

W188 - 00 87

Messrs. Short Bros., Yard No. 450.
Messrs. White's Marine Eng. Co., Engine No. 11C.

Gears by Power Plant Co., W. Drayton.

IT IS SUBMITTED that with double compound steam reciprocating engines for open sea service, having 2 HP cylinders 10.1/8" diameter and 2 LP cylinders 19.1/4" diameter by 13" stroke, working pressure 230 lb. per sq. inch, combined with an exhaust steam turbine on the White's system, developing a combined equivalent IHP of 1660 consisting of 930 IHP at 304 revolutions per minute and 730 equivalent IHP at 3480 revolutions per minute developed by the reciprocating engine and turbine respectively, and revolutions per minute of propeller 64, the following sizes of main gear shafting merit approval, viz:-

Main wheel..... 13 1/4" diameter.
Reciprocating engine pinion.... 8.7/8" diameter with 5 3/4" central hole.
Reciprocating engine quill..... 5.3/8" diameter.
Turbine 1st reduction pinion... 4.1/2" diameter.
Turbine 1st reduction wheel.... 8.7/8" diameter, with 5" central hole.
Turbine 2nd reduction quill.... 4.7/8" diameter.
Turbine 2nd reduction pinion... 8.7/8" diameter, with 5" central hole.

It is concluded that the reciprocating engine quill shaft will be made from steel having an ultimate tensile strength of not less than 38 tons per sq. inch, but this should be confirmed.

It is pointed out that the strength of the keys in shear should be not less than 80% of the strength of the quill shafts in torsion.

Return plan.

Retain copy.

Advise London Outdoor Surveyors.

Advise Newcastle Surveyors.

With reference to the coupling (7) & (13) on the plan it should be noted that the keys in shear should be not less than 80% of the strength of the quill shafts in torsion. The plan showing details of general arrangement of gearing also merits approval.

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