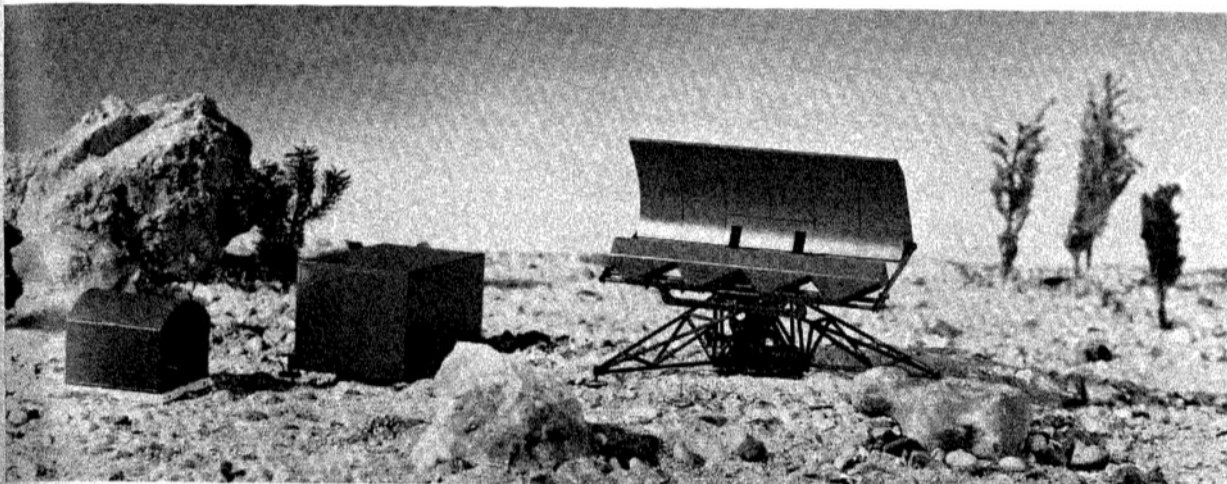


Marconi Radar Equipment S 600 Series



S 600 Simplest self-contained surveillance system

S2007

The Marconi Company has unsurpassed experience in the design of all types of complete civil and military radar systems, having been responsible for some of the most comprehensive and advanced schemes in the world. This unique background and experience has been applied to the evolution of the Marconi S 600 series, the most comprehensive and flexible range of mobile, transportable and static radars ever conceived.

The S 600 series of radar equipment has been developed to meet a need, not previously satisfied by any one equipment range, for a comprehensive family of basic compatible radar units which can be built up to form systems capable of meeting all the various requirements of both military and civil applications.

The design concept of the S 600 series provides a much higher degree of flexibility and cost effectiveness in formulating new systems than has been possible with any existing equipments. Throughout the development phase, the utmost attention has been paid to reliability and ease of operation, setting new standards in these areas.

Flexibility

The operational applications of the S 600 series are extremely wide and varied; for example, radar systems can be built up for ground control of interception in the static, mobile or air transportable role, for weapon control, for general surveillance,

for early warning and 'gap filling', for military and civil air traffic control, both en-route and terminal area surveillance.

The radar sensors of the Marconi S 600 series are based on an entirely new design of signal processing, a range of four new transmitter/receivers and sixteen basic aerial systems. These, supplemented by the existing range of Marconi equipments, permit an unprecedented choice of system configuration to meet particular customer requirements.

To fulfil the data acquisition side of the radar requirements, it is possible to put together individual items from the S 600 range to form a multiplicity of systems. In this way, the S 600 series offers an unprecedented flexibility of application. Systems can be formulated which will start with the simplest basic radar sensor and then be augmented by further units and additional sensors on a 'building block' principle. Thus, the system performance capability can be extended until, for example, a fully autonomous high capacity GCI station, in static or mobile/air transportable form, is reached.

Transmitter Receiver

The new range of transmitter/receivers and the signal processing equipment set new standards of compactness and reliability through the widespread, but selective, utilization of advanced solid-state circuits and modern microwave techniques. The

cabinet containing the complete transmitter/receiver is only 5.5 ft high and requires less than 12 sq. ft of floor space. The new transmitter/receivers are:

5.5 cm (C) Band

S 2013—1 MW 1.5 kW mean.

Parametric receiver 4 dB noise figure.

10 cm (S) Band

Parametric receiver 3.5 dB noise figure.

S 2012—2.5 MW peak 3.5 kW mean.

Parametric receiver 3.5 dB noise figure.

23 cm (L) Band

S 2011—tuneable 2 MW peak 3 kW mean.

Parametric receiver 2.5 dB noise figure.

Each transmitter/receiver can be operated with a modular signal processing system which can be equipped with whatever special features are required—double cancellation MTI, P.R.F.D, P.R.F stagger, ECCM facilities etc.

S 600 Aerials

The new aerials, together with their pedestals, constitute a comprehensive range that is capable of meeting all known static, mobile or transportable requirements. These aerials are designed for multi-frequency operation, thereby permitting multiple frequency diversity to be exploited to the full.

Displays

To complete the operational package, there are advanced display, data handling and communications facilities which can form part of a S 600 system.

High definition 12 and 16-in. fixed-coil displays can be built into a large number of different arrangements and can be provided with a wide range of operational facilities to suit particular requirements. Certain standard basic configurations can be recommended for early warning, reporting posts, GCI, SAM control etc. The whole system is flexible regarding the numbers of displays fitted and the facilities available with each, to meet the particular needs of each system.

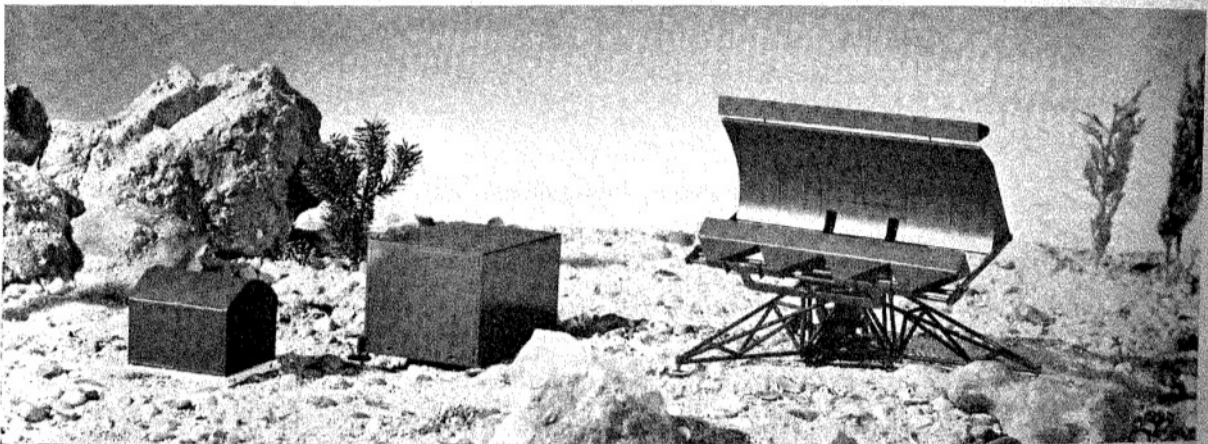
Data Processing

The data processing component of a system is based on the MYRIAD high-speed on-line computer, with storage capacity appropriate to the particular requirements. The Marconi Company has unsurpassed experience in software for both air defence and air traffic control and has built up an extensive program library. To complete the display and data handling complex, highly adaptable electronic data displays (EDDs or tabulars) are used to

assist the operators in their various functions and to provide a rapidly assimilable presentation of information to the operational staff.

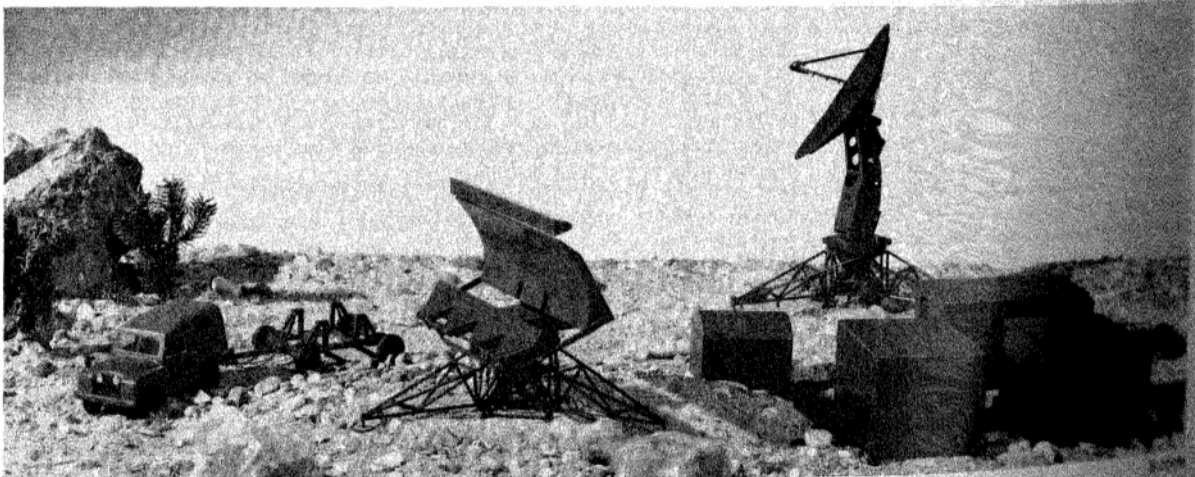
Communications

Communication networks are required to tie together individual systems of the overall air defence or air traffic control environment. The Marconi Company has unrivalled experience in planning and equipping communications network of all kinds. Communi-



S2008

S 600 Surveillance system including an additional transmitter within the cabin and secondary radar



Addition of heightfinder and data handling cabin to give 3-D capability and full operational facilities



S2010

S 600 sophisticated high capacity radar system with two plan radars on different frequency bands, with Multiple transmitters in diversity, two heightfinders with transmitter in frequency diversity, secondary surveillance radar, and a powerful data handling and display complex based on the MYRIAD computer

cations systems, fully compatible with the S 600 series radar, whether static, mobile or transportable, can be supplied as part of a comprehensive scheme.

Transportable

Each element of S 600 series has been engineered and 'packaged' so that it is air transportable in the majority of current transport aircraft and may be lifted by a wide range of helicopters. The minimum number of packages is used, consistent with size and weight requirements, to form an autonomous system. For example, a complete search radar including towing vehicle can be accommodated in one load in a typical military air transport. A standard set of running gear, consisting of road wheels and suspension, may be rapidly attached to each unit of equipment to give reasonable cross-country performance and to simplify aircraft loading.

Both heightfinder and search aerials fold simply to a stowage position for transportation. The transmitter/receivers, signal processing equipment, display and data handling and communication equipment are built into standard cabins which can be fitted with the same standard detachable running gear or lifted by helicopter.

The transportability, mobility and operational flexibility of the S 600 series make it the ideal tactical radar for a wide variety of applications.

Static

The electronic equipment and aerial systems developed for mobile applications are of a construction that is equally suitable for shipborne or static systems. The new range of aerials combined with improved existing designs, provide a wide choice of S and L-band surveillance aerials between 18 and 60 ft aperture. These can be mounted separately or in a back-to-back configuration. The new range of heightfinding aerials provides a choice of S or C band. By multiplexing, several transmitters can be fed into a single aerial, giving the operational advantages of wider frequency coverage, higher total power and diversity reception. Extendable systems can be envisaged in fixed stations, starting with single transmitters, basic signal processing and simple display and data handling which can later be built into a much more comprehensive installation by the addition of further transmitters, more comprehensive signal processing, secondary surveillance radar, sophisticated data processing, and more extensive display facilities.

THE MARCONI COMPANY LIMITED Radar Division

Marconi House, Chelmsford, Essex
Telephone: Chelmsford 53221. Telex: 99201
Telegrams: Expanse Chelmsford Telex