

SUPPLEMENTARY REPORT ON THE TURBO-ELECTRIC PROPULSION MACHINERY
FOR THE S.S. "MONARCH OF BERMUDA"; MESSRS. VICKERS-ARMSTRONG'S NO.665.

The main equipment consists of two three-phase Turbo-Alternator Sets developing 15000 kilowatts at 3000 volts at a speed of 3000 revolutions per minute. This power is supplied to four three-phase synchronous motors each rated at 4750 shaft horse power driving direct on to the four propellers and giving them a speed of 150 revolutions per minute; the total output being 19000 shaft horse power.

Each alternator is driven direct through a flexible coupling by a single-casing, twelve-stage, impulse turbine; the working pressure at the boilers being 400 lbs. per square inch.

The control of the turbines is effected by a combined system of mechanical and hydraulic governing. The latter operates through oil pressure relays, the pressure actuating control pistons mounted on the spindles of the Emergency Stop Valve, the Main Throttle Valve and the Overload Valve.

Each turbine is provided with a direct driven oil pump and also two independently driven starting up and stand-by pumps, each of these pumps being capable of supplying oil under pressure to the relay system and to the bearings. A fourth pump driven direct from the turbine supplies oil to the speed control device.

The speed control device, consisting essentially of an adjustable orifice in the oil stream and a spring loaded piston, serves to regulate the speed of the turbine from starting up to full speed; the size of the orifice being adjusted by a hand valve in the control cubicle. Above full speed the centrifugal governor comes into operation. Should the latter fail, an emergency trip governor is provided which acts at 10% overspeed. The turbine can also be tripped out should the vacuum fail.

All these governing arrangements operate a pilot valve, which in turn operates the relay control pistons.

In conjunction with the above control arrangements additional safety devices of an electrical nature are fitted in order to prevent overloading of any one of the alternators or motors.

The lowest controlled speed of the turbine is one twelfth of the full speed, i.e. 250 revolutions per minute.

