Radar Systems International

MARCONI

No. 15

Admiralty orders Locus 16

THE NEW DISTRIBUTED DATA PROCESSING SYSTEM

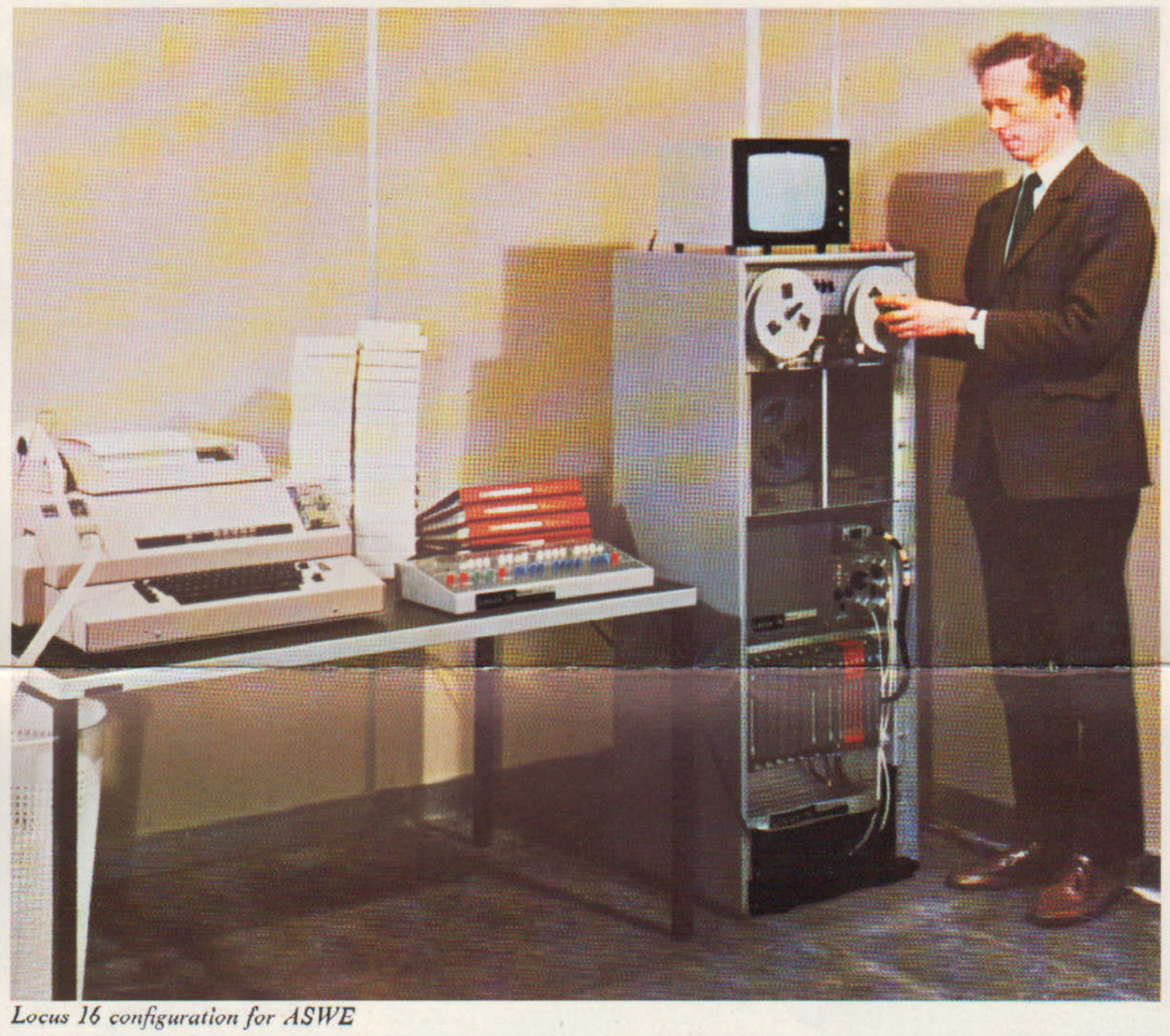
Marconi Radar Systems, Chelmsford, have recently announced the delivery, ahead of schedule, of the Locus 16 to the Admiralty Surface Weapon Establishment (ASWE) at Portsmouth.

The new Locus 16 distributed data processing system is a multi-processing configuration which is in use at present for the study of the potential development of future Naval Action Information Systems. The equipment supplied comprises: an arithmetic processor, display processor, tabular display, interactive input/output systems and communication processors. The system is scheduled for upgrading in the second phase to include graphical display facilities and associated control devices. Full standard software and documentation has been included in the system, comprising in particular an assembly language compiler, program editor, program de-bugging aids and hardware diagnostic programs for the complete configuration.

Locus 16 comprises a compact, rugged equipment bin into which are plugged processors selected from a wide range of alternatives. It makes full use of the multiprocessing principle whereby the problems of high-speed data interfaces are solved. Its design philosophy is based on an emphasis on flexibility, simplicity and ease of maintenance to support the data handling and electronic data display associated with civil and military radar and Air Traffic Control Systems.

The Locus 16 System provides, in one compact bin, complete system power without the need for further equipment. Total flexibility is retained throughout in that at any time the 'mix' of processors can be varied to suit changing requirements. An extremely adaptable capability is obtained in which each Locus equipment includes particular processing elements—computer, display control, communications channels, memory devices—appropriate to the intended function, and where networks may include equipments at several geographical locations.

Locus 16 was first publicly announced at Farnborough 1974 and orders received, to date, exceed seventy. Locus 16 will also be installed in the world's most advanced ATC radar data processing system at the new Scottish Air Traffic Control Centre, Prestwick.



Locus 16 configuration for ASWE

Racons for offshore installations

Racon—the Marconi sea-watch radar beacon—well proven in service on lighthouses, buoys and coastlines all over the world, is now playing a vital role in the security of offshore oil and gas installations particularly in the North Sea.

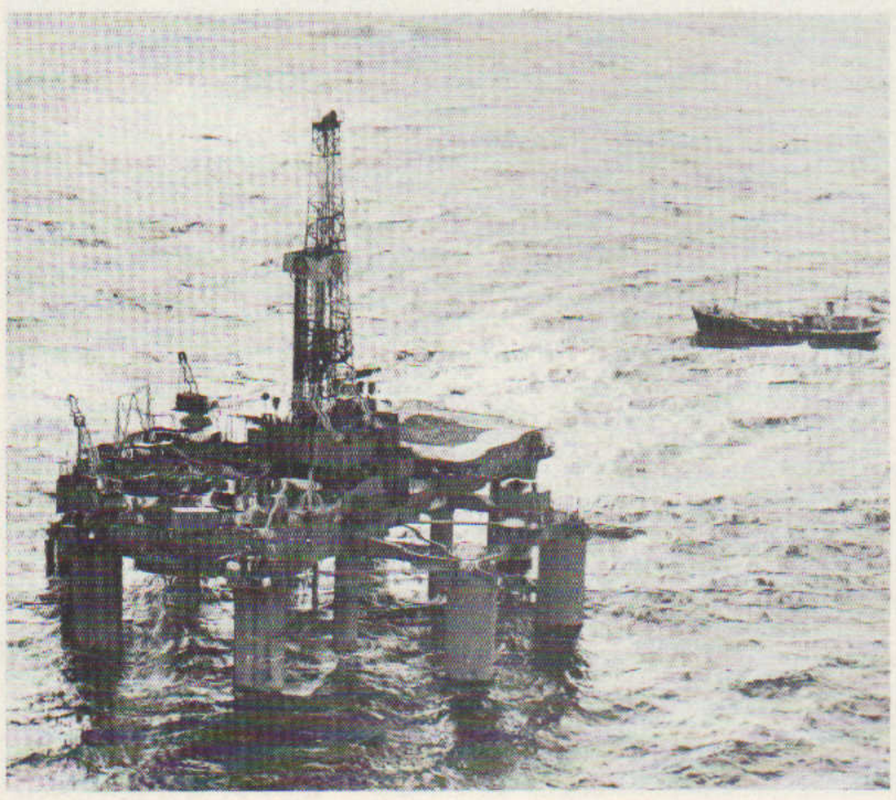
The racon is a general-purpose all-weather navigation aid which responds to ordinary X-band radars. The response is automatically displayed on the ship's or aircraft's radar screen at station range and bearing with individual morse code identification. Effective range can exceed 40km (22 miles).

The racons make perception and identification of offshore oil and gas installations a simple matter, even in the worst fog or winter weather. The fitting of a racon to a structure immediately distinguishes it from a ship.

Differently coded racons on selected structures within the oil or gas field serve to 'signpost' the field and enable supply ships and helicopters to reach their correct destination safely and without delay, no matter what the conditions. Uninterested shipping can use the racon-equipped structure as a position reference, as they do now, but without hazarding operations by coming within visual range to identify the structure.

Racons also find applications in the oil and gas industries for marking drill ships, exploration rigs, production platforms, monobuoys, ELSBMs, oil jetties and pipe-laying vessels.

The Marconi racon is compact, robust, lightweight (16kg), waterproof, gastight and solid-state. It is designed to give periods of long service and requires very little maintenance apart from yearly battery change.



Aerial view of Ocean Voyager — Shell Exploration Picture

MORE SUCCESS FOR RVR

Marconi RVR installed at Gatwick Airport

Recent orders for the successful RVR (runway visual range) system, which is manufactured at Leicester, include one for the airport at Dhahran in Saudi Arabia and another for Edinburgh's Turnhouse Airport in Scotland.

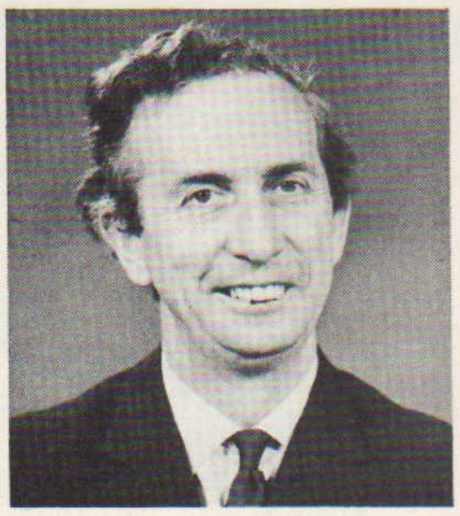
The fact that Dhahran's visibility problems are concerned with sand and dust—whereas Edinburgh's are associated with fog, rain and snow—serves to emphasize the versatility of the Marconi system under widely varying atmospheric conditions.

The RVR system comprises computerized Instrumented Visual Range (IVR) equipment which, through the use of photometric data, provides accurate information from unattended sites.

The IVR Mk 2 replaces the former IVR-1 and provides facilities for both Category 2 and (with alternative modules) Category 3 airfields. It is capable of handling up to six field sites on various runway configurations.

Orders for the Marconi RVR system to date have included installations for Riyadh, Jeddah, Prague and Cairo. The RVR system is also in service at most of Britain's major airports and is currently being evaluated by the Federal Aviation Administration at their test centre in Atlantic City, New Jersey, USA.

Marconi Radar Systems–Support Division



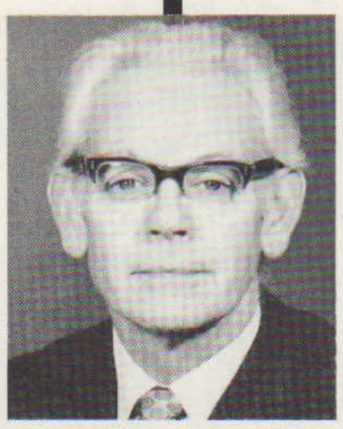
Manager Support Division
I. T. BUTLER

The Support Division is structured to provide maximum support services for the Company products and to make available its expertise where needed

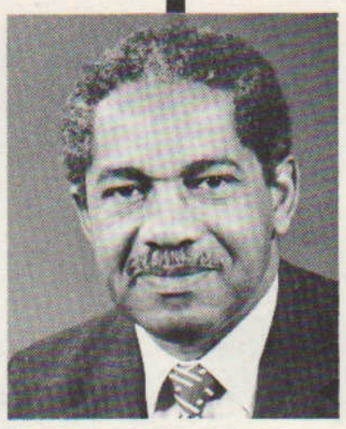
Field Services Manager
E. W. HOLMAN

Technical Services Manager
R. K. WALKER

Technical Informations Manager
K. G. STOKER



Spares and Repairs Manager
S. C. CHURCH



Commercial Executive
M. L. EDMAN

Chief Accountant
P. K. TABOR

Field Services Department

The main task of the department is to install, commission and maintain radar systems and associated equipments supplied by the Company. The customers served include Ministries of Defence, Departments of Civil Aviation and operators of private airfields both in the UK and overseas. Marconi radars have been supplied to over fifty countries ranging from large, sophisticated installations for Air Defence and Air Traffic Control Systems to simple installations on private airfields.

The department operates an emergency and repair service manned by personnel who can travel at short notice.

The work of a field engineer is varied and exacting and takes him to almost every part of the globe. The success of the recent installations in Iran, Saudi Arabia, Malaysia and New Zealand prove the department's competence.

The department consists of highly skilled, experienced personnel drawn from all branches of engineering. The size of the installation teams can vary from one engineer installing a computer at a small airfield up to a team of 100 for large military and civil systems.

Working in Field Services becomes a way of life—for one never knows where the next task will be—in the Arctic Circle, the Far East or on the top of a mountain range.

Marconi S654 radar head being installed at Lahr, West Germany

Technical Services Department

This department provides a complete technical after-sales service for Company products installed throughout the world, covering all aspects of radar engineering, software, and documentation. It also provides a test equipment repair and calibration service, and is responsible for maintaining the Company's experimental sites at Bushy and Rivenhall.

Two specialist electronics laboratories are located at Chelmsford, one for data generation and the other for data handling. A third laboratory specializing in mechanical engineering has branches at Chelmsford and Gateshead. All of these resources may be applied to the resolution of customers' problems, and when necessary modification kits are designed to incorporate improvements, simplify maintenance, improve reliability, and provide additional facilities.

Two management groups control the activities of the department. One, Government Contracts, specializes in meeting the particular requirements of work for the British Government. The other, Private Venture Marketing and Contracts, specializes in support contracts and all technical queries from other customers. It also ensures that information on improvements and modifications is promptly conveyed to each customer as appropriate.

The total strength of the department is 170, of which about half are employed on work in support of the UK Air Defence System. The majority of the remaining personnel are employed on similar work for all other customers. In addition to the design and investigation activities carried out in the laboratories, engineers from Technical Services operate on a world wide basis to provide an engineering repair service, conduct site surveys, and to calibrate customers' specialist test equipment.

Engineers investigating a S600 radar unit

Spares and Repairs Department

Spares packing area in Waterhouse Lane, Chelmsford

This department, in close association with Technical Services, Technical Information and Field Services Departments, gives a first-class overall appreciation of customers' needs based on field experience.

Its main concern is to recommend and provide spares for the life-span of Marconi-designed equipments. To this end, it is virtually a company in miniature which contains, within its organization, all the facilities necessary to carry out the provisioning and supply of spares and repair of equipments.

The department provides special packing for inland and export despatch, and where required, for prolonged storage in stringent environmental conditions.

The department employs over 200 personnel and is geared to meet urgent customers' spares requirements at minimum cost. At all times there is maximum liaison between customers and the Support Division. In this field the department has become expert in the speedy despatch of spares to meet the emergency requirements of customers.

Technical Information Department

TID is responsible for providing support information on the Company's radar systems and associated products. This takes the form of Maintenance Manuals, Operators' Manuals, Illustrated Parts Catalogues and Maintenance Support Documentation.

The department is organized into four groups—two specialized Technical Writing Groups, a Publications Drawing Office, a Production Group—and also a specialized Text Processing Unit.

The Technical Writing Group's main task is to prepare technical manuals to a Marconi commercial specification. These provide essential information to the customer on equipment operation, maintenance and repair. In addition, they prepare special-to-customer publications for such customers as the UK Ministry of Defence and organizations overseas, and act as advisers to customers on the establishing of sophisticated documentation systems.

The Drawing Office provides the back-up for TID's main activity and also provides services in its own right. These include circuit delineation and tracing, varitypting, and technical illustration exhibition and publicity work.

The Text Processing Unit is responsible for production of the master material for the text, from which the technical manuals are printed, using computer-controlled type-setting equipment.

The Production Group handles the printing, assembly and despatch of the technical publications produced by TID, using GEC-Marconi in-house printing facilities.

After the books have been despatched TID support services continue as long as the equipment is in use, supplying amendments and further copies of manuals to order.

Personnel working on Selectric composer systems

Accounts Department

Support Division maintains its own bank account, invoice clearance, debtors and creditors ledgers, making it financially self dependent, which is most important for a division which is largely founded on a spares business. Also like any other divisional accounts department, records of costs etc. are maintained, accounts reports are prepared and invoices raised.

Maximum utilization is made of computer services available at the Baddow Establishment together with the small computer at Waterhouse Lane which is basically used for stock control and invoicing/order acknowledgements/orders procedures.

Commercial Department

The Commercial Department is responsible for the co-ordination, pricing and terms and conditions of contracts handled by the Support Division.

NEWS REPORT

Double honour for Radar men

Mike Wolf, Assistant Managing Director, Marconi Radar Systems, was awarded the OBE in the New Year's Honours for services to export.

He was born in London in 1912 and joined The Marconi Company in 1945 following wartime service with the Admiralty. During the war he was on special duties at the Admiralty Signal Establishment (now the Admiralty Signal Research Establishment) and the Directorate of Naval Air Radio. Subsequently he became Assistant Director at the then Ministry of Aircraft Production.

He has been associated with Marconi Radar since its inception in 1950, successively holding the positions of Contracts Manager, Commercial Manager, Marketing Manager and Marketing Director and was appointed Assistant Managing Director on 1st October 1973.

Arthur Preston, foreman of electrical inspection at the Leicester factory of Marconi Radar Systems, was awarded the BEM in the New Year's Honours list. He retired in February after nearly twenty-nine years' service as inspector, supervisor inspector and foreman inspector. On leaving the Royal Navy in 1946, he joined the Blackbird Road factory. Most of Arthur Preston's career was concerned with Ministry of Defence work.

Visits to Chelmsford

CHINESE DELEGATION

Headed by Mr Cheng Chi-Hsien, Deputy Director of Machimpex, an eleven-member Air Traffic Control group from the People's Republic of China visited Marconi Radar Systems Limited, at Chelmsford recently.

The photograph shows Mr Cheng Chi-Hsien, Deputy Managing Director, Machimpex, with Mr John Sutherland, Managing Director MRS (right) and Mr Mike Wolf (far right) Assistant Managing Director MRS at the Marconi conference centre.

MoD CHIEF SCIENTIST

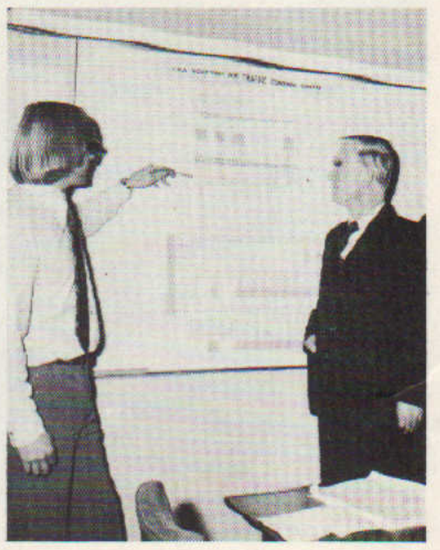
Professor Sir Herman Bondi, KCB, FRS, FRAS, Chief Scientific Adviser, Ministry of Defence (centre) looking at Locus 16 radar data processing unit at Crompton Works. He was accompanied by Mr J. E. Twinn, Assistant Chief Scientific Adviser (Projects), Ministry of Defence (left) and Mr John Sutherland, Managing Director, Marconi Radar Systems Limited (right).

Admiral 'drops in' at Leicester

The Controller of the Navy, Admiral Sir Anthony Griffin, GCB (centre) is welcomed by Peter Way, Director and General Manager of Marconi Radar Systems Leicester, after arriving by Royal Navy helicopter at the Company's New Parks site. Accompanying the Admiral is his Naval Assistant, Captain M. J. E. Howard-Smith, RN.

During his five-hour visit, Sir Anthony was given a progress report on major current RN projects and later toured the firm's Blackbird Road factory before boarding the helicopter for his return flight to London.

AIR MARSHAL BROOM



Air Marshal I. G. Broom, Controller National Air Traffic Services, visited Chelmsford recently. He was given a presentation on the system ordered by the Civil Aviation Authority for the new Scottish Air Traffic Control Centre. This is based on the Locus 16 distributed data processing system.

Air Marshal Broom is being shown the SCATCC system diagram by the Project Manager Mr A. Greaves.

British battle tank life extended

NEW CENTURION TRANSPLANT

The cost of new main battle tanks is high and many countries owning British Centurions are extending the useful life of these well-proven vehicles into the 1980s by instituting a modernization programme.

One feature of such a programme is the replacement of the obsolescent thermionic gun control equipment by a modern equivalent. The Control Systems Department at Leicester has designed an advanced solid-state system that considerably improves the gun's effectiveness.

Two versions of the equipment are available: Type GCE 581 is designed to interface with the existing metadyne in Centurions, and Type GCE 576 is designed to operate with a new and more powerful metadyne set which gives faster turret accelerations and traversing rates. Both equipments give a significant improvement in stabilization accuracy and consume less power. There is virtually no warm-up period and the drift during operation is very slight.

The new Marconi equipment will give any Centurion vehicle a far better performance, with the additional advantages of greater reliability, easier maintenance, lower power consumption and ready availability of spares.

New items of the modification include a control cubicle, single 2-axis gyro unit, gunner's controller, commander's controller, elevation tachogenerator and switch unit.

A British Centurion battle tank

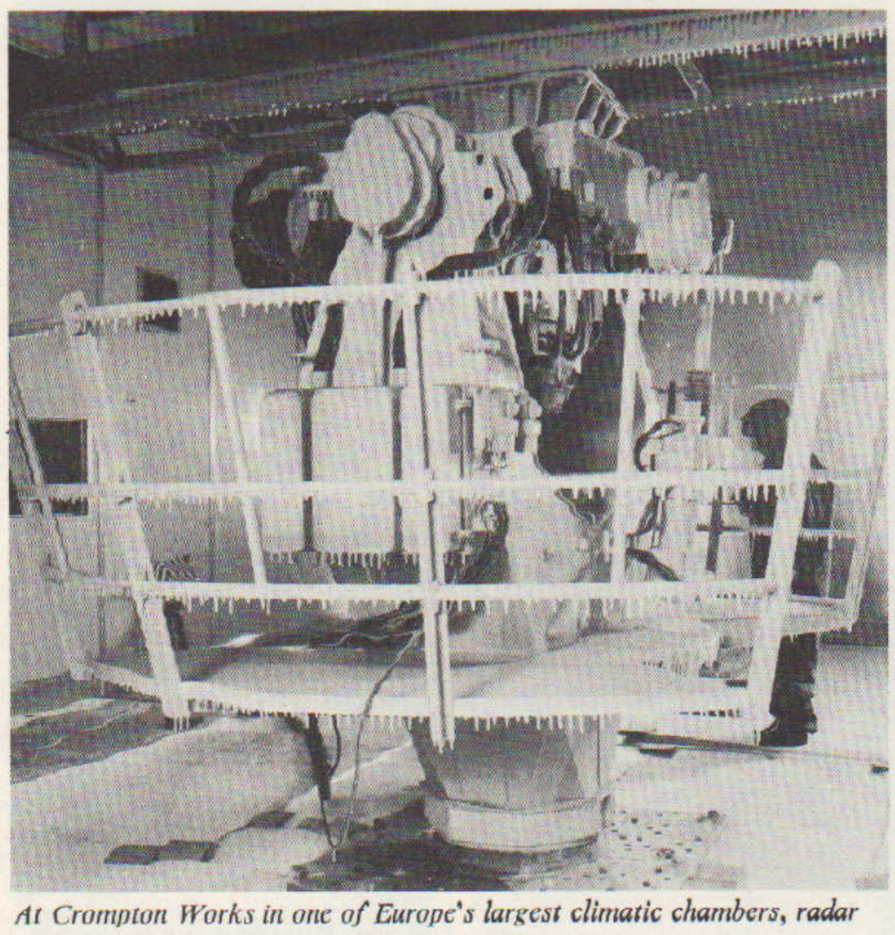
Marconi's new Environmental Evaluation Centre

Marconi Radar engineers have designed and built at Chelmsford one of Europe's largest Environmental Evaluation Centres. It was officially opened last year by Admiral Sir Anthony Griffin, GCB, Controller of the Navy. The new centre is the result of a partnership between the Company and the Ministry of Defence (Navy) who have shared the cost of building and equipping the facility.

With the wide-ranging facilities available with this centre, Marconi Radar Systems can now provide the most comprehensive environmental evaluation, not only for its own products but also as a service to other manufacturers. The main feature of the new centre is the climatic chamber which is the largest in Europe measuring 7·6m (25ft) high, 14·3m (47ft) long and 7·6m (25ft) wide. In this chamber large mechanical and electronic assemblies can be subjected to temperatures ranging from −20°C to +70° C. Additionally, equipments can be exposed to driving rain, salt spray, extreme icing and infra-red radiation. The atmosphere in the chamber can be changed once per minute which allows extremely stable operating conditions to be maintained.

Adjacent to the climatic chamber is the main hall housing shock machine, vibration machine, overhead crane, mobile pallet and cine and still photographic equipments. Equipment weighing up to eight tons can be mounted on a shock machine and then undergo controlled drops to produce vertical forces up to 40g. The shock table can also operate with a 'pendulum' action to give a horizontal motion and an impact force of up to 15g. On the vibration machine full-load assemblies up to six tons can be vibrated either horizontally or vertically at a rate of up to 33 cycles per second with an overall movement of up to 1½ inches in the horizontal plane.

The facilities provide dynamic and static environmental testing and evaluation for mechanical, electrical, electronic and allied products over a wide range of operating conditions—either as an aid to development or as a test for design proving. Each area has an expertise to meet any specific requirement. The new centre is self-contained with its own electrical power substation, chilled water, dry air and compressed air.



At Crompton Works in one of Europe's largest climatic chambers, radar equipment is undergoing evaluation at −20°C

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CMM UNDER WAY

CMM—the Computerized Modular Monitoring System—has been developed by Marconi Radar Systems at Leicester to ease the problem of system management. It is now installed and working for the Civil Aviation Authority in the first operating evaluation system.

The CMM system is carrying out remote control and monitoring of the ATC 'en route' radar station at Raith Hill in Scotland. CMM modules implanted in the equipment at Raith Hill collect data which is digitized and transmitted over a normal telephone channel to a control centre at Gailes, seven miles away. This facility of CMM allows the radar at Raith Hill to be continuously monitored from Gailes, and if the performance is seen to be degraded then preventive action can be taken.

Marconi Radar Systems have just completed a study and prepared a draft specification for the inclusion of CMM in the new Scottish Air Traffic Control system which, from December 1976, will be controlled from a new centre at Atlantic House, Prestwick.

The new centre will provide Scotland with one of the world's most advanced ATC systems, controlling all aircraft in two million cubic miles of airspace above Scotland, Northern England and the North Sea.

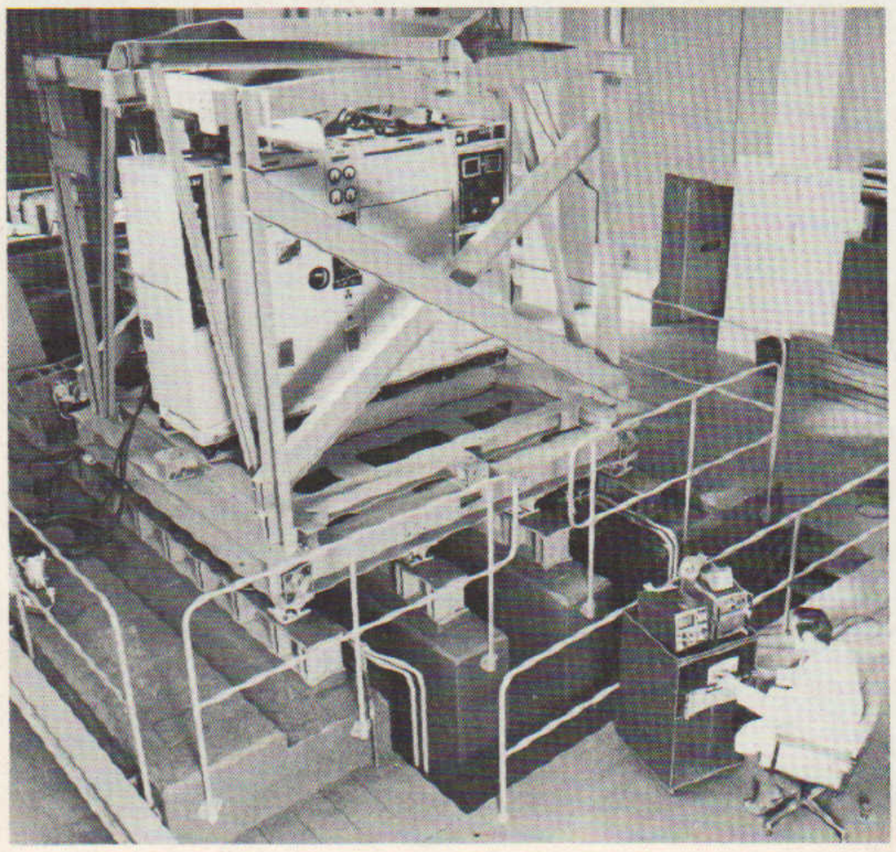
CMM read-out position

MoD (PE) assess Marconi standards

All manufacturing units of Marconi Radar Systems Limited have now been formally registered on the MoD Defence Contractors List as being eligible to undertake work to the new Defence Standards for quality assurance.

Following rigorous assessment by a Ministry of Defence (Procurement Executive) team, the Company's units at Chelmsford and Leicester have been registered as meeting DEF STAN 05-21 and the Gateshead production unit DEF STAN 05-24. Thus Marconi Radar Systems has been shown to have the management, facilities and organization necessary to ensure compliance with the Standards which cover all aspects of design, manufacture, implementation and product support.

The registration of the Company has been gained on the strength of its normal quality levels which are applicable to all orders received and not only to UK government work.



Radar equipment undergoing vibration tests

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