

# REPORT ON MACHINERY.

Port of Leith

Received at London Office THUR, 19 MAY 1898

No. in Survey held at Leith Date, first Survey 16<sup>th</sup> Sept 1897 Last Survey 16<sup>th</sup> May 1898  
Reg. Book. (Number of Visits 36)

29 on the S.S. "Katumä" Tons { Gross 758.45  
Master Knud Prah Built at Leith By whom built Ramage & Ferguson Ltd. Net 476.43  
Engines made at Leith By whom made Ramage & Ferguson Ltd. When built 1898  
Boilers made at do By whom made do when made 1898  
Registered Horse Power Owners East Asiatic Steamship Co Port belonging to Copenhagen  
Nom. Horse Power as per Section 28 88

ENGINES, &c.— Description of Engines Twin screw, compound No. of Cylinders 2  
Diameter of Cylinders 15" + 30" Length of Stroke 21" Revolutions per minute 135 Diameter of Screw shaft 5 1/4"  
Diameter of Tunnel shaft 5 7/8" Diameter of Crank shaft journals 6 1/2" Diameter of Crank pin 6 1/4" Size of Crank webs 10 3/8" x 4 1/2"  
Diameter of screw 8' 3" Pitch of screw 8' 3" No. of blades 3 State whether moveable no Total surface 15 1/2  
No. of Feed pumps 2 Diameter of ditto 2 Stroke 12" Can one be overhauled while the other is at work yes  
No. of Bilge pumps 2 Diameter of ditto 2 1/2" Stroke 12" Can one be overhauled while the other is at work yes  
No. of Donkey Engines 2 Sizes of Pumps 8" x 10" x 10" + 6" x 4" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps  
Engine Room One centre 2 1/4" + two wing 2" In Holds, &c. Two to each hold 2 1/2", one to tunnel well 2 1/4"  
No. of bilge injections 2 sizes 3" Connected to condenser, or to circulating pump yes Is a separate donkey suction fitted in Engine room & size yes 2 1/4"  
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 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 none How are they protected yes  
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  
When were stern tube, propeller, screw shaft, and all connections examined in dry dock new vessel Is the screw shaft tunnel watertight yes  
Is it fitted with a watertight door yes worked from Lop platform

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 1638 1/2  
and Description of Boilers One multitubular single ended Working Pressure 120 lbs Tested by hydraulic pressure to 240 lbs  
Date of test 17/1/98 Can each boiler be worked separately yes Area of fire grate in each boiler 57 1/2 No. and Description of safety valves to boiler Two, Spring  
Area of each valve 8.29 sq Pressure to which they are adjusted 125 lbs Are they fitted with easing gear yes  
Smallest distance between boilers or uptakes and bunkers on woodwork 12" Mean diameter of boilers 13' 6"  
Length 10' 0" Material of shell plates Steel Thickness 7/8" Description of riveting: circum. seams Lap & Rivet long. seams S. B. S. Y Rivet  
Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 8 1/2" Lap of plates or width of butt straps 16 1/4"  
Percentages of strength of longitudinal joint rivets 88.4 Working pressure of shell by rules 135 lbs Size of manhole in shell 16" x 12"  
No. of compensating ring no No. and Description of Furnaces in each boiler 3, plain Material steel Outside diameter 41 3/16"  
Thickness of plates 19 1/32" Description of longitudinal joint S. B. S. Rivet No. of strengthening rings yes  
Working pressure of furnace by the rules 121 lbs Combustion chamber plates: Material Steel Thickness: Sides 2 1/32" Back 1/2" Top 9/16" Bottom 2 1/32"  
No. of stays to ditto: Sides 8" x 10" Back 8" Top 7 1/2" x 9 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 120 lbs  
Material of stays Steel Diameter at smallest part .96" Area supported by each stay 64 sq Working pressure by rules 120 lbs End plates in steam space: Material Steel Thickness 2 1/32" Pitch of stays 16" How are stays secured S. N. Working pressure by rules 124 lbs Material of stays Steel  
Diameter at smallest part 3.26" Area supported by each stay 25.6 sq Working pressure by rules 127 lbs Material of Front plates at bottom Steel  
Thickness 1 1/16" Material of Lower back plate Steel Thickness 1 1/16" Greatest pitch of stays 14" Working pressure of plate by rules 125 lbs  
Diameter of tubes 3 1/2" Pitch of tubes 4 3/4" Material of tube plates Steel Thickness: Front 1 1/16" Back 3/4" Mean pitch of stays 11 7/8"  
Working pressures by rules 120 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 6 1/2" x 1 1/2" Length as per rule 24" Distance apart 7 1/2" Number and pitch of Stays in each 1-12"  
Working pressure by rules 193 lbs Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked yes  
Diameter yes Length yes Thickness of shell plates yes Material yes Description of longitudinal joint yes Diam. of rivet yes  
Pitch of rivets yes Working pressure of shell by rules yes Diameter of flue yes Material of flue plates yes Thickness yes  
End plates: Thickness yes How stayed yes  
Working pressure of end plates yes Area of safety valves to superheater yes Are they fitted with easing gear yes

**DONKEY BOILER**— Description *vertical with two cross tubes.*  
 Made at  *Gateshead* By whom made  *Clarke Chapman & Co* When made  *25/3/98* Where fixed  *St d*  
 Working pressure  *80 lbs* tested by hydraulic pressure to  *160 lbs* No. of Certificates  *233* Fire grate area  *8 1/2 sq ft* Description of safety valves  *2*  
 No. of safety valves  *1* Area of each  *4.9 sq in* Pressure to which they are adjusted  *80 lbs* If fitted with easing gear  *yes* If steam from  *other* boilers enter the donkey boiler  *no* Diameter of donkey boiler  *4' 6"* Length  *9 ft* Material of shell/plates  *steel* Thick  *11/32"*  
 Description of riveting long. seams  *Lap & Rivet* Diameter of rivet holes  *11/16"* Whether punched or drilled  *drilled* Pitch of rivets  *2 1/2"*  
 Lap of plating  *3 3/8"* Per centage of strength of joint Rivets  *73* Thickness of shell crown plates  *1/2"* Radius of do.  *5 ft* No. of Stays  *do 3*  
 Dia. of stays.  *1 3/8"* Diameter of furnace Top  *3' 5 3/8"* Bottom  *3' 9 1/2"* Length of furnace  *4 ft* Thickness of furnace plates  *29/64"* Descrip<sup>n</sup>  
 joint  *Lap & Rivet* Thickness of furnace crown plates  *7/16"* Stayed by  *As above* Working pressure of shell by rules  *87 lbs*  
 Working pressure of furnace by rules  *85 lbs* Diameter of uptake  *12"* Thickness of uptake plates  *3/8"* Thickness of water tubes  *3/8"*

**SPARE GEAR.** State the articles supplied:—  *As per Rule & in addition a propeller shaft 2 spare propellers, H.P. + L.P. piston rods, H.P. + L.P. slide valve spindles, H.P. + L.P. pistons, air & circulating pump rods & crank shaft.*

*The foregoing is a correct description.  
 Ramage & Ferguson Ltd  
 Alex. J. Ferguson Secretary Manufacturer.*

**General Remarks** (State quality of workmanship, opinions as to class, &c.  *The engines & boiler vessel have been constructed under special survey & the materials & workmanship are found to be good. The engines have been tried under steam and the safety valves of main donkey boilers adjusted at the working pressures. The machine is now in good & safe working condition & eligible in my opinion to have the notation of + L.M.C. 5, 98*

*It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 5, 98*

*T.H.  
 20/5/98*

Certificate (if required) to be sent to  
 The amount of Entry Fee.. £ 1 : - + When applied for,  
 Special .. .. £ 13 : 4 - } 18<sup>th</sup> May 1898  
 Donkey Boiler Fee .. .. £ - : - : }  
 Travelling Expenses (if any) £ - : - + }  
 When received, 24/5/98

*Thomas Field  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping*

Committee's Minute **FRI. 20 MAY 1898**  
 Assigned  *+ L.M.C. 5, 98*



The Surveyors are requested not to write on or below the space for Committee's Minute.