

# REPORT ON MACHINERY.

Received at London Office MON. AUG. 23 1920

Date of writing Report 19 When handed in at Local Office 21 AUG 1920 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 12 April Last Survey 18 Aug 1920

Reg. Book: on the S/S "BOMBARDIER" ex Kilehennan (Number of Visits 11)

Master Smith Built at Middlesbro' By whom built Smith's Dock Co. (S/N 725) Tons Gross 611 Net 259

Engines made at Middlesbro' By whom made Smith's Dock Co. Ltd (N° 197) when made 1918

Boilers made at Sunderland By whom made North Eastern Marine Eng. Co. Ltd (N° 2338) when made 1918

Registered Horse Power Owners T. E. Brown Port belonging to Newcastle

Nom. Horse Power as per Section 28 116 Is Refrigerating Machinery fitted for cargo purposes Electric Light fitted yes

**ENGINES, &c.**—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 16" 26" 44" Length of Stroke 26 Revs. per minute originally 180. Dia. of Screw shaft as per rule 8.5 as fitted 8 3/4 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 If two liners are fitted, is the shaft lapped or protected between the liners Length of stern bush 4'-1"

Dia. of Tunnel shaft as per rule 7.95 as fitted 8 1/2 Dia. of Crank shaft journals as per rule 8.35 as fitted 8 1/2 Dia. of Crank pin 8 3/4 Size of Crank webs 13" x 5 1/2" Dia. of thrust shaft under collars 8 1/2 Dia. of screw 9'-6" Pitch of Screw 8'-6" No. of Blades 4 State whether moveable no Total surface 36 sq ft

No. of Feed pumps 2 Weirs Diameter of ditto 7" Stroke 18" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 one duplex Diameter of ditto 6" Stroke 6" Can one be overhauled while the other is at work

No. of Donkey Engines 2 Sizes of Pumps 7 1/4 x 8 6 1/4 x 6 No. and size of Suctions connected to both Bilge and Donkey pumps port ejector

In Engine Room 4 @ 2" (separate ejectors on S & B side) In Holds, &c. N° 1 hold - 1 @ 2 1/2" N° 2 hold - 1 @ 2 1/2" N° 3 hold - 2 @ 2 1/2"

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 2"

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 none

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 forward hold suction How are they protected wood casing

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 Is it fitted with a watertight door worked from

**BOILERS, &c.**—(Letter for record S) Manufacturers of Steel John Spence & Sons Ltd.

Total Heating Surface of Boilers 18250 sq ft Is Forced Draft fitted no No. and Description of Boilers one single ended marine

Working Pressure 200 Tested by hydraulic pressure to 400 lb hyd pressure Date of test 11-12-17 No. of Certificate 2059 see S/N L E, 12-5-20

Can each boiler be worked separately Area of fire grate in each boiler 51 sq ft No. and Description of Safety Valves to each boiler two direct spring Area of each valve 5.94 sq ft Pressure to which they are adjusted 205 Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers on woodwork 9" Mean dia. of boilers 13'-0" Length 11'-6" Material of shell plates steel

Thickness 1 1/4" Range of tensile strength 28-32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams BR

Diagonal seams DBS. TR Diameter of rivet holes in long. seams 1 1/4 Pitch of rivets 9 5/16 Lap of plates or width of butt straps 19"

Per centages of strength of longitudinal joint rivets 86.59 plate 86.58 Working pressure of shell by rules 200 lb Size of manhole in shell 16" x 12"

Use of compensating ring 2-11 1/2 + 2-7 1/2 + 1-6 No. and Description of Furnaces in each boiler 3 Deighton Material steel Outside diameter 3'-5 3/4"

Length of plain part top Thickness of plates crown 3/16 Description of longitudinal joint welded No. of strengthening rings

Working pressure of furnace by the rules 211 Combustion chamber plates: Material steel Thickness: Sides 11/16 Back 11/16 Top 11/16 Bottom 1"

Pitch of stays to ditto: Sides 8 3/4 x 9 Back 9 x 8 Top 9 x 8 1/2 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 207

Material of stays steel Area at smallest part 2.030" Area supported by each stay 78.750" Working pressure by rules 230 End plates in steam space:

Material steel Thickness 1 1/16 Pitch of stays 17 1/2 x 17 1/2 How are stays secured DN&W Working pressure by rules 206 Material of stays steel

Area at smallest part 5.910" Area supported by each stay 3060" Working pressure by rules 202 Material of Front plates at bottom steel

Thickness 1" Material of Lower back plate steel Thickness 1" Greatest pitch of stays 14" Working pressure of plate by rules 250

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4 x 3 1/16 Material of tube plates steel Thickness: Front 1" Back 3/4" Mean pitch of stays 7 1/2 x 11 1/4"

Pitch across wide water spaces 13 1/4" Working pressures by rules 204 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 7 1/2 x 1 3/4 Length as per rule 31 Distance apart 8 1/2 Number and pitch of stays in each 2 @ 9"

Working pressure by rules 200 Steam dome: description of joint to shell none % 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

IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied: - *Two connecting rod top and bottom end bolts and nuts. two main bearing bolts. one set of coupling bolts. one set of feed and lidge pump valves. wire and bolts of various sizes.*

FOR SMITH'S DOCK COMPANY, L<sup>d</sup>

The foregoing is a correct description,

FOR THE NORTH EASTERN MARINE ENGINEERS' CO. L<sup>d</sup>

*Geo D Weir*

*J. Peters*  
Engine Works Manager  
Manufacturer of engines.  
Manufacturer of boilers.

Dates of Survey while building  
During progress of work in shops --  
During erection on board vessel ---  
Total No. of visits

*see front page*  
*write*

a copy of *for this type*  
Is the approved plan of main boiler forwarded herewith  
" " " donkey " " "

Dates of Examination of principal parts—Cylinders *12-4-20* Slides *12-4-20* Covers *12-4-20* Pistons *12-4-20* Rods *12-4-20*  
Connecting rods *12-4-20* Crank shaft *15-4-20* Thrust shaft *15-4-20* Tunnel shafts *11-8-20* Screw shaft *not drawn* Propeller *11-8-20*  
Stern tube *not seen* Steam pipes tested *20-5-20* Engine and boiler seatings *11-8-20* Engines holding down bolts *11-8-20*  
Completion of pumping arrangements *11-8-20* Boilers fixed *11-8-20* Engines tried under steam *18-8-20*  
Completion of fitting sea connections *14-7-20* Stern tube ends *14-7-20* Screw shaft and propeller *11-8-20*  
Main boiler safety valves adjusted *18-8-20* Thickness of adjusting washers *both 3/8*  
Material of Crank shaft  Identification Mark on Do. *none* Material of Thrust shaft  Identification Mark on Do. *none*  
Material of Tunnel shafts  Identification Marks on Do. *none* Material of Screw shafts *Steel* Identification Marks on Do. *none*  
Material of Steam Pipes *Solid drawn steel* Test pressure *600 lbs per sq in*  
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 "BELSAT" ship No.*

General Remarks (State quality of workmanship, opinions as to class, &c.)

*With the exception of the stern tube and screw shaft, the whole of the machinery has been opened and examined and found in good condition. It is eligible in my opinion for classification and the record LMC 8.20*

SUNDERLAND

Certificate (if required) to be sent to  
The Surveyors are requested not to write on or below the space for Committee's Minute.

The amount of Entry Fee ... £ *combined:* When applied for, ...  
Special ... £ *fee* ...  
Donkey Boiler Fee ... £ *see ship Reg* ...  
Travelling Expenses (if any) £ ...

*S. C. Davis*

Engineer, Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. AUG. 27 1920

TUE. NOV. 20 1920

Assigned

*L.M.C. 8.20*

TUE. NOV. 29 1921

MACHINERY DEPT.  
WRITTEN



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