

H.M.S. "OLNA".

Turbo Electric Machinery.

The propelling machinery was originally to be suitable for 11,000 S.H.P. with an overload capacity of 13,000 S.H.P. During building the vessel was transferred from Messrs. Anglo-Saxon Petroleum Co. Ltd. to the Admiralty and the latter stated that they wished to run the plant continuously at 13,000 S.H.P. The turbo-alternator, when tested at the Makers' Works, was found suitable for a continuous rating of 13,000 S.H.P. but the propeller motor was only tested at 11,000 S.H.P. and the tests taken were not sufficient to enable any opinion to be expressed as to its suitability for a higher rating.

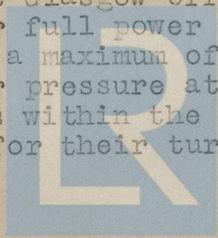
In consequence of the Admiralty decision it was arranged that full power trials should be carried out at the higher rating for a period not less than ~~two~~ hours in order to verify the temperatures of the motor at the overload rating; this being the limiting consideration.

Trials were taken off the Tyne on the 9th May and subsequently on the Clyde on the 25th May with this object in view, but in both cases it was found that owing to the propeller characteristic it was impossible to develop more than approximately 11,000 S.H.P. at the maximum speed at which the turbines could be run, that is to say, equivalent to 122 R.P.M. on the propeller.

During the trials on the Tyne the vessel was loaded to the 26 ft. mark and on the Clyde it was fully loaded to the 31ft. mark. During these trials it was found that the steam temperature was in excess of that for which the turbines, etc. were designed and it was decided to reduce the superheater elements to reduce the superheat to within the designed limits.

In order to check the superheat a further trial was carried out off Arran, trials being attended by Mr. N. Kissell who reported from the Glasgow Office on the 13th June that during a two hour full power trial the boiler superheater temperature reached a maximum of ~~730~~<sup>735</sup>°F with an average of 740° F with the boiler pressure at an average of 430lbs per square inch. This is within the limits which the B.T.H. stated was satisfactory for their turbine.

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During these trials the estimated S.H.P. was 12,500 with 13,000 S.H.P. for a short period, but to obtain these powers it was necessary to increase the propeller R.P.M. to 125. The designed maximum speed was 120 R.P.M. and the turbine over speed governor would be set at approximately 10% over speed. It is considered that at a 125 R.P.M. the margin between this and the overspeed trip is too narrow for practical purposes and that in practice it would not be prudent to run continuously at this speed.

From the foregoing circumstances it would appear that with the present propeller the maximum power of 13,000 S.H.P. will not be required except possibly for short bursts which would not materially affect the temperature rise of the motor. It is therefore considered no special notation need be made, but in the event of the propeller being changed to one having a coarser pitch this position would require to be <sup>re</sup>considered. It is understood there is a possibility that the propeller for the sister ship, Swan Hunter & Wigham Richardson's Yard No. 1711 may be changed in order to develop this higher horse power.

IT IS SUBMITTED the propelling machinery is eligible for classification without special notation.

*For M.N. purposes the S.H.P. should be regarded as 11,000.*



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