods 23 | 3/23 Crank shaft Dundee Thrust shaft Dundee Tunnel shafts ☒ Screw shaft Dundee Propeller 22/3/23

Stern tube 14/4/23 Steam pipes tested 30/4/23 Engine and boiler seatings 14/4/23 Engines holding down bolts 2/5/23.

Completion of pumping arrangements 16/5/23. Boilers fixed 2/5/23. Engines tried under steam 16/5/23.

Completion of fitting sea connections 14/4/23 Stern tube 14/4/23 Screw shaft and propeller 23/4/23 $\rho = \frac{14}{32}$

Main boiler safety valves adjusted 15/5/23. Thickness of adjusting washers *Portul* 5 = $\frac{3\frac{1}{2}}{8}$ " *Stand. Boils* 5 = $\frac{15}{32}$ " N^o 940

Material of Crank shaft S.M.I Steel Identification Mark on Do. J.E.S. Material of Thrust shaft S.M.I Steel Identification Mark on Do. J.E.S.

Material of Tunnel shafts None. Identification Marks on Do. ✓ Material of Screw shafts S.M.I. Steel Identification Marks on Do. I.E.S.

Material of Steam Pipes Copper ✓ Test pressure 360 lb/in²

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 duplicate of a previous case Yes If so, state name of vessel S.S. KEYSTATE AND KEYBAR (Nos 11539 and 11562)

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been*

built under special survey. The materials and workmanship are sound and good. The Engines and Boilers have been satisfactorily secured on board, examined under steam, the safety valves adjusted and all found satisfactory.

The machinery is now in a good and safe working condition and renders the vessel eligible in our opinion to have the notation of **✱ LMC-5-23** in the Register Book.

It is submitted that
this vessel is eligible for
THE RECORD. + LMC 5-23 FD. CL

The amount of Entry Fee ... £ 3 - 5 - 07 ✓ When applied for.

Special ... *Indb.* £ 25-: 15-0 5 5.6. 19.23

Donkey Boiler Fee ... £ 6.00 When Received.

Travelling Expenses (if any) £ : :

Committee's Minute TUE. 12 JUN 1923

Assigned

+ Lb 523 F.D. C.L.

D. S. Whiteford & Wm Morrison
Engineer Surveyor to Lloyd's Register of Shipping.

Q. What is the date of the photograph?

Lloyd's Register
Foundation