

REPORT ON MACHINERY.

No. 74944

Received at London Office 15 NOV. 1921

Date of writing Report

19

When handed in at Local Office

21. 10. 1921 Port of

NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle-on-Tyne

Date, First Survey

24 Oct. 1919

Last Survey

18 Oct.

1921

Reg. Book.

16271 on the Steel S.

FROGNER

M.S. 18

(Number of Visits 169)

Tons } Gross
Net

Master

Built at Newcastle

By whom built Armstrong Whitworth & Co. Ltd. No. 966

When built 1921

Engines made at Newcastle

By whom made Armstrong Whitworth & Co. Ltd. M.S. 18

when made 1921

Boilers made at do.

By whom made do.

when made 1921

Registered Horse Power

Owners Steamley & Co.

Port belonging to Christiania

Nom. Horse Power as per Section 28

548

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes

ENGINES, &c.—Description of Engines Inverted Triple Expansion

No. of Cylinders Three

No. of Cranks Three

Dia. of Cylinders 27" 44" 74" Length of Stroke 51" Revs. per minute 75

Dia. of Screw shaft as per rule 15.05 as fitted 15.4 Material of screw shaft 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

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 66"

Dia. of Tunnel shaft as per rule 13.61 as fitted 14"

Dia. of Crank shaft journals as per rule 14.29 as fitted 14.34

Dia. of Crank pin 14.34 Size of Crank webs 28"x9 1/2" Dia. of thrust shaft under collars 14.34

Dia. of screw 18.0" Pitch of Screw 16.9"

No. of Blades 4

State whether moveable Yes

Total surface 98 sq

No. of Feed pumps 2

Diameter of ditto 4 1/4"

Stroke 25 1/2"

Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2

Diameter of ditto 4 1/4"

Stroke 25 1/2"

Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3

Sizes of Pumps 10 1/2"x12"x10"-12"x9"x2"-12"x9"x2" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 4. 3 1/2" dia

In Holds, &c. Two in each Hold 3 1/2"

Jumel bell 3"

No. of Bilge Injections 1 sizes 9" Connected to condenser, or to circulating pump 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 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

Forward Hold Suctions

How are they protected

Wood Cased

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

Top platform

BOILERS, &c.—(Letter for record S)

Manufacturers of Steel

J. Spencer & Sons

Total Heating Surface of Boilers 8112 sq Is Forced Draft fitted Yes No. and Description of Boilers 3 Single-End Multitubular

Working Pressure 180

Tested by hydraulic pressure to 360

Date of test 17.1.21

No. of Certificate 9516

Can each boiler be worked separately

Yes

Area of fire grate in each boiler 61 sq

No. and Description of Safety Valves to

each boiler 2. Spring-loaded Area of each valve 8.29 sq

Pressure to which they are adjusted 185 lbs

Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 58 1/2"

Mean dia. of boilers 15.6"

Length 12.6"

Material of shell plates Steel

Thickness 1 1/4"

Range of tensile strength 28/32 T

Are the shell plates welded or flanged No.

Descrip. of riveting: cir. seams DR.

long. seams T.R. Butt Strap

Diameter of rivet holes in long. seams 1 3/32"

Pitch of rivets 8 1/16"

Lap of plates or width of butt straps 19"

Per centages of strength of longitudinal joint

rivets 92.0 plate 85.2

Working pressure of shell by rules 180.0

Size of manhole in shell In end plate 16"x12"

Size of compensating ring Flanged plate

No. and Description of Furnaces in each boiler 3 Deighton

Material Steel

Outside diameter 3'-10 1/8"

Length of plain part

top

Thickness of plates

crown

bottom

Description of longitudinal joint

weld

No. of strengthening rings

Working pressure of furnace by the rules 180

Combustion chamber plates: Material Steel

Thickness: Sides 5/8"

Back 21/32"

Top 5/8"

Bottom 1"

Pitch of stays to ditto: Sides 9 1/4"x8"

Back 9 1/2"x8 1/8"

Top 8 1/2"x8"

If stays are fitted with nuts or riveted heads

nuts

Working pressure by rules 180

Material of stays Steel

Area at smallest part 1.727 sq

Area supported by each stay 76.0"

Working pressure by rules 200

End plates in steam space:

Material Steel

Thickness 1 1/4"

Pitch of stays 19"x2 1/4"

How are stays secured DR. & W.

Working pressure by rules 180

Material of stays Steel

Area at smallest part 7.240 sq

Area supported by each stay 403.75

Working pressure by rules 200

Material of Front plates at bottom Steel

Thickness 3 1/32"

Material of Lower back plate Steel

Thickness 29/32"

Greatest pitch of stays 15 1/8"

Working pressure of plate by rules 220

Diameter of tubes 2 1/2"

Pitch of tubes 3 3/4"x3 3/4"

Material of tube plates Steel

Thickness: Front 3/32"

Back 3/4"

Mean pitch of stays 9 3/8"

Pitch across wide water spaces 13 5/8"

Working pressures by rules 193

Girders to Chamber tops: Material Steel

Depth and

thickness of girder at centre 8 1/4"x12 1/4"

Length as per rule 34 1/2"

Distance apart 8 1/2"

Number and pitch of stays in each 3-8"

Working pressure by rules 204

Steam dome: description of joint to shell

% of strength of joint

Diameter

Thickness of shell plates

Material

Description of longitudinal joint

Diam. of rivet holes

Pitch of rivets

Working pressure of shell by rules

Crown plates

Thickness

How stayed

SUPERHEATER. Type

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

Lloyd's Register Foundation

11200-0104

IS A DONKEY BOILER FITTED?

No.

If so, is a report now forwarded?

✓

SPARE GEAR. State the articles supplied:—

2 Top End Bolts + nuts. 2 Bottom End Bolts + nuts. 2 main Bearing Bolts
1 set Coupling Bolts - 1 set of Feed + Bilge Pump valves. Assorted Bolts nuts + iron. Screw Shaft - one throw of
Crankshaft - 1 Bottom End Bush - 1 Top End Bearing. Two valve spindles - One eccentric strap complete. one Air pump
rod - set of link brasses, set of piston springs, 6 Link ring bolts, 6 Cylinder Cover bolts
36 Condenser tubes - 1/2 set of propeller blades, space for Oil Fuel Installation, Hardened forced draught
sets of valves, springs and piston rings for Auxiliary + Donkey Feed pumps, sets of valves for General
Service Ballast pumps, set of safety valve springs

The foregoing is a correct description,

SIR W. G. ARMSTRONG, WHITWORTH & CO. LIMITED.

T. H. Jackson, Manufacturer.

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

Dates of Examination of principal parts—Cylinders 23.3.21 Slides 7.2.21 Covers 11.11.20 Pistons 7.2.21 Rods 3.5.20
Connecting rods 3.5.20 Crank shaft 11.8.20 Thrust shaft 11.8.20 Tunnel shafts 11.8.20 Screw shaft 4.7.21 Propeller 26.7.21
Stern tube 8.4.21 Steam pipes tested 10.6.21 Engine and boiler seatings 5.4.21 Engines holding down bolts 5.9.21
Completion of pumping arrangements 15.10.21 Boilers fixed 25.5.21 Engines tried under steam 12.10.21
Completion of fitting sea connections 5.4.21 Stern tube 6.6.21 Screw shaft and propeller 26.8.21
Main boiler safety valves adjusted 12.10.21 Thickness of adjusting washers $4\frac{1}{2}$ Bl. $P\frac{3}{4}$ $S\frac{5}{8}$, $Cbl. P\frac{3}{4}$ $S\frac{3}{4}$, $Sh. Bl. P\frac{3}{4}$ $S\frac{3}{8}$.
Material of Crank shaft S.M. Steel Identification Mark on Do. T.F. 8.20 Material of Thrust shaft S.M. Steel Identification Mark on Do. T.F. 8.20
Material of Tunnel shafts S.M. Steel Identification Marks on Do. T.F. 8.20 Material of Screw shafts S.M. Steel Identification Marks on Do. R.L.A. 7.20
Material of Steam Pipes S.D. Steel $5\frac{1}{2}$ " $\frac{1}{2}$ " x No 4. W.G. Test pressure 540 lbs. sq. in.
Is an installation fitted for burning oil fuel ☒ 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 No. If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery and Boilers of this vessel have
been constructed under Special Survey. The materials and workmanship are sound and good.
An oil fuel burning installation of the Hallend-Harden System has been fitted and the Boilers are arranged
for coal or oil-burning. The requirements of Section 49 of the Rules and the Secretary's letters of 19th Sept 1919 + 7th Nov. 19
have been complied with + the oiling tanks are fitted with "Teledep" depth gauges. A steam fire-extinguishing line
has been fitted below the boilers. The machinery and auxiliaries have been tried out under steam
with satisfactory results. In our opinion the machinery of this vessel is eligible for
classification with record T.L.M.C. 10.21 Fitted for oil fuel F.P. above 150°F. 10.21

It is submitted that
this vessel is eligible for
THE RECORD.

T.L.M.C. - 10.21. F.D. C.L.

Fitted for Oil Fuel 10.21. F.P. above 150°F.

Ans. L. J. 17/11/21.

The amount of Entry Fee ...	£ 6 : —	When applied for,	14/11/21.
Special ...	£ 102 : 8	When received,	24.11.21.
Donkey Boiler Fee ...	£ —		
Travelling Expenses (if any) £	—		

R. E. Amers. & Thomas Field
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 22 NOV. 1919

Assigned + L.M.C. 10.21 30. C.L.
Fitted for oil fuel &c

CERTIFICATE WRITTEN



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Foundation