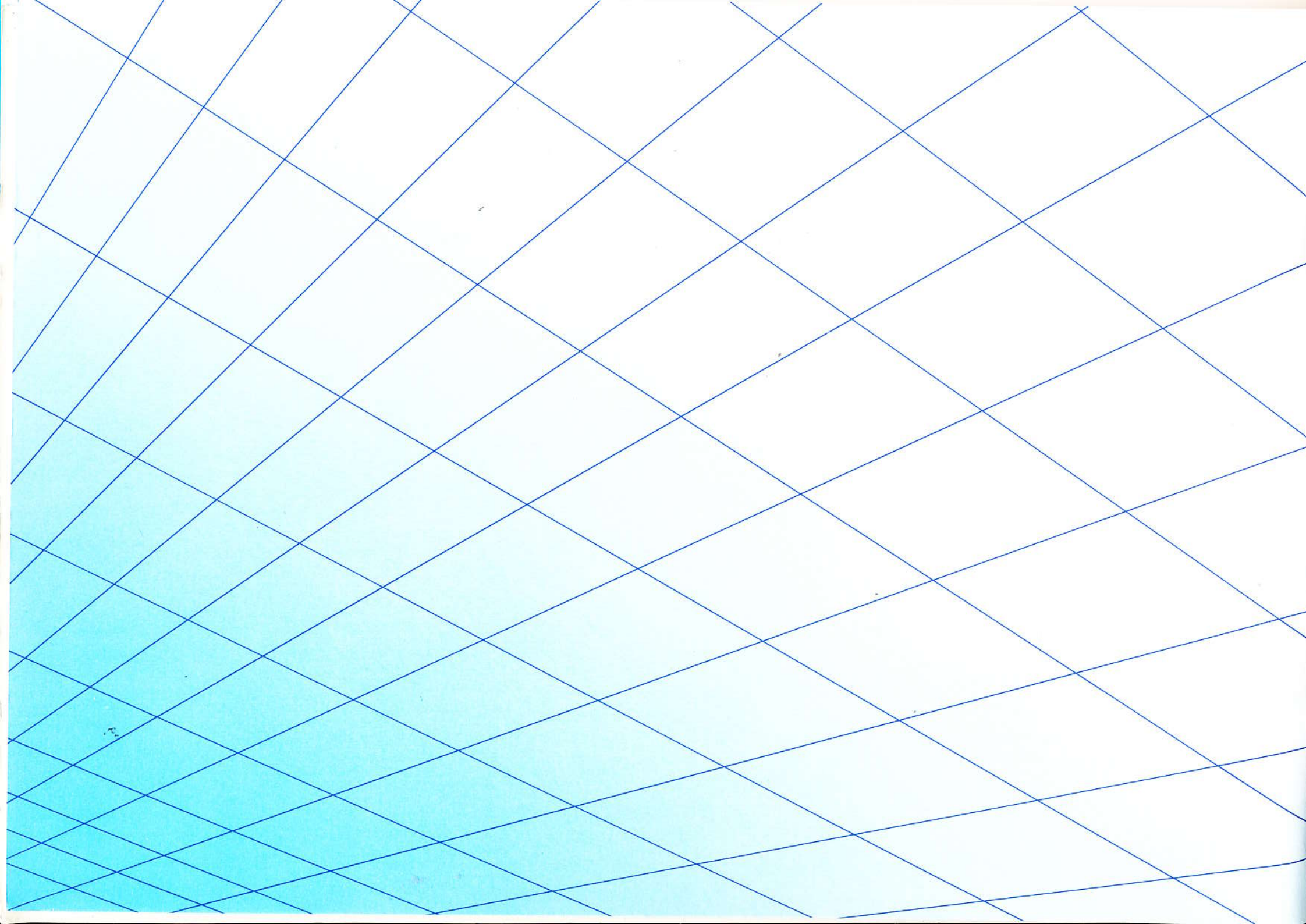

**Marconi** Radar Systems



# Introduction

Marconi Radar Systems is a member of The Marconi Company, the very first electronics company. It is now one of the largest electronics groups in the world and a major product group in General Electric Company, the biggest and most successful manufacturing company in the United Kingdom.

Our experience over more than eighty years and our large resources, including unrivalled research and development facilities supported by sound financial backing, enable Marconi Radar to hold first place in the field. We develop and manufacture the world's widest range of radar and associated systems in the naval, air force and air traffic control fields. We can fulfil any ground or ship-borne radar requirement in the most cost-effective manner.

Our equipment is in use in more than half the countries of the world and we are the largest radar manufacturer in the United Kingdom, employing more than three thousand people at Chelmsford and Gateshead.

Our philosophy of complete involvement with our customers' needs continues from development, through production and installation, to provide a continuing through life support until the customer comes again for replacement after decades of cost effective use.

**Integrity in design and manufacture.**

La société MARCONI RADAR SYSTEMS est membre du groupe The Marconi Company, le tout premier et actuellement le plus grand groupe d'électronique du monde et division de produit majeure de la General Electric Company, un des plus importants fabricants du Royaume-Uni.

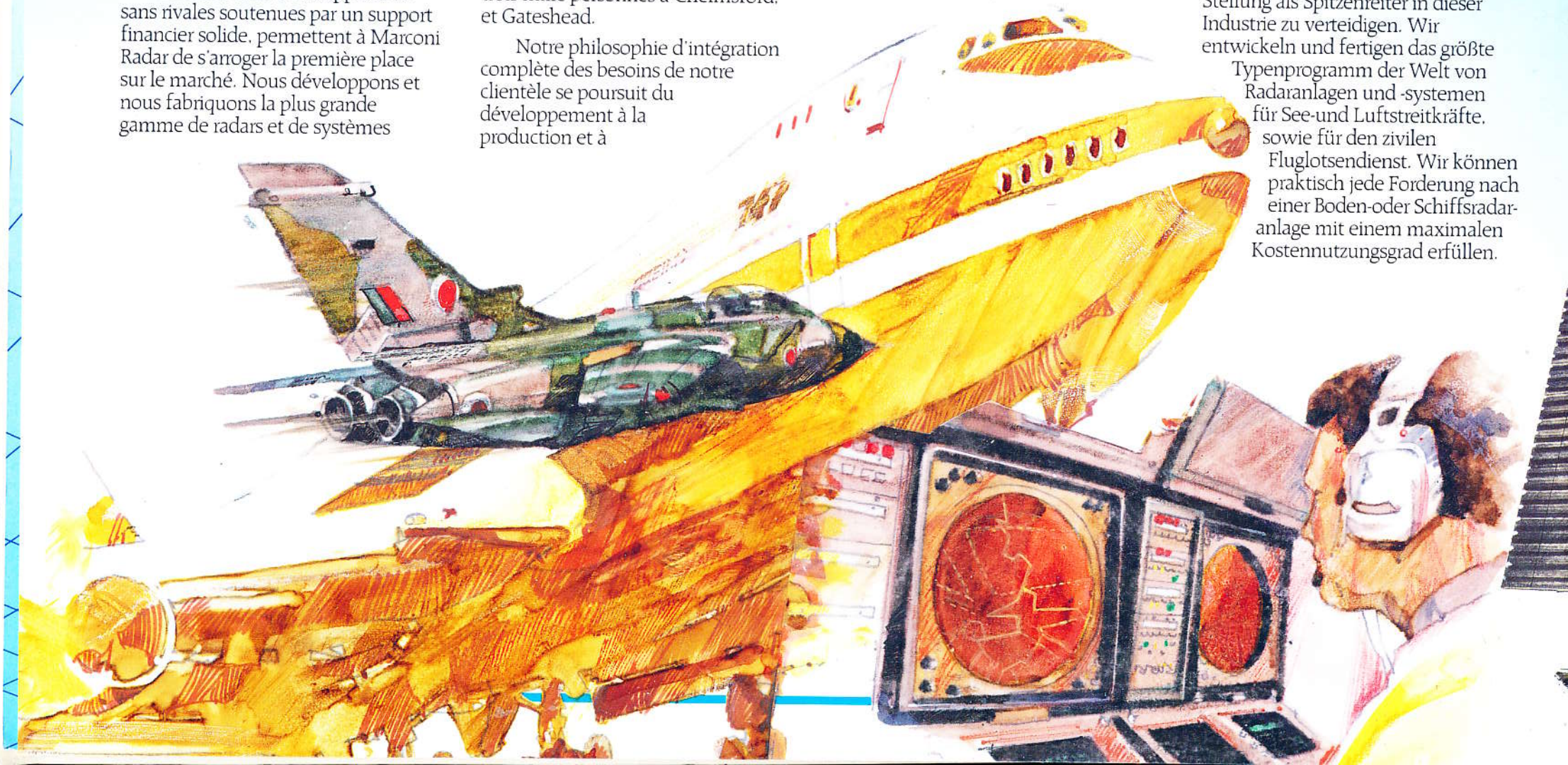
Notre expérience remonte à plus de quatre-vingt ans et nos importantes ressources, y compris des installations de recherche et de développement sans rivales soutenues par un support financier solide, permettent à Marconi Radar de s'arroger la première place sur le marché. Nous développons et nous fabriquons la plus grande gamme de radars et de systèmes associés du monde pour les secteurs de la défense navale et aérienne ainsi que du contrôle du trafic aérien. Nous sommes à même de satisfaire toutes exigences de radar au sol ou sur navire de la manière la plus économique.

Notre matériel est en service dans plus de la moitié des pays du globe et nous sommes les plus grands fabricants de radars du Royaume-Uni employant un personnel de plus de trois mille personnes à Chelmsford, et Gateshead.

Notre philosophie d'intégration complète des besoins de notre clientèle se poursuit du développement à la production et à l'installation pour assurer un soutien continu jusqu'à ce que le client revienne acheter un nouveau modèle pour remplacer celui qui l'a servi économiquement pendant des dizaines d'années.

Die Marconi Radar Systems zählt zu den Firmen, die zusammen. The Marconi Company ausmachen, der ersten und heute einer der größten Elektronik-Gruppen der ganzen Welt, und selber eine wichtige Produktgruppe der General Electric Company, die wiederum den größten und erfolgreichsten Industriekonzern in Großbritannien darstellt.

Unsere Erfahrungen erstrecken sich über mehr als achtzig Jahre. Unsere Möglichkeiten, darunter unsere beispiellose Forschungsund Entwicklungsantstalt, die auch über die notwendigen Mittel verfügt, erlauben es Marconi Radar, ihre Stellung als Spitzenreiter in dieser Industrie zu verteidigen. Wir entwickeln und fertigen das größte Typenprogramm der Welt von Radaranlagen und -systemen für See-und Luftstreitkräfte, sowie für den zivilen Fluglotsendienst. Wir können praktisch jede Forderung nach einer Boden-oder Schiffsradaranlage mit einem maximalen Kostennutzungsgrad erfüllen.



Von uns gebaute Anlagen befinden sich in mehr als der Hälfte aller Länder der Welt im Einsatz, und als größter Hersteller von Radaranlagen in Großbritannien beschäftigen wir mehr als dreitausend Angestellte in Chelmsford, und Gateshead.

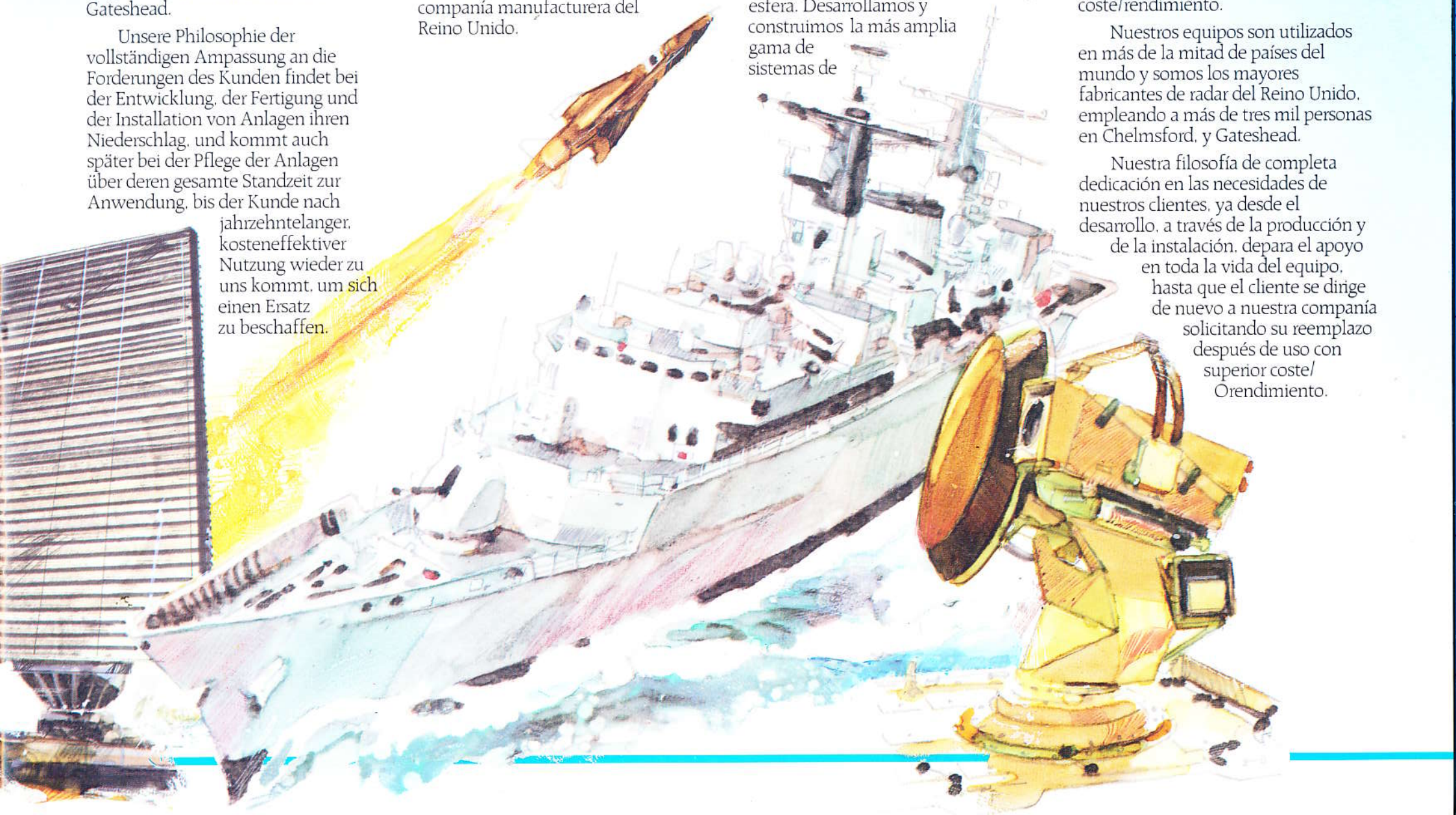
Unsere Philosophie der vollständigen Ampassung an die Forderungen des Kunden findet bei der Entwicklung, der Fertigung und der Installation von Anlagen ihren Niederschlag, und kommt auch später bei der Pflege der Anlagen über deren gesamte Standzeit zur Anwendung, bis der Kunde nach jahrzehntelanger, kosteneffektiver Nutzung wieder zu uns kommt, um sich einen Ersatz zu beschaffen.

Marconi Radar Systems es miembro de la Marconi Company, el muy primero y ahora uno de los mayores grupos de electrónica del mundo y un grupo de productos importante de la General Electric Company, la mayor y con más éxitos compañía manufacturera del Reino Unido.

Nuestra experiencia de más de ochenta anos y nuestros cuantiosos recursos, incluyendo las facilidades sin rival de investigación y desarrollo ensalzadas por apoyo financiero razonado permiten a Marconi Radar retener su preeminencia en esta esfera. Desarrollamos y construimos la más amplia gama de sistemas de radar y afines del mundo en las actividades de las fuerzas navales y aéreas y también de control del tráfico aéreo. Podemos satisfacer cualquier requerimiento de radar terrestre o acarreado por buques ofreciendo mejor relación coste/rendimiento.

Nuestros equipos son utilizados en más de la mitad de países del mundo y somos los mayores fabricantes de radar del Reino Unido, empleando a más de tres mil personas en Chelmsford, y Gateshead.

Nuestra filosofía de completa dedicación en las necesidades de nuestros clientes, ya desde el desarrollo, a través de la producción y de la instalación, depara el apoyo en toda la vida del equipo, hasta que el cliente se dirige de nuevo a nuestra compañía solicitando su reemplazo después de uso con superior coste/ Orendimiento.



## The Systems Approach

Naturally, the individual units of a radar system must all be of the highest quality, but for the system to operate at its optimum capability the whole must be integrated into a homogeneous system. This is why we set such high score on the systems approach and our engineers, analysts and managers at all levels are trained to use a systems philosophy.

Starting with an analysis of the operational requirement our systems teams, aided by our real-time and off-line computer facilities, follow through with site and topographical surveys, and propagation and environmental studies when necessary, even before equipment specification and technical planning gets under way.

Even such ancillaries as roads, buildings and communications are taken into account because they are an integral part of an efficient installation.

Similarly, in the naval environment, we have the necessary expertise to cover both ship installation and also the integration of our equipment into complete ship weapon's systems.

It is this approach that leads to integrated, totally compatible systems that perform their required functions to the highest level of efficiency.

## $C^3I$

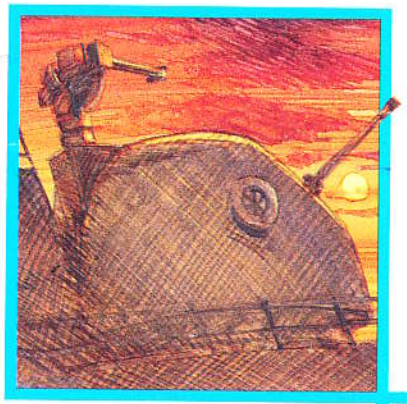
We have a total systems capability in the field of Command, Control, Communications and Intelligence. We will evaluate, analyse and model all hostile threats; define operational requirements and develop $C^3I$ concepts, carry out all necessary design and associated Software/Hardware development and production and all the related installation, training and life-cycle logistic support requirements.

# Naval Radar

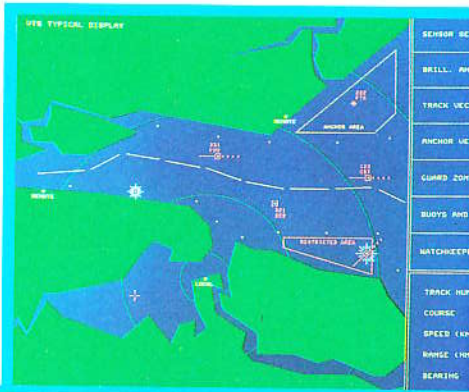
As principal suppliers to the United Kingdom Royal Navy since the early days of seaborne radar, we are in a unique position to respond effectively to the latest needs for state-of-the-art radar systems of all degrees of complexity, for all classes of warships.

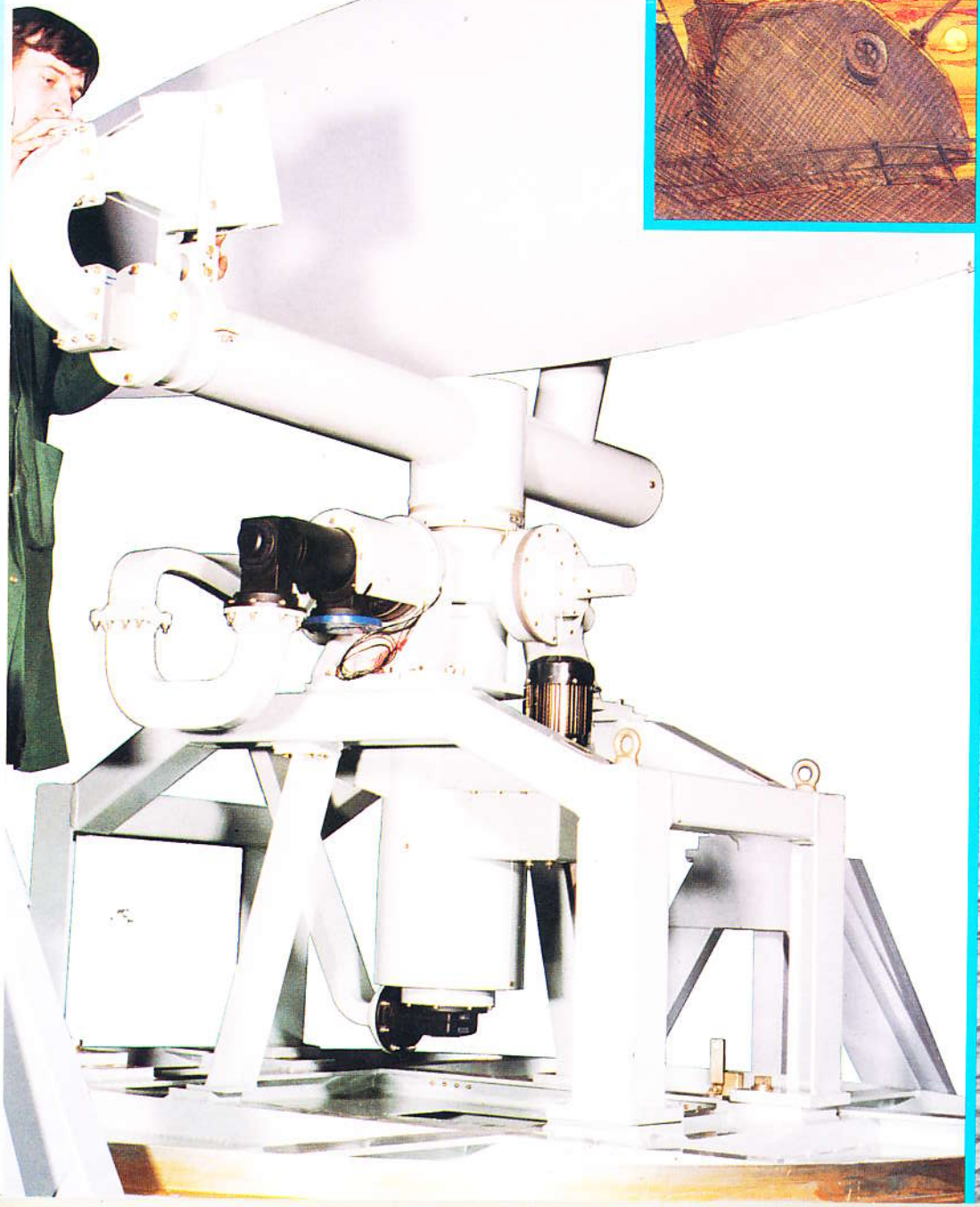
Suppliers of the battle-proven GWS25/Seawolf point defence radar systems, we also provide the new 805SW Seawolf lightweight radars fitted in the latest RN frigates, available for both vertical launch and aimed director missile launching and suitable for vessels from 1,000 tonnes upwards.

Our range of trackers includes units to control fast-firing and medium calibre guns as well as surface-to-air missiles such as Sea Dart, Sea Sparrow and Aspide, together with surface-to-surface missiles such as Exocet, Otomat and Harpoon.



The 1800 series surveillance radars includes versions suitable for a wide range of warship types. Fully coherent driven transmitters are used offering true random frequency agility across a large bandwidth, together with effective ECCM techniques. Operational modes include pulse-to-pulse frequency agility, pulse burst agility and fixed frequency.

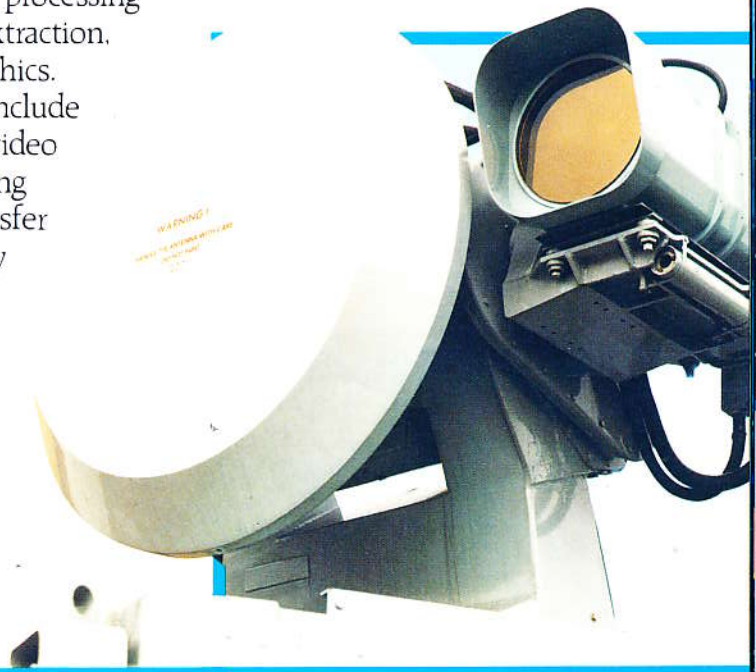




Marconi coastal surveillance systems are completely self-contained. The radars may be mobile or static and configured to provide surface and/or air cover. The use of advanced signal processing techniques ensures high quality target data under conditions of severe clutter. MTI, frequency agility and coherence are some of the features which can be included to meet specific operational requirements.

The 400 series radar fire control system uses an innovative and advanced design of tracker. With an overall height of only 1.2 metres, the radar is compact and light in weight. The unit operates over an octave band-width and will control naval guns from 20mm upwards, providing all-weather defence against sea skimming and other types of missiles, strike aircraft, helicopters and surface targets. Type 400 employs clutter suppression and a novel method of reducing the angular errors caused by multipath effects.

Our vessel traffic management systems are specifically designed to reduce operator load in harbour operations. Featuring ease of operation and clear data presentation, the systems allow operators to be free to give attention to essential decision-making. Basic components include navigation radars, raster-scan daylight viewing displays and data processing providing plot extraction, tracking and graphics. Optional extras include remote control, video mapping, recording facilities and transfer of display data by modem or microwave link.



# Air Traffic Control

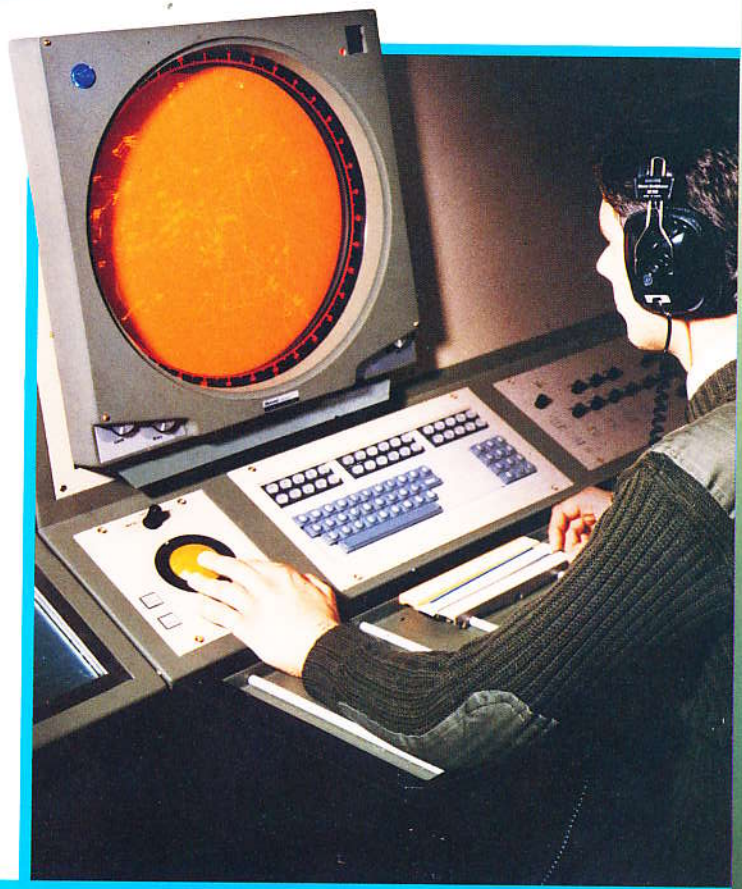
Forty years of experience in designing, developing and installing ever more sophisticated ATC radar is the background to our newly-developed range of systems.

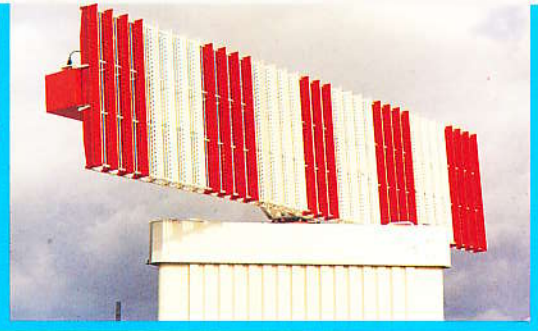
Our latest approach control radar is the compact, purpose-designed 10cm S511. Modern technology and minimum complexity mean reliable, low-cost equipment and excellent performance.

The larger range terminal area radar S512 uses the same antenna with a more powerful, driven, coherent

transmitter. An advanced 12-bit processor provides very high mil- clutter-visibility. Messenger, the new monopulse secondary radar, sets new standards for positional accuracy.
The lightweight planar antenna and all solid-state-electronics are designed to incorporate the new Mode S SSR system.

The Astrid display system is a versatile computer controlled display and data handling system, embodying the very latest technology. Two sizes of high resolution displays are available with comprehensive ATC facilities.






TRAINING & STANDBY


Marconi


Marconi

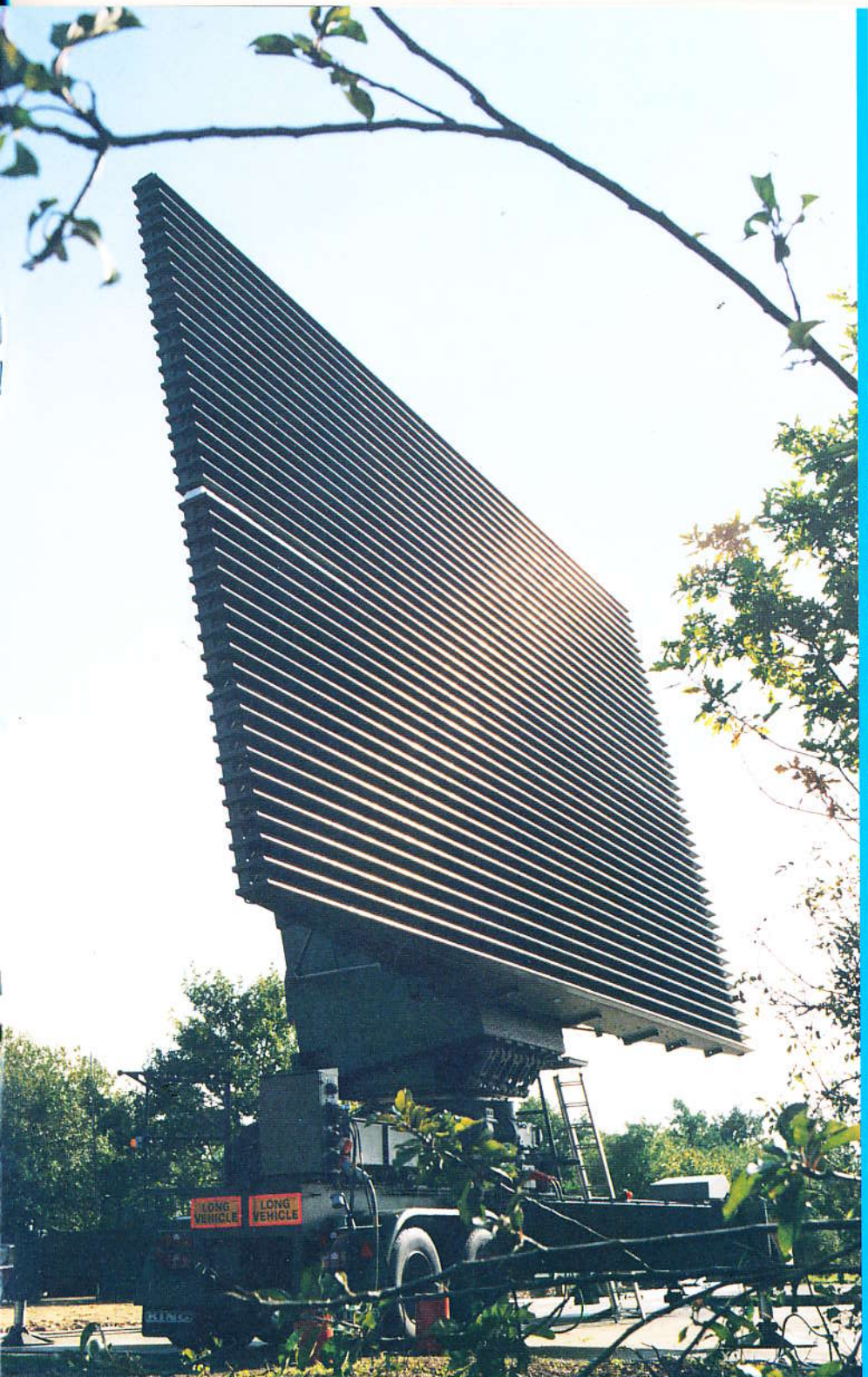
# Air Defence

Air defence radar has now passed into its second half-century. Marconi was there at the start and still play the leading role in radar technology being Britain's major supplier of systems and equipment.

The comprehensive range includes radars and associated data handling and display equipment in both static and transportable form; secondary surveillance radars; modern communications facilities; electronic warfare systems; and total maintenance and logistical packages.

Martello, the pride of our product range, is a family of 23cm band long range 3D radars, the most powerful and versatile transportable radars in the world.

Tactical radars, operating in the 10cm band, fulfil a range of roles including gap-filling, battlefield surveillance and coastal defence, using a modular series of antennas, transmitter/receivers and display facilities.



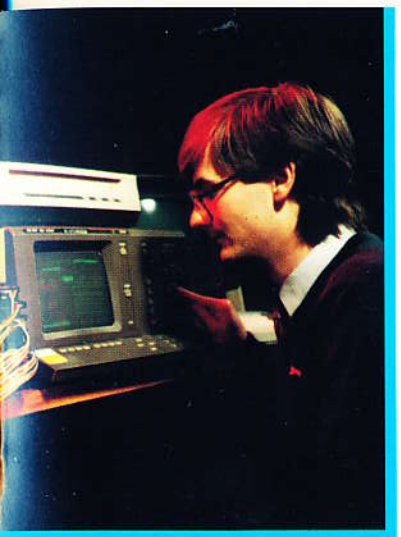

Over 20 years ago Marconi installed the world's first fully automated air defence system. Since then, the investment we have made in software facilities, the specialists we employ and the unrivalled experience we have gained have augmented our range of up-to-the-minute equipments with the MACE operations cabin, an effective, transportable air defence system that makes use of the very latest technology.

# Software Engineering

Software Engineering Technology is the name given to that body of knowledge, techniques and facilities which enables an organisation to be successful in the specification, design, implementation and verification of software systems.

We were one of the first organisations to master this branch of professional engineering, having successfully pioneered technical methods, quality concepts and software tools for each phase of the software life cycle.

We offer our clients a complete range of software engineering services– from the minor consultative role to the transfer of complete technology– backed by our training courses and support, to give those clients a total capability in predictable and economic software engineering.



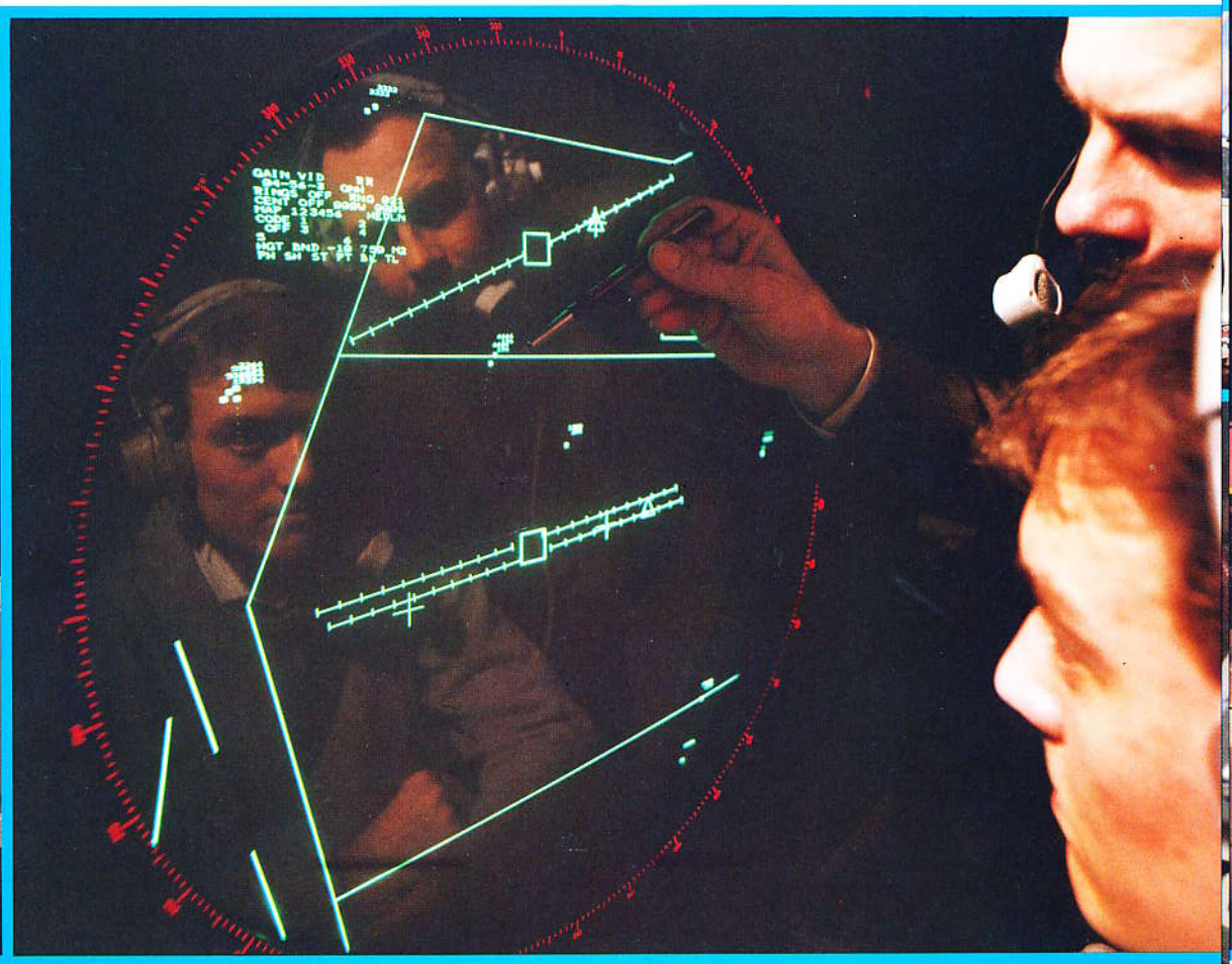
Marconi produced the world's first digital computer-based radar simulator.

Twenty years and forty systems onwards our engineers are creating a new generation of simulators running in a standard range of mini-computers.

Our simulators are available for training air traffic controllers and command and control system operators where authentic simulation of the operational environment is required, and can be used to provide a tactical $C^3I$ wargaming capability. They are also invaluable for personnel and equipment performance assessments, evaluating ECCM effectiveness and verifying operational procedures.

MARCONI DATA SYSTEMS' radar simulators provide a simultaneous alternative to the live environment, giving the trainee operator experience of all the scenarios that can be unleashed by the real world at its most demanding and most unpredictable.

# Simulation

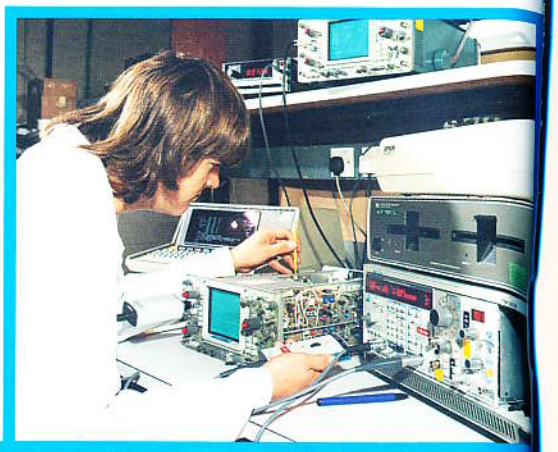


# After Sales Support

We believe that we have an obligation to our customers which goes beyond the handing over of a radar system, and that comprehensive after sales support is a vitally important part of a systems package.

We provide all the necessary instructional and operating literature in any language, and offer an extended service covering information on updating and modifying equipment, a diagnostic, maintenance and repair service together with resident maintenance engineers if required.

Our range of product support services are designed to meet the needs of individual customers for the maximum operational availability of their equipment. The services include installation, documentation, post design, logistic support and test equipment calibration; any or all of these services can be provided by contract arrangements.





# Customer Training

Marconi College at Chelmsford, established as the world's first radio college in 1901, offers a wide variety of residential and non-residential courses tailored to the specific needs of individual customers.

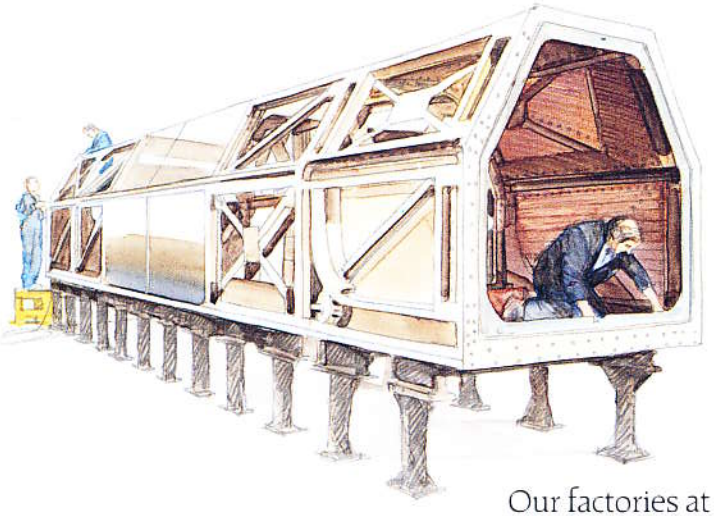
The College is fully equipped with laboratories and lecture rooms and a well-appointed residence.

Overseas customers not wishing to visit Chelmsford are catered for by a network of training centres throughout the world. Alternatively, we can arrange training on site.

# Quality in Manufacture

Technological leadership in the capital electronics market would be of little consequence without the ability to manufacture the hardware to the highest standards of quality and reliability.

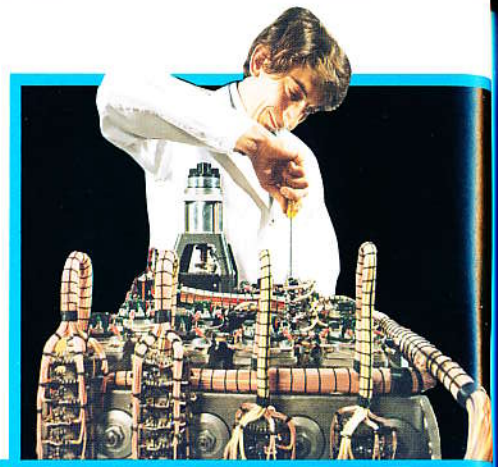
At Marconi, the exceptionally high level of investment in production equipment and techniques ensures a manufacturing capability to match our research and development potential.



Our factories at Chelmsford and Gateshead are well equipped with 'clean' areas and advanced computer and numerically controlled machinery. We have all the facilities to exploit the latest CAD/CAM techniques.

Test facilities not only include sophisticated equipment for testing components and complete units, but a purpose-built pre-commissioning test facility for complete radar systems and a climatic and mechanical test chamber that is among the largest in Europe.

Extensive sites are available for field-testing.



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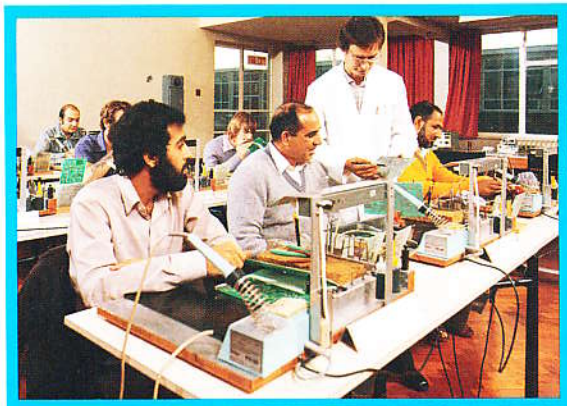

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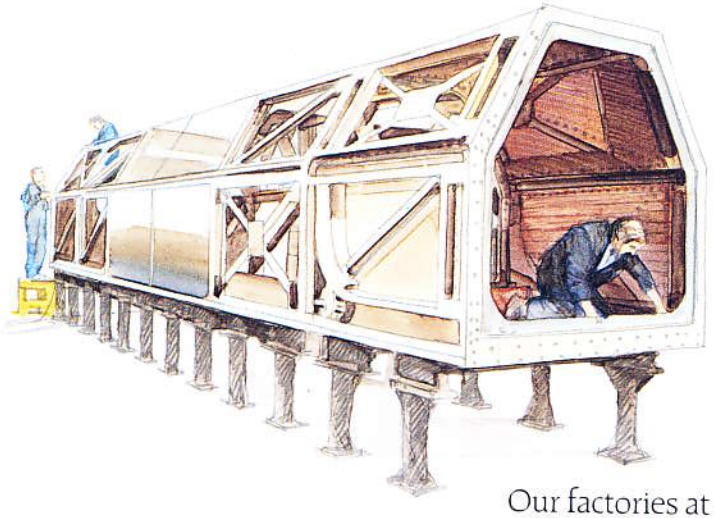

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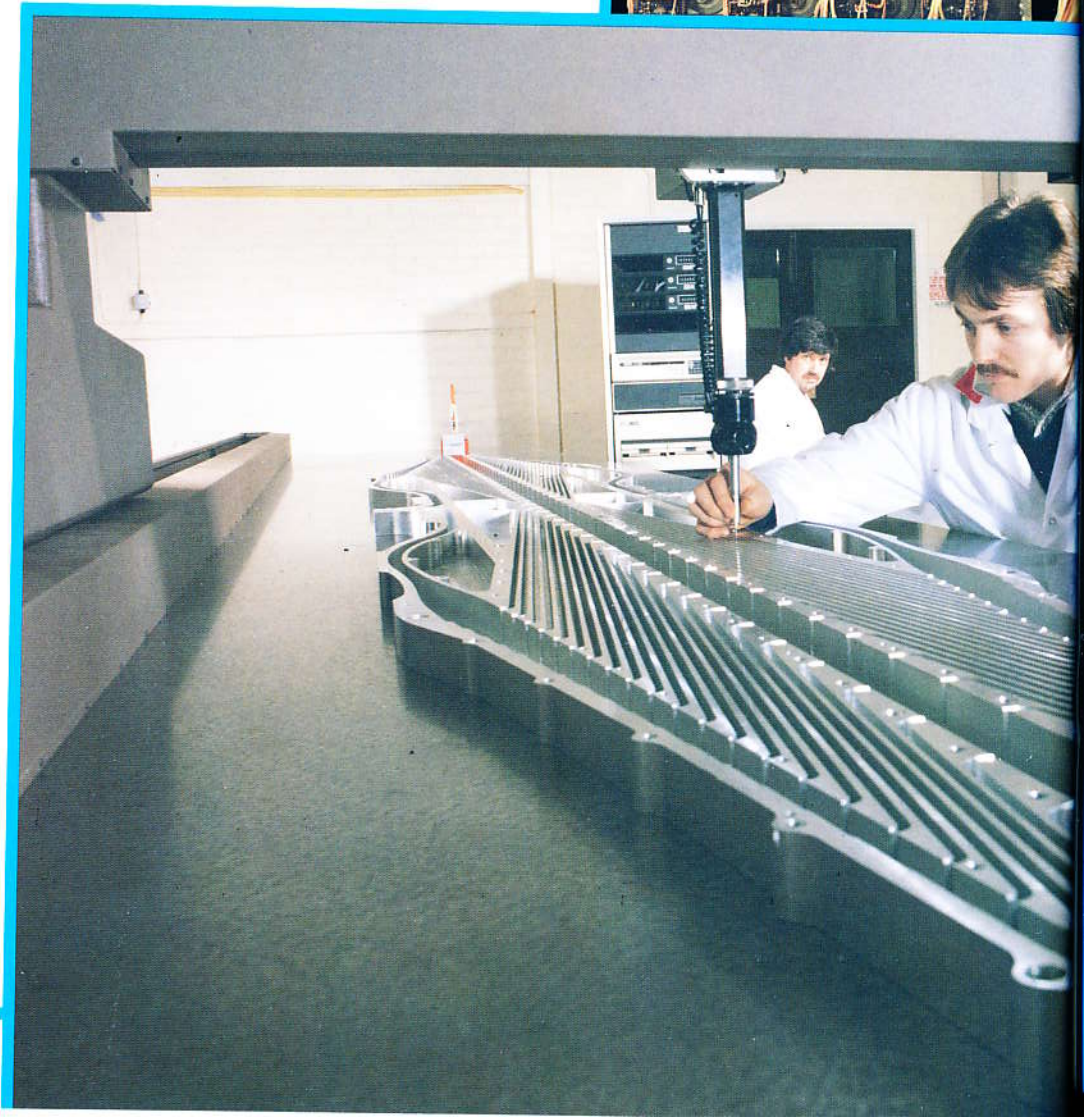
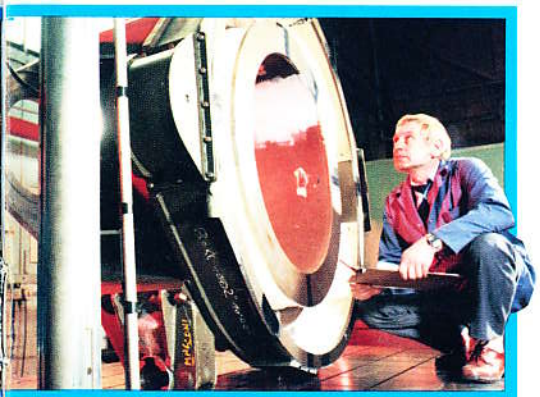
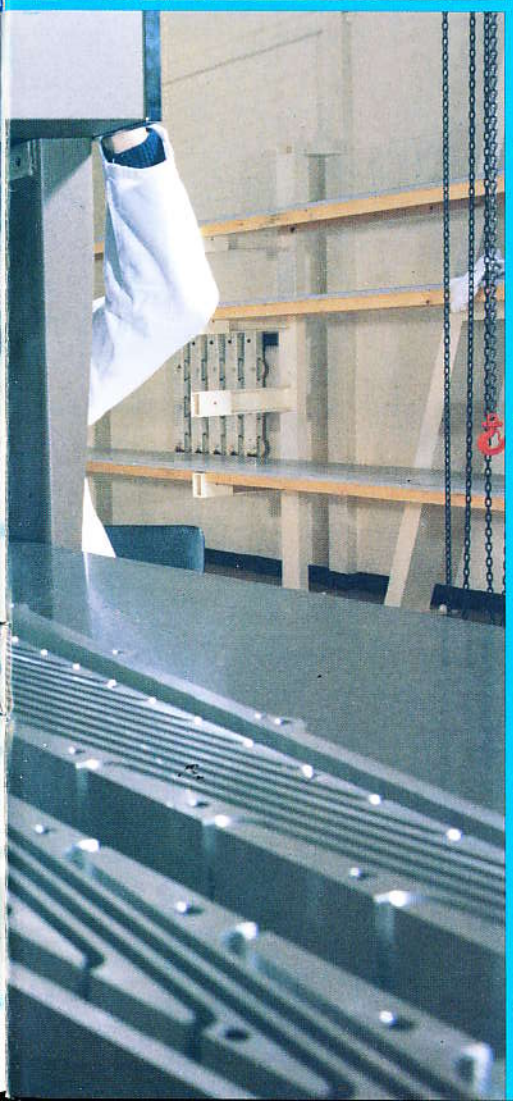


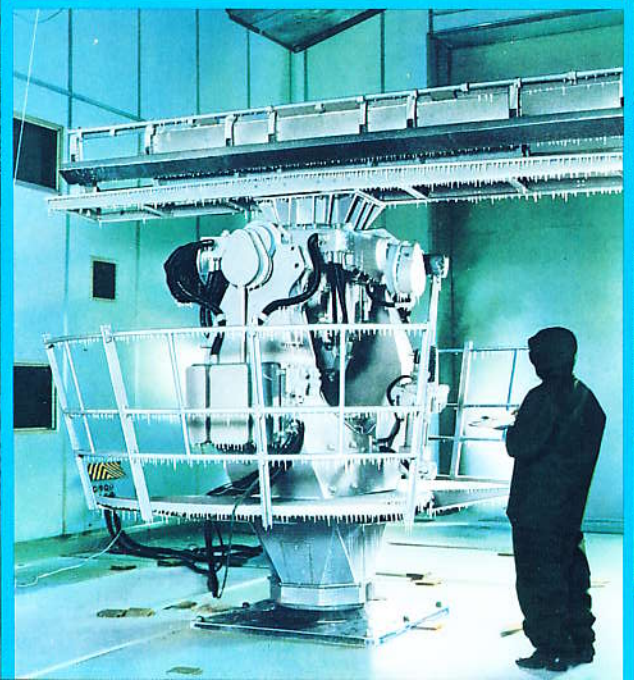




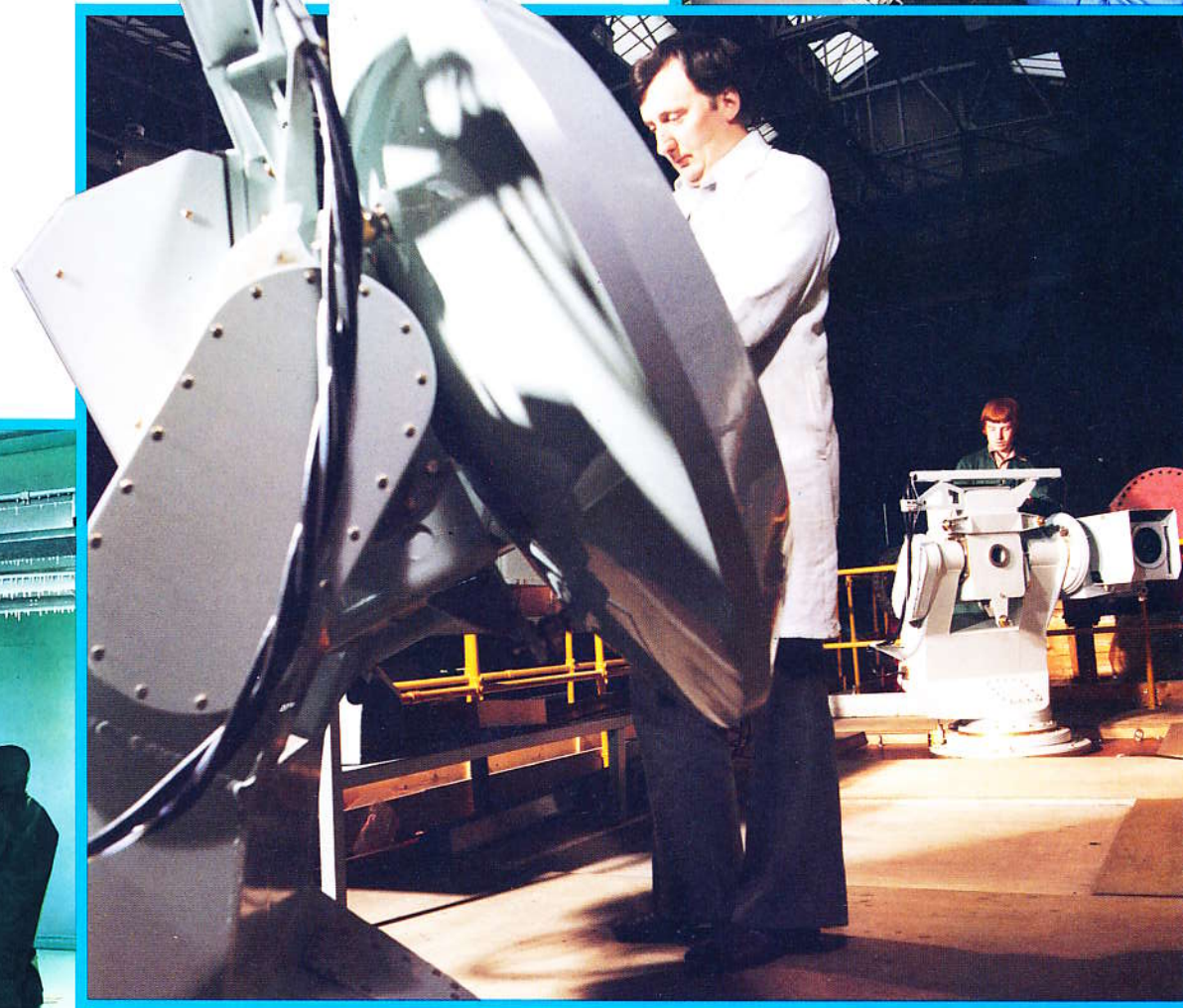
Production to our high standards, which are recognised by inclusion of our company on the British Ministry of Defence Contractor's list as competent to undertake work to Defence Standard 05-21, calls for quality control to an exceptionally high level.

Exacting quality criteria are applied throughout the design and production processes for all the equipment and systems we manufacture and install, and the work we contract to do.

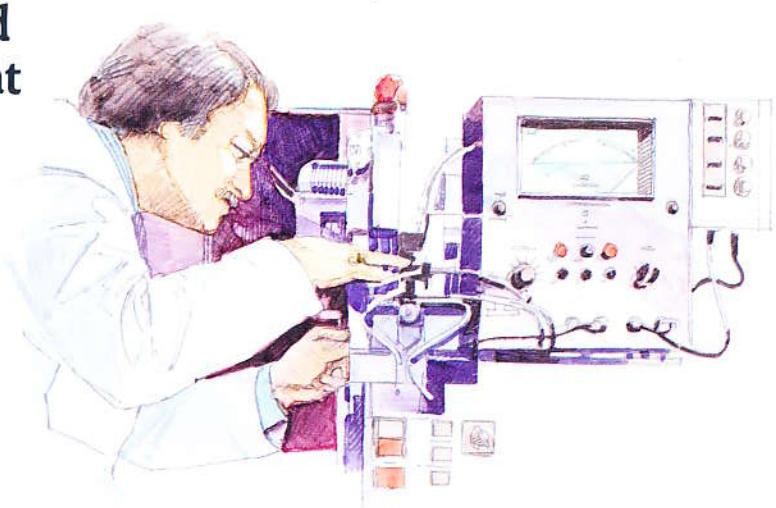
Raw materials, sub-components, manufacturing equipment and techniques, and testing methods—even the standards of suppliers and sub-contractors—are subjected to the most rigorous and continuing quality checks.



It is in this way that we can ensure production to specification, and long-term performance reliability.



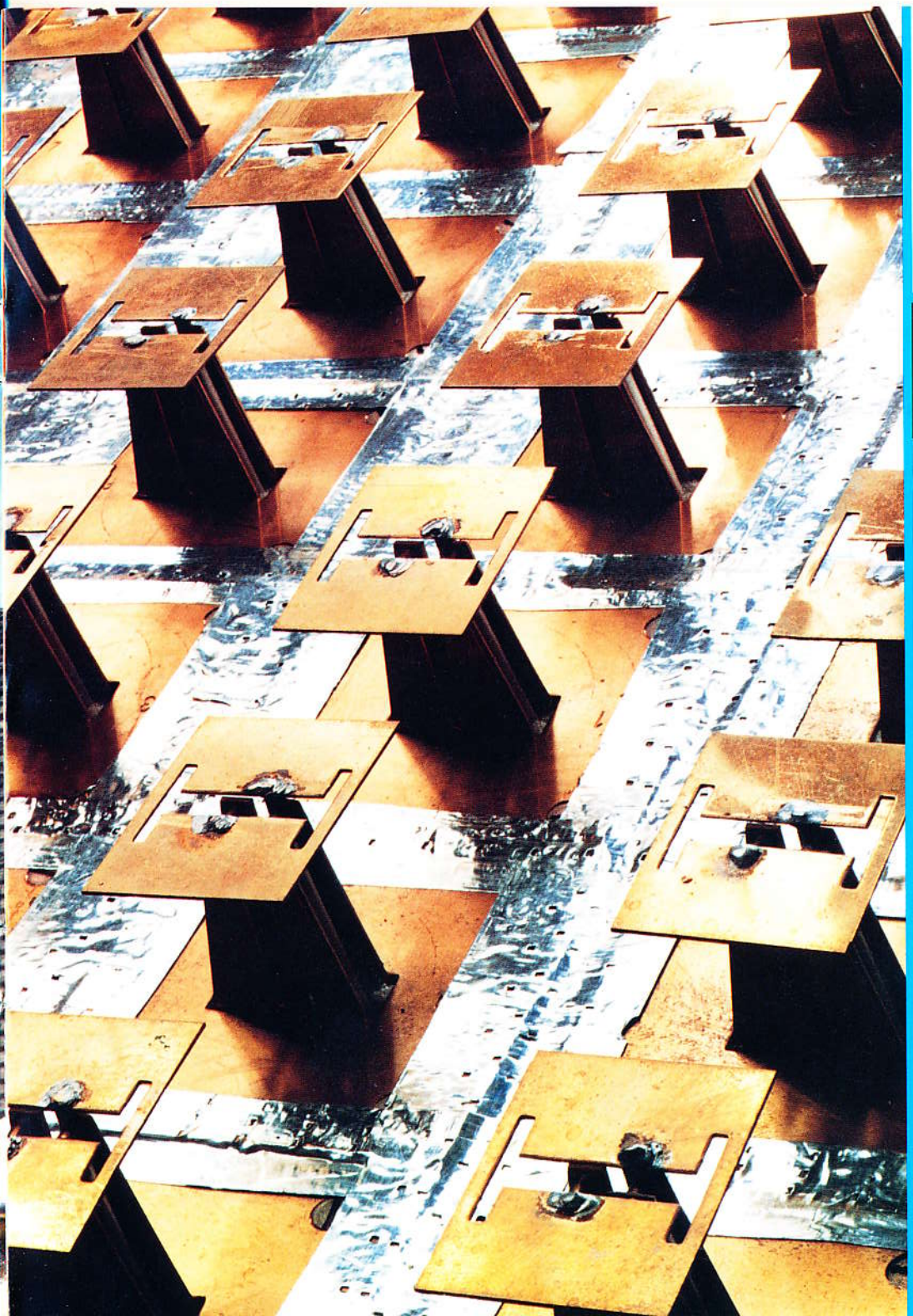
# Research and Development

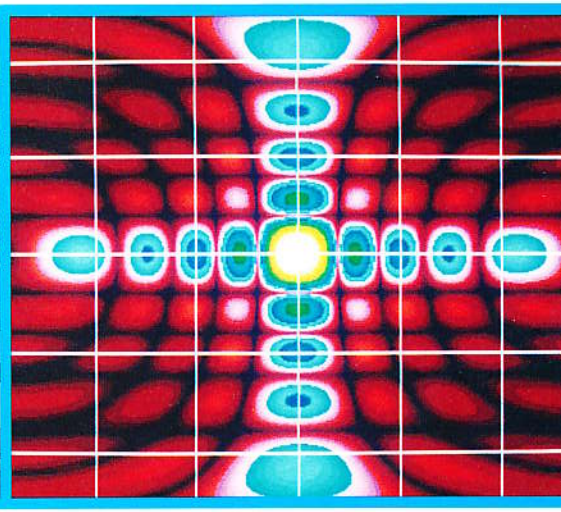


We invest a high proportion of our turnover in the future, that is, in research and development.

Our membership of the General Electric Company gives us the unrivalled facilities of one of the largest research complexes in Europe, the GEC Research Laboratories, comprising the Marconi and Hirst Research Centres. We are, therefore, able to carry out research on a scale that would be impossible for most individual companies.

We employ over 700 professional engineers in our development laboratories at Chelmsford, in both hardware and software development, and are pioneering new technology in many areas including the implementation of complete radar systems exclusively exploiting solid-state technology; the evolution of advanced, very fast, self adaptive multi-function signal processing; the development of simulation facilities for superimposing complex situations into systems working in real environments, and the use of multi-processor architecture in bus-oriented systems to give great flexibility and system growth without changes to application software.



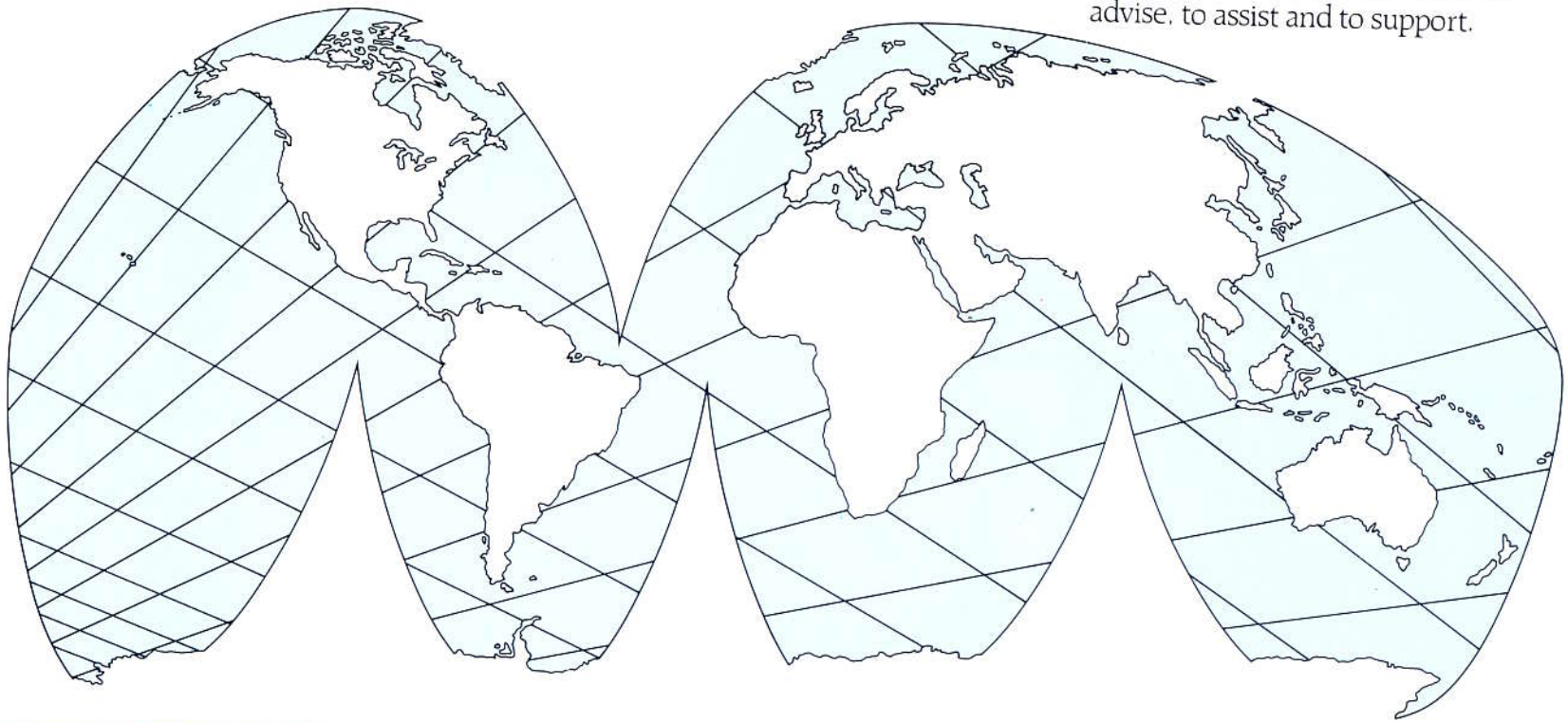


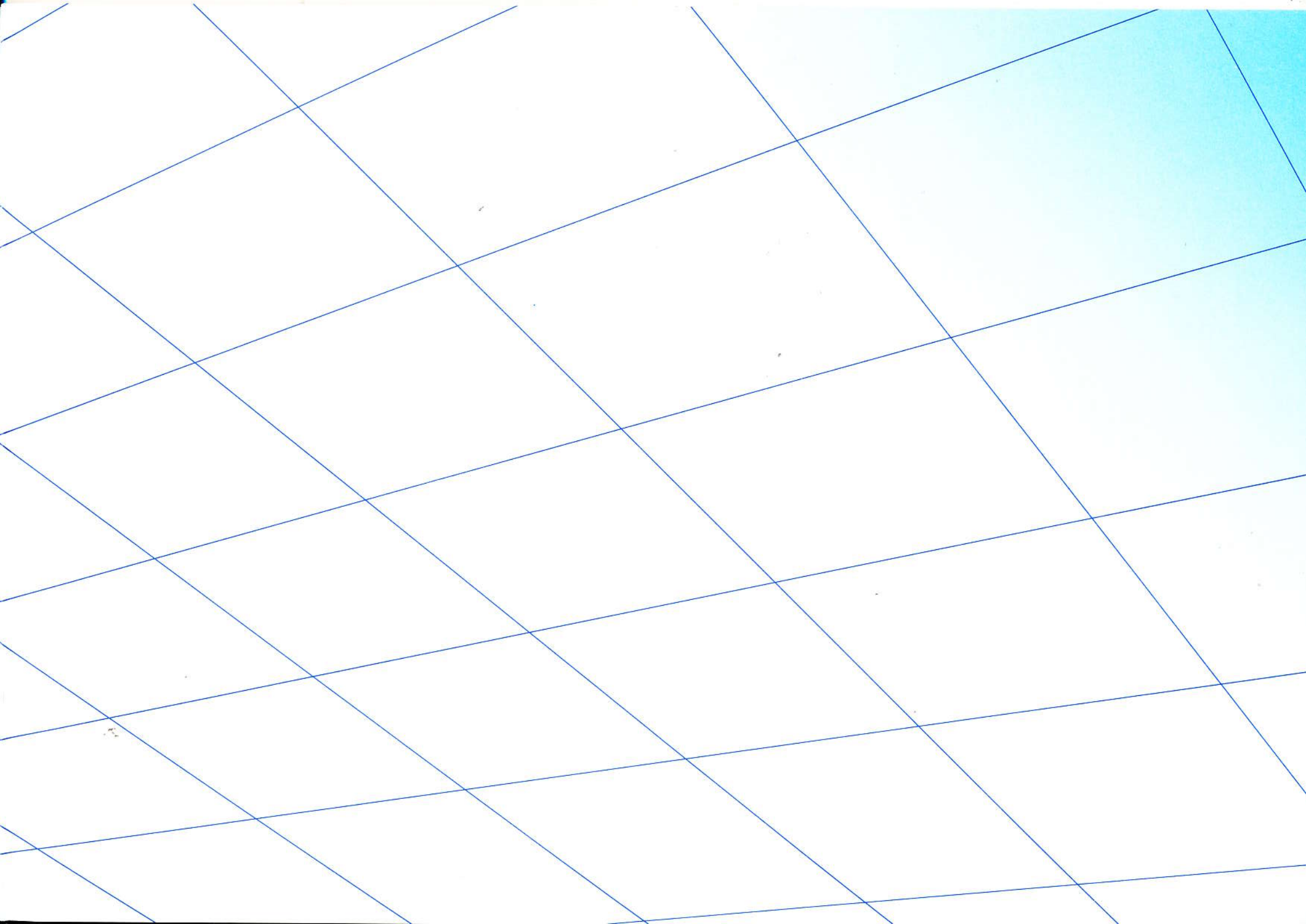
## Marconi World-Wide

Marconi equipment and systems have been installed in over half the countries of the world.

Over the years our customers have traded with us again and again because they know that wherever they are, the high standard of our equipment will be matched by the quality of service and advice available to them throughout its operational life.

From the conceptual stage, through to installation and subsequent operation the world-wide network of Marconi subsidiary and associated companies and agents are there to advise, to assist and to support.





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