

REPORT ON MACHINERY.

Received at London Office *18 AUG. 1917*

Date of writing Report *25-7-17* When handed in at Local Office *2-8-17* Port of *Hull*

No. in Survey held at *Hull* Date, First Survey *15-9-16* Last Survey *30-7-17* 19

Reg. Book. on the *steel screw tug "Robert Beton"* (Number of Visits *38*)

Master *[blank]* Built at *Beverly* By whom built *Cook, Welton & Gemmell* Tons } Gross }
Net } When built *1917-7*

Engines made at *Hull* By whom made *Amos & Smith L^d 102917* when made *1917-7*

Boilers made at *Hull* By whom made *C. D. Holmes & Co L^d 101173* when made *1917-7*

Registered Horse Power *[blank]* Owners *British Admiralty* Port belonging to *[blank]*

Nom. Horse Power as per Section 28 *81* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *no*

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

Dia. of Cylinders *12 1/2 - 2 1/2 - 35 1/4* Length of Stroke *24* Revs. per minute *116* Dia. of Screw shaft *7 3/8* Material of screw shaft *Iron*

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 *2'-9"*

Dia. of Tunnel shaft *6.58* Dia. of Crank shaft journals *6.91* Dia. of Crank pin *7 1/4* Size of Crank webs *4 1/2 x 4 1/2* Dia. of thrust shaft under collars *7 1/4* Dia. of screw *9'-0"* Pitch of Screw *11'-3"* No. of Blades *4* State whether moveable *no* Total surface *31.54*

No. of Feed pumps *one* Diameter of ditto *2 3/4* Stroke *12* Can one be overhauled while the other is at work *yes*

No. of Bilge pumps *one* Diameter of ditto *2 3/4* Stroke *12* Can one be overhauled while the other is at work *yes*

No. of Donkey Engines *one 43 cwt* Sizes of Pumps *6 1/4, 4 3/4 x 6" dup* No. and size of Suctions connected to both Bilge and Donkey pumps *In Engine Room Two 2" dia* In Holds, &c. *one 2" dia in each compartment*

all suction also connected to ejector

No. of Bilge Injections *one* sizes *3"* Connected to condenser, or to circulating pump *pump* Is a separate Donkey Suction fitted in Engine room & size *3" ejector*

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 suction* How are they protected *strong casings*

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 *yes*

BOILERS, &c.—(Letter for record *S*) Manufacturers of Steel *J. Spencer & Sons*

Total Heating Surface of Boilers *1402* Is Forced Draft fitted *no* No. and Description of Boilers *one single ended*

Working Pressure *195* Tested by hydraulic pressure to *390* Date of test *9-5-17* No. of Certificate *3211*

Can each boiler be worked separately *yes* Area of fire grate in each boiler *43.2* No. and Description of Safety Valves to each boiler *two spring loaded* Area of each valve *4.9* Pressure to which they are adjusted *200* Are they fitted with easing gear *yes*

Smallest distance between boilers *8" Bl lagged* Mean dia. of boilers *162* Length *10'-6"* Material of shell plates *steel*

Thickness *3/16* Range of tensile strength *28-32* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *double* long. seams *J.R.D.B.I* Diameter of rivet holes in long. seams *1 7/32* Pitch of rivets *8 7/16* Lap of plates or width of butt straps *16 5/8*

Per centages of strength of longitudinal joint rivets *86.8* Working pressure of shell by rules *197* Size of manhole in shell *16 x 12* plate *85.5*

Size of compensating ring *7" x 3/16* No. and Description of Furnaces in each boiler *three plain* Material *steel* Outside diameter *40"*

Length of plain part *69 3/4* Thickness of plates *3/32* Description of longitudinal joint *welded* No. of strengthening rings *3*

Working pressure of furnace by the rules *205* Combustion chamber plates: Material *steel* Thickness: Sides *1/16* Back *23/32* Top *11/16* Bottom *1/16*

Pitch of stays to ditto: Sides *9 3/4 x 8"* Back *9 3/4 x 8"* Top *11 x 8"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *202*

Material of stays *steel* Area at smallest part *2.07* Area supported by each stay *86* Working pressure by rules *215* End plates in steam space: Material *steel* Thickness *1 5/32* Pitch of stays *18" x 18"* How are stays secured *J. T. W.* Working pressure by rules *195* Material of stays *steel*

Area at smallest part *6.33* Area supported by each stay *324* Working pressure by rules *203* Material of Front plates at bottom *steel*

Thickness *7/8* Material of Lower back plate *steel* Thickness *3/32* Greatest pitch of stays *15" x 9 1/2"* Working pressure of plate by rules *207*

Diameter of tubes *3 1/2* Pitch of tubes *4 3/4* Material of tube plates *steel* Thickness: Front *2 1/8 + 3/4* Back *7/8* Mean pitch of stays *9 1/2*

Pitch across wide water spaces *15"* Working pressures by rules *250* Girders to Chamber tops: Material *steel* Depth and thickness of girder at centre *10 3/4 x 1 3/4* Length as per rule *35.8* Distance apart *11"* Number and pitch of stays in each *Three 8"*

Working pressure by rules *197* Steam dome: description of joint to shell *yes* % of strength of joint *yes*

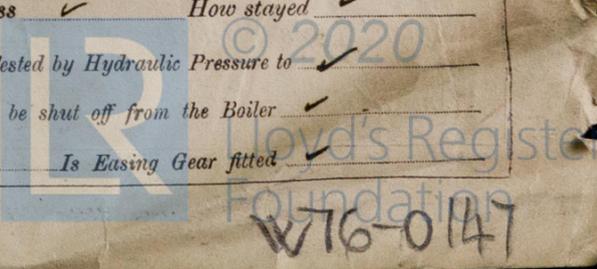
Diameter *yes* Thickness of shell plates *yes* Material *yes* Description of longitudinal joint *yes* Diam. of rivet holes *yes*

Pitch of rivets *yes* Working pressure of shell by rules *yes* Crown plates *yes* Thickness *yes* How stayed *yes*

SUPERHEATER. Types *yes* Date of Approval of Plan *yes* Tested by Hydraulic Pressure to *yes*

Date of Test *yes* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *yes*

Material of Safety Valve *yes* Pressure to which each is adjusted *yes* Is Easing Gear fitted *yes*



IS A DONKEY BOILER FITTED? *no*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:—

Two top end bolts & nuts, two bottom end bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set of air feed & bilge pump valves, one main & one donkey feed check valve, two donkey pump valves, 6 junk ring studs & nuts, one safety valve spring, one set of fire bars, three condenser tubes & a quantity of bolts & nuts of various sizes.

The foregoing is a correct description,

FOR AMOS & SMITH LTD.

W. Peachbury Manufacturer.

Dates of Survey while building: During progress of work in shops -- *1916. Apr 15, Oct 17, 18, 31, Nov 13, 24, Dec 15, 24, 28, Apr 23, 1917, 28, 30, May 5, 7, 9, 12, 14, 23, 24, Jun 2, 4, 9*
During erection on board vessel --- *15, 22, 25, 27, 28, Jul 2, 3, 4, 13, 14, 23, 28, 30.*
Total No. of visits *38*

Is the approved plan of main boiler forwarded herewith? *Forwarded with donkey*

Dates of Examination of principal parts—Cylinders *5-5-17* Slides *2-6-17* Covers *5-5-17* Pistons *5-5-17* Rods *5-5-17*
Connecting rods *9-6-17* Crank shaft *2-6-17* Thrust shaft *24-5-17* Tunnel shafts *✓* Screw shaft *17-4-17* Propeller *17-4-17*
Stern tube *17-4-17* Steam pipes tested *4-7-17* Engine and boiler seatings *21-4-17* Engines holding down bolts *28-6-17*
Completion of pumping arrangements *23-7-17* Boilers fixed *28-6-17* Engines tried under steam *28-7-17*
Completion of fitting sea connections *21-4-17* Stern tube *21-4-17* Screw shaft and propeller *21-4-17*
Main boiler safety valves adjusted *14-7-17* Thickness of adjusting washers *PT 5/16*
Material of Crank shaft *Iron* Identification Mark on Do. *1815 GA* Material of Thrust shaft *Iron* Identification Mark on Do. *1810 GA*
Material of Tunnel shafts *✓* Identification Marks on Do. *✓* Material of Screw shafts *Iron* Identification Marks on Do. *1814 GA*
Material of Steam Pipes *solid drawn copper* Test pressure *140*
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 *John Burlinghem*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been constructed under special survey in accordance with the approved plans & the rules of this Society, the materials & workmanship are good. The Boiler & steam pipes have been tested by hydraulic pressure as above & found sound & good. The machinery has been properly fitted & secured on board & on completion was tried under full power for two hours, as required by the Admiralty & found satisfactory. The safety valves have been adjusted under steam & tested for accumulation which did not exceed 205 lbs. In our opinion the vessel is eligible for the record + L.M.C. 7.17*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 7.17.

The amount of Entry Fee ... £ 1 : 0 :
Special ... £ 24 : 6 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : 1/6 :
When applied for, *17-8-1917*
When received, *31/8/17*

Committee's Minute TUE. 21. AUG. 1917
Assigned *+ L.M.C. 7.17*

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

