

The Wakefield Hydroaeroplane

Visited and trials inspected at Lake Windermere Jan 20th 1912 by myself.

The aeroplane is of the Curtiss type but has Farman control and flap ailerons. Engine 50 Gnome and propeller by A.V. Roe who also built the machine. Weight complete with floats but without pilot petrol or oil 700lb. The Centre of Gravity coincides roughly with the C of P [Centre of Pressure] thus there is no weight on the tail the latter being set at a negative angle. No elevator flap is fitted to the tail, the front elevator alone doing this duty. The hydroplane float is 12 feet long by 2 feet wide by 1 ft deep, the sides are of ¼" mahogany, the bottom of 22 gauge aluminium and the top covering of Willesden waterproof canvas. Wooden lattice girder frames are fitted internally 8" apart to stiffen up the float and a centre longitudinal of wood runs centrally from bow to stern inside. Wood beading is used at the corners inside to ensure watertightness. No watertight compartments are at present fitted but Mr. Wakefield says he can fit seven with about 15lb extra weight. The weight of the float is about 96lb, but a new one now under construction should weigh only 70, this latter has a duralumin bottom on which the sea has no bad effect. Two steps occur in the bottom of the hydroplane, one at half way of 4" and the other 8" from the stern of 3½". The float is attached to the machine by a rubber spring 3 point suspension, the struts being of steel tubing. This undercarriage is very well designed and Mr. Wakefield claims that it is largely due to this that the machine owes its success. Two canvas bag floats 3ft x 8" diameter are fitted at the lower wing tips one on each side, they are set at an angle of about 15° and have a splash board of 5 ply wood underneath them. With the pilot aboard and the machine central these floats are immersed about 6", four steel struts cross braced with wires secure the boards and floats in position. The machine with the engine stopped is inclined to trim by the tail so that at present if the engine stops whilst on the water the pilot must step out and stand at the bows of the hydroplane. Extra buoyancy is being given to the tail of the float under construction to obviate this. No starting gear yet fitted and no land landing gear. The hangar is at the Lake side edge, a trolley running on a slip way being used for launching or hauling up. Stanley Adams took the machine out under perfect control opened out, ran about 75 yards and left the water with an outstanding jump, climbed to about 200 feet made a couple of circuits and landed again.

He repeated this four times the last landing being in the wash of one of the steamers on the lake he ran about in the wash quite comfortably, and then returned to the shed. I, then, took her out and found no difficulty in either getting off or landing her. I estimated she left the water at about 32 m.p.h. and that her flying speed was between 45 and 50. The machine at first had a lifting tail and his first experiment resulted in many nose dives till he altered to a negative angle, this latter on the machine gathering way tends to keep the tail down, a necessary feature considering the high centre of thrust of the propeller and the low point of resistance of the water, a couple tending to tilt the machine forward. The float was set at the same angle as the angle of incidence of the planes. The aeroplane itself was too light and roughly made to be of much use to the Navy at the present moment but I consider that the float and undercarriage are excellent.