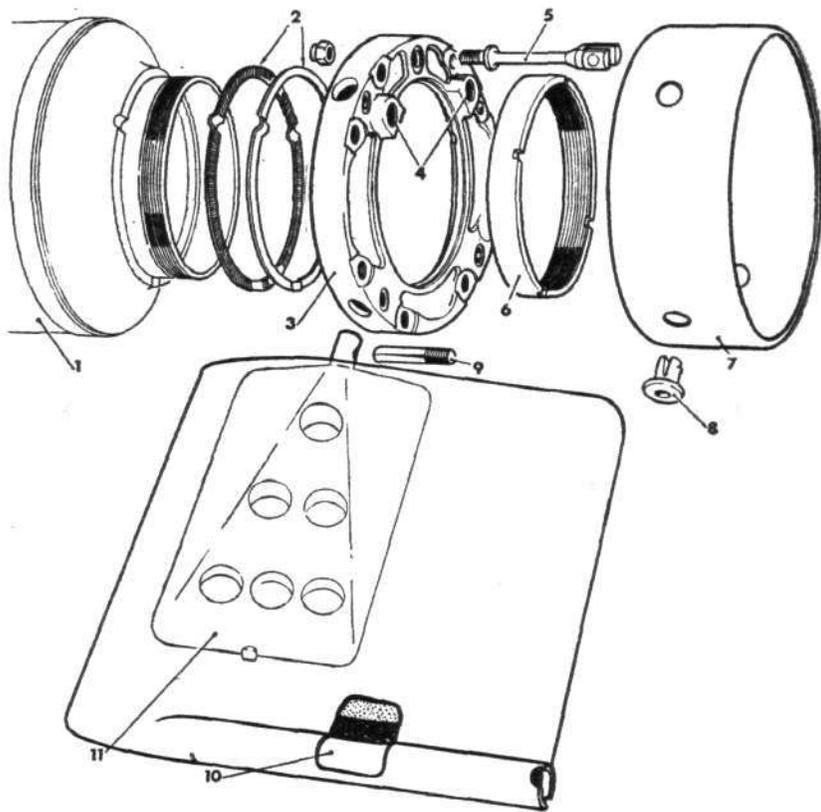


Left, functional diagram of the wing actuator

Below, Fin and mounting plate: 1, boost motor body; 2, serrated rings; 3, fin mounting plate; 4, support-pin holes; 5, shear-pin link rod; 6, retaining ring; 7, mounting-plate fairing; 8, polythene plug; 9, fin attachment pin; 10, tracking-flare tube; 11, palm fitting



Below, left, model of the Seacat installation in ships of the Royal Swedish Navy, showing the quadruple launcher, ready-use magazine, fire-control room and fire-control director with Signaalapparaten radar. Below, right, Seacat installation in HMS "Decoy," with visual detector bin

gear assemblies, the power drive gearing and associated units. Protruding from each side of the central structure is an elevating trunnion to which are attached the four rectangular missile support platforms. The launcher can be brought to its loading position by switching on the control console. Reloading with four rounds takes less than 3min.

Simulation techniques proved invaluable during the development stages of Seacat's control system, and have been further utilized for the training of aimers. The simulation equipment currently in use at Short's Precision Engineering Division at Castlereagh, is housed in a large hemispherical dome, the inside surface of which forms a screen for the projection of the simulation display. Two light sources containing servo-controlled mirrors in the centre of the dome project on to its inside surface two spots of light, one representing the target and the other the missile. The aimer is situated below the projector system in an aiming stand similar to a Seacat director. This assembly is mounted on a rolling platform and is thus able to subject the aimer to realistic ship motions. The computing equipment which controls the movements of the light sources is housed in an adjoining building, and includes analogues of the missile aerodynamics and kinematics and a simulation of the target.

The simulator has been found to be most effective as a medium for training aimers without the great expense which would be involved in a prolonged programme of live firings. A typical training programme lasts about ten days, and is determined by the optimum number of "firing" runs which can be carried out in a day. Experience has shown that the trainee's progress is not speeded up by increasing the number of daily runs above this figure; the limitation is believed to be due to eyestrain and boredom.

It has been found that when aimers who trained on the simulator return for a refresher course their retention of skill is very high, and in some cases performance has even improved. On transferring from simulated to live firing, aimers report that the missile appears "more lively"; but this has been shown to be a purely subjective phenomenon due to the effect of stress on the aimers' reactions.

