

## REPORT ON MACHINERY.

No. 3950.

Received at London Office

WED. AUG. 7 - 1918

Date of writing Report *20<sup>th</sup> July 1918* When handed in at Local Office *20<sup>th</sup> July 1918* Port of *Göteborg*  
No. in Survey held at *Göteborg* Date, First Survey *26<sup>th</sup> February 1916* Last Survey *27<sup>th</sup> June 1918*  
Reg. Book. *Sup. 56 on the Steel Twin Sc. M/S. "Bullaron"* (Number of Visits *116*) Tons Gross *5722* Net *3428*  
Master *O. W. Kullgren* Built at *Göteborg* By whom built *Aplicbolaget Götaaverken* When built *1918*  
Engines made at *Göteborg* By whom made *Aplicbolaget Götaaverken* when made *1918*  
Boilers made at *Boris* By whom made *Boris verkstads Applicbolag* when made *1918*  
Registered Horse Power *✓* Owners *Rederiaktiebolaget Transatlantic* Port belonging to *Göteborg*  
Nom. Horse Power as per Section *28* *835* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Two 4 stroke cycle single acting diesel engines* No. of Cylinders *12* No. of Cranks *12*  
Dia. of Cylinders *29 1/8"* Length of Stroke *43 5/16"* Revs. per minute *100* Dia. of Screw shafts *as per rule 14 1/2"* Material of *Steel*  
Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No liners fitted* Is the after end of the liner made water tight  
in the propeller boss *✓* 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 *Cedervall's patent protecting but fitted* Length of stern bush *5'-3"*  
Dia. of Tunnel shaft *as per rule 13 3/4"* Dia. of Crank shaft journals *as per rule 17 3/8"* Dia. of Crank pin *17 1/16"* Size of Crank webs *37 1/2" x 11 1/8"* Dia. of thrust shaft under  
collars *14 1/4"* Dia. of screw *13'-1 1/2"* Pitch of Screw *13'-1 1/2"* No. of Blades *4* State whether moveable *No* Total surface *53.80'*  
No. of Feed pumps *✓* Diameter of ditto *✓* Stroke *✓* Can one be overhauled while the other is at work *✓*  
No. of Bilge pumps *✓* Diameter of ditto *✓* Stroke *✓* Can one be overhauled while the other is at work *✓*  
No. of Donkey Engines *2* Sizes of Pumps *6 1/2" x 9"* ALSO ONE BALLAST PUMP CONNECTED TO MAIN BILGE LINE *✓*  
In Engine Room *Two 3", Two 3 1/2"* In Holds, &c. *Two in each of No. 1, 2, 3 & 4 holds 3 1/2", One in No. 5*  
*hold 3 1/2", One in funnel well 3 1/2", One in each of F.P.T. & A.P.T. 2 1/2". In double bottom tanks and wing tanks as per plan.*  
No. of Bilge Injections *Two sizes 5"* Connected to *condenser, or to circulating pump* Is a separate Donkey Suction fitted in Engine room & size *✓*  
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 *Valves*  
Are they fixed sufficiently high on the ship's side to be seen without lifting the *engine room floor* *✓* 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 *No bunkers* 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*  
Are the Screw Shaft Tunnels watertight *Yes* *No key* Is it fitted with *✓* watertight doors *Yes* worked from *upper engine room platform*

BOILERS, &c.—(Letter for record) Manufacturers of Steel  
Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers  
Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate  
Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to  
each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear  
Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates  
Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams  
long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps  
Per centages of strength of longitudinal joint rivets. Working pressure of shell by rules Size of manhole in shell  
Size of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter  
Length of plain part top Thickness of plates crown Description of longitudinal joint No. of strengthening rings  
bottom Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom  
Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules End plates in steam space:  
Material of stays Area at smallest part Area supported by each stay Working pressure by rules Material of stays  
Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of Front plates at bottom  
Area at smallest part Area supported by each stay Working pressure by rules Working pressure of plate by rules  
Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules  
Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays  
Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and  
thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each  
Working pressure by rules 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







Port of *Göteborg*Continuation of Report No. 3950 dated 20<sup>th</sup> July 1918 on the

machinery of the M.S. "Bullaren", No. 56 in the Supplement.

A two stage air compressor is fitted in the engine room for use in case of emergency, same being worked by a directly coupled steam engine.

This vessel has now arrived at New York, and in accordance with telegram received the engines have proved to work quite satisfactorily during this voyage.

The machinery of this vessel is eligible in our opinion to be classed in the Register Book of this Society with the notation of  $\frac{1}{2}$  LMC 6/8, being in a good and safe working condition. Donkey boiler pressure 80 lbs.

V. Paulson *Johnston* J. H. Day Jr.



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machinery of the M.S. "Bullaren," N<sup>o</sup> 56 in the Supplement.

Spare gear, continued.

In addition, one set of piston rings for one piston of the main and of the auxiliary Diesel engines. 1 complete set of skew wheels for one main engine. 2 connecting rod top-end bolts and nuts, both for the main and for the auxiliary Diesel engines. 2 connecting rod bottom-end bolts and nuts, both for the main and for the auxiliary Diesel engines. 2 main bearing bolts and nuts, both for the main and for the auxiliary Diesel engines. 1 set of coupling bolts for the intermediate shaft. 1 set of coupling bolts for the crank shaft. 1 complete set of piston rings for each piston of the main and of the auxiliary compressors. 1 half set of valves for the main and for the auxiliary compressors. 1 fuel pump complete for the main engine. 1 fuel pump for the auxiliary Diesel engine. 1 set of valves for the daily fuel supply pump. 1 set of valves for the water circulating pumps. 1 set of valves for one bilge pump. 1 quantity of assorted bolts and nuts, including one set of cylinder cover studs and nuts. Different lengths of spare pipes. Two propellers.

V. Paulow



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