

These photographs illustrate the Ferranti Airpass radar fire-control equipment—part of the P.1B weapon system and described below—during its development. On the left the radar is being installed in a Dakota; on the right is a special Canberra B(1).8 used for more advanced trials.

Airpass

DISCLOSURE OF FERRANTI FIRE-CONTROL SYSTEM FOR P.1B

BRIEF details may now be published of the radar fire-control system for the English Electric P.1B supersonic all-weather fighter. Developed by Ferranti, Ltd., at Edinburgh, the system is called AIRPASS (Airborne Interception Radar and Pilots' Attack Sight System) and is one of the most advanced and versatile airborne fire-control systems in the world.

At the time of the Battle of Britain—say Ferranti—ground radar was necessary to direct single-seat fighters so that they could make contact with the enemy. Today aircraft speeds and altitudes have increased vastly and longer-range weapons are available, so that unaided visual contact can no longer ensure a successful attack. It was to meet this requirement that Airpass was developed. The pilot may now never see his target and yet still destroy it.

Airpass comprises a very advanced radar and a sighting system. The former gives information to the pilot in basic, usable form, enabling him to intercept the target and lock-on. Thereafter the radar automatically tracks the target, feeding information to the sighting system for presentation to the pilot in such a way that he can quickly manoeuvre into a suitable position for an attack with guns, rockets, or guided weapons. The sight ensures that all weapons are correctly aimed.

In a typical interception, ground radar will set the pilot in the general direction of the target. Airpass will then take over. Its radar beam will scan a sector of sky covering a wide angle, horizontally and vertically, and extending many miles ahead. When the target is located the radar will lock-on and a computer will calculate the best approach course. The pilot then completes his attack, using the information presented to him in his sight. Should the target come into his view he can take advantage of the visual sighting methods included in the system. An automatic warning tells the pilot when to break-off the attack should he be in danger of colliding with the target.

In Airpass the radar is housed in a single container, which in the P.1B forms the complete intake centre-body. In this way the P.1B carries a powerful radar equipment, without increasing frontal area unnecessarily and preserving the optimum aerodynamic form. A considerable weight-saving is effected by eliminating the usual distributed boxes and interconnecting cables, and by making the radar bullet part of the aircraft structure.

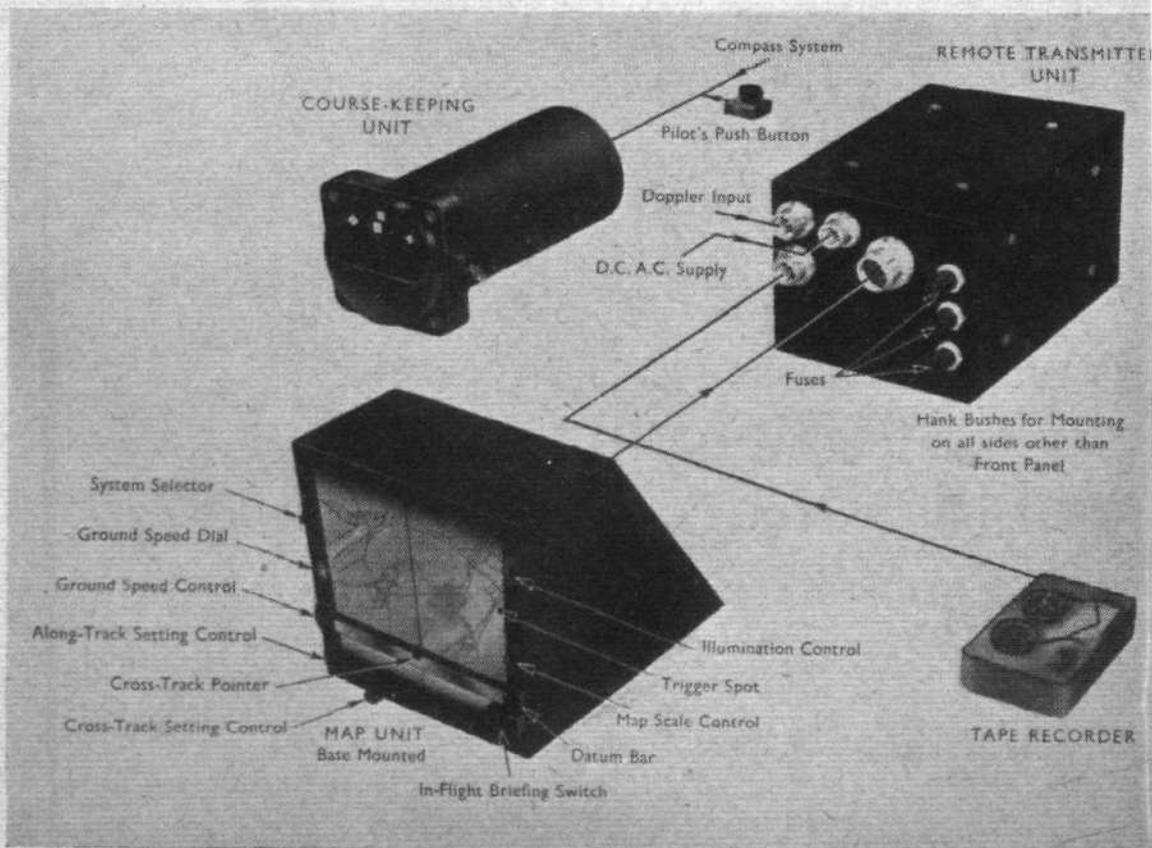
Airpass is small enough to be installed even in lightweight fighters. It has been demonstrated to senior officers of the West German Air Force and also to other Allied countries who have shown interest.

PICTORIAL NAVIGATION PRESENTATION

DETAILS have now been released concerning the Kelvin Hughes map roller equipment Type 2, which is designed to be driven by Doppler signals. A 30ft strip of map is passed through a back-lighted panel measuring 4½in x 5in on which a pen traces the aircraft track according to either Doppler signals or a groundspeed and heading manually inserted by the pilot. The equipment is intended to facilitate accurate course-keeping by a pilot of a high-speed, low-level strike aircraft and is therefore simple to operate and mounted as close to the line of vision as possible. A second instrument, mounted nearby, shows a 20-deg segment of a normal compass card against which a needle indicates deviation from a manually set compass heading.

A ground-speed dial may be manually adjusted or locked to Doppler signals by setting to a datum of 250 kt. If the map tracer reaches the edge of the panel after an excessive departure from designated course, a memory facility will continue to compute progress at distances up to twice the width of the map either side of course. A trigger head at the edge of the map strip contains two electrical contacts which can be connected by spots of conducting paint applied to the map strip. When contact is

made a tape recorder is actuated to give the pilot in aural form information required at that point in the flight. It is intended that the outbound and return legs of a flight be attached end-to-end to form the complete strip.



Units of the Kelvin Hughes map roller equipment Type 2.