

Report of Survey for Repairs of Engines and Boilers.

To. *X* No. in *g. Book.* Survey held at *Hong Kong* Date, first Survey *15th September* Last Survey *17 October 1879*
409 on the *S S Atoll* Master *W L Thomson*
 Built at *Glasgow* When built *June 1870*
 Owners *J Warruck & Co* Port belonging to *Leith* Character in Register Book. *95 A 1*
 Registered Horse Power *170* Year. *11. 77*

Diameter of Cylinder *33.60* Engines made at *Glasgow* When made *1870*
 Length of Stroke *3 feet 3 inches* By whom made *Howden & Co*
 Pressure of Steam *60 lbs*
 Registered Horse Power *170*

Particulars of Repairs and Examination The Engines have been opened up & thoroughly examined. Cylinders - Pistons with Springs, Spring rings & rods - Slide valves & Cylinder faces - Air pumps and valves - Feed & bilge pumps & valves, are all in good condition. Main bearings & brasses are in good condition - (on examination the forward crank brasses were found broken new brasses have been fitted since) - Condenser tubes have been tested and are in good condition. Feed & bilge pump valves can be examined when the Engines are working.

The Boiler has been opened up & thoroughly examined internally & externally, is free from incrustation and in a good state of preservation. The Shell, furnaces, Combustion Chambers & Stays show no signs of pitting or grooving. Forty tubes were found with their ends burnt off, in fire box end. They have been replaced by new ones. Tube plate over middle furnace fire box end is showing signs of wear, & three additional new stays (1 1/2") have been fitted between top of furnace & lower row of cross stays.

Several slight leaks from seams of under part & ends of shell were showing; they have been caulked. A new stud for middle furnace frame has been fitted in lieu of one defective.

The main Boiler has been tested by water pressure to 115 lbs & the Aux^l Boiler to 75 lbs that being nearly double their respective working pressures - viz. 60 lbs & 35 lbs.

The Safety valves & Springs, Stop valves, Water gauges & Cocks, & valves for regulating feed water are all in good condition.

A Monkey Engine is fitted to feed Boilers or pump out bilges. A Bilge Connection is fitted to Condenser & Circulating pump for cleaning the ship of water. All steam & feed pipes are made of Copper.

The propeller was taken off & Shaft drawn back for examination. The Brass covering on the length of shaft working in stern tube & on outer end of shaft for bearing, was found loose and the shaft itself was so much reduced by oxidation that I considered it absolutely necessary that a new shaft should be fitted in lieu. Theignum tube in stern tube was worn & has been renewed.

The new Shaft as recommended has been fitted on board in a creditable and workmanlike manner and to my satisfaction and I consider the machinery & Boilers are now in good working condition and fit for further service.

As a wrought Iron Coupling for new shaft could not be made

The Amount of Fee *£ 1 10 8 1/2* received by me, *7.5 Dollars*
 Certificate (if required) *£ :* 187
 (Travelling Expenses, if any, £)
 Committee's Minute *18*

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping
 Marine Engineer.
 Lloyd's Register
 180N489-0082

The Machinery of this vessel has been

examined by an Engineer, appointed by Mr
Bennett the Surgeon at Hong Kong - it
is reported to be in good condition
Submitted that she is eligible to
remain as cleared.

MO 27.11.79

made has a deep hatch then one with two strong wrought iron
hoops, well stowed and have been fitted

W. H. Williams



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