

Rpt. 4. **REPORT ON MACHINERY.** No. 10681.

Received at London Office FRI. SEP. 3 1920

Date of writing Report *28th August 1920* When handed in at Local Office *1st Sept 1920* Port of *Southampton*

No. in Survey held at *Combs, Isle of Wight* Date, First Survey *12th Dec. 1919* Last Survey *27th August 1920*

Reg. Book. on the *S.S. BILTON* (Number of Visits *18*)

Master *W. James*. Built at *Combs* By whom built *J.S. White & Co. L^{td}* Tons } Gross *745.63* Net *374.57* When built *1920*

Engines made at *Combs* By whom made *J.S. White & Co. L^{td}* when made *1920*

Boilers made at *Combs* By whom made *J.S. White & Co. L^{td}* when made *1920*

Registered Horse Power Owners *Combs, Marshall & Co.* Port belonging to *Middlesbrough*

Nom. Horse Power as per Section 28 *120* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *No*

ENGINES, &c.—Description of Engines *Triple Expansion, surface Condensing* No. of Cylinders *3* No. of Cranks *3*
Dia. of Cylinders *15" x 25 1/2" x 41"* Length of Stroke *30"* Revs. per minute *105* Dia. of Screw shaft *9.25"* 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 *3'-0 1/2"*
Dia. of Tunnel shaft *8 5/8"* Dia. of Crank shaft journals *8.25"* Dia. of Crank pin *8.25"* Size of Crank webs *5 1/8"* Dia. of thrust shaft under collars *8 5/8"* Dia. of screw *10'-6"* Pitch of Screw *11'-6"* No. of Blades *4* State whether moveable *No* Total surface *37 #*
No. of Feed pumps *2* Diameter of ditto *2 3/4"* Stroke *15"* Can one be overhauled while the other is at work *yes*
No. of Bilge pumps *2* Diameter of ditto *2 1/2"* Stroke *15"* Can one be overhauled while the other is at work *yes*
No. of Donkey Engines *2* Sizes of Pumps *7"x5"x8" & 7"x5"x10"* No. and size of Suctions connected to both Bilge and Donkey pumps *Additional ballast pump 8"x8"x8" fitted after 1.37*
In Engine Room *2 - 1 1/2" and 3 - 2"* In Holds, &c. *2 - 2" from Holdwell.*

No. of Bilge Injections *1* sizes *6"* Connected to condenser, or to circulating pump *C.P.M.P.* Is a separate Donkey Suction fitted in Engine room & size *yes. 2 1/2"*
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 *yes*
Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *Noch*
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*
at pipes are carried through the bunkers *None* How are they protected *—*
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 *None* Is it fitted with a watertight door *—* worked from *—*

BOILERS, &c.—(Letter for record *S*) Manufacturers of Steel *The Port Talbot & the Parkgate Steel Co. L^{td}*
Total Heating Surface of Boilers *2127 #* Is Forced Draft fitted *No* No. and Description of Boilers *One cylindrical return tube.*
Working Pressure *180 lbs.* Tested by hydraulic pressure to *360 lbs.* Date of test *29-7-20* No. of Certificate *331*
Can each boiler be worked separately *—* Area of fire grate in each boiler *48.75 #* No. and Description of Safety Valves to each boiler *2. Spring loaded.* Area of each valve *5.939 #* 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 *4"* Mean dia. of boilers *15'-0"* Length *10'-9"* Material of shell plates *Steel*
Thickness *1 1/32"* Range of tensile strength *28 to 32* Are the shell plates welded or flanged *Flanged* Descrip. of riveting: cir. seams *D.R.LAP.*
long. seams *T.R. BUTT STRAP* Diameter of rivet holes in long. seams *1 1/16"* Pitch of rivets *9 1/2"* Lap of plates or width of butt straps *1'-7 1/2"*
Per centages of strength of longitudinal joint rivets *86.9%* plate *86.18%* Working pressure of shell by rules *184.3 lbs.* Size of manhole in shell *12" x 16"*
Size of compensating ring *2'-9 1/4" x 2'-5 1/4"* No. and Description of Furnaces in each boiler *3. Corrugated* Material *Steel* Outside diameter *3'-9 1/4"*
Length of plain part top *—* bottom *—* Thickness of plates crown *9/16"* bottom *—* Description of longitudinal joint *Welded* No. of strengthening rings *—*
Working pressure of furnace by the rules *194.7* Combustion chamber plates: Material *Steel* Thickness: Sides *23/32"* Back *21/32"* Top *1/16"* Bottom *23/32"*
Pitch of stays to ditto: Sides *9 1/4" x 8 1/2"* Back *9 1/2" x 8 1/2"* Top *10" x 9"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *183.1*
Material of stays *Steel* Area at smallest part *1.79 #* Area supported by each stay *80.75 #* Working pressure by rules *199.5* End plates in steam space: Material *Steel* Thickness *1 1/4"* Pitch of stays *19 1/2" x 20 1/2"* How are stays secured *Double nuts* Working pressure by rules *184.8* Material of stays *Steel*
Area at smallest part *6.95* Area supported by each stay *399.75 #* Working pressure by rules *161* Material of Front plates at bottom *Steel*
Thickness *1"* Material of Lower back plate *Steel* Thickness *23/32"* Greatest pitch of stays *13" x 9.5"* Working pressure of plate by rules *189.8*
Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *Steel* Thickness: Front *1"* Back *25/32"* Mean pitch of stays *9" x 9"*
Pitch across wide water spaces *14"* Working pressures by rules *182.8* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *9 1/4" x 3 1/4" (2)* Length as per rule *2'-10"* Distance apart *9"* Number and pitch of stays in each *2 - 10"*
Working pressure by rules *180.6* 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 *—*

IS A DONKEY BOILER FITTED? **No**

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— 2. Conn. Rod, top end bolts & nuts, 2. Conn. Rod, bottom end bolts & nuts. 2. Main Bearing bolts & nuts. 1 set of Coupling bolts. 1. Feed pump section & 1 delivery valve. 1. Bilge pump section & 1 delivery valve. 50. Assorted bolts & nuts. 12. Tuning ring studs & nuts. Flat & round bar iron of various sizes. 1 escape valve spring of each size. 2 Pump link levers. 36. Condenser tubes. 24 Boiler tubes. 1 set of Safety Valve Springs. 2 Feed check valves. 1. Propeller. For Oil Fuel:— 1. Strainer grid & gauge. 1. Felted Ditto. 1. set of Cone cleaning gear. 2. Sprayer spindles & 2. caps. 2. Disc plates.

The foregoing is a correct description,
For J. SAMUEL WHITE & COMPANY, Ltd.

White

Manufacturer.

Dates of Survey while building
During progress of work in shops -- 12. 1919, 8, 3, 18, 23, 23, 29, 9, 6, 19, 21, 28, 29.
During erection on board vessel -- 28, 11, 19, 24, 26, 27, 7, 8, 1920.
Total No. of visits 18.

Is the approved plan of main boiler forwarded herewith **No.**

Is the approved plan of main boiler forwarded herewith **No.**

Is the approved plan of main boiler forwarded herewith **No.**

Dates of Examination of principal parts—Cylinders 18-2-20 Slides 23-2-20 Covers 23-2-20 Pistons 23-3-20 Rods 23-3-20

Connecting rods 23-3-20 Crank shaft 6-5-20 Thrust shaft 19-5-20 Tunnel shafts ✓ Screw shaft 29-3-20 Propeller 6-5-20

Stern tube 6-5-20 Steam pipes tested 19-8-20 Engine and boiler seatings 28-7-20 Engines holding down bolts 11-8-20

Completion of pumping arrangements 19-8-20 Boilers fixed 11-8-20 Engines tried under steam 27-8-20

Completion of fitting sea connections 19-5-20 Stern tube 19-5-20 Screw shaft and propeller 19-5-20

Main boiler safety valves adjusted 26-8-20 Thickness of adjusting washers Part:— 4 5/8" start 3 1/16"

Material of Crank shaft **Steel** Identification Mark on Do. **1845 44905 19-8-20 A.M.B.** Material of Thrust shaft **Steel** Identification Mark on Do. **1845 44905 19-8-20 A.M.B.**

Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts **Steel** Identification Marks on Do. **1845 44905 29-3-20 A.M.B.**

Material of Steam Pipes **Copper** Test pressure **360 lb. sq. in.**

Is an installation fitted for burning oil fuel **yes** Is the flash point of the oil to be used over 150°F. **yes**

Have the requirements of Section 49 of the Rules been complied with **yes**

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 boiler have been built under special survey and section on board. The materials and workmanship being sound and good. The Spare Gear is in order with the rule requirements. On trial the machinery & boiler proved satisfactory and the same is eligible in my opinion to have notation + L.M.C. 8.20.

It is submitted that this vessel is eligible for **T&R RECORD. + L.M.C. 8.20.**

Fitted for oil fuel 8.20 FP above 150°F

Roll
3/9/20
APR

A. H. Boyle
Engineer Surveyor to Lloyd's Register of Shipping.

The amount of Entry Fee ... £ 2 : 0 :
Special ... £ 18 : 0 :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ 2 : 13 :
When applied for, 1 Sept 1920.
When received, 30/9/20 Febby

Committee's Minute FRI. SEP. 17 1920 FRI. OCT. 8 1920

Assigned **+ L.M.C. 8.20**
Fitted for oil fuel 8.20
F.P. above 150°F



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