

facts  
about  
MARCONI  
AVIONICS

Making high-technology products  
Succeeding in tough world markets  
Opening new factories  
Creating new jobs  
Developing new skills  
Investing in new equipment  
Seeking the new opportunities

# Marconi Avionics organised to innovate...

Most people agree on industry's need to create better products which an advancing world requires. Here are the facts about our company, which is meeting this challenge, and succeeding in some of the world's most competitive markets.

Marconi Avionics Limited is the GEC company which supplies the world's civil and military aircraft with advanced avionic systems, and produces allied high-technology electronics, for use on land, at sea and in the air. By applying innovation, right across our product range, we are able to win major contracts in the world market, in which we are constantly seeking new opportunities, at home and abroad.

One result is that we now supply a greater variety of avionics than any other company in the world, ranging from complete automatic flight control systems for airliners, to complex mission systems for defence. The way we are organised is a key to our ability to innovate, for the benefit of our customers and for our own success.

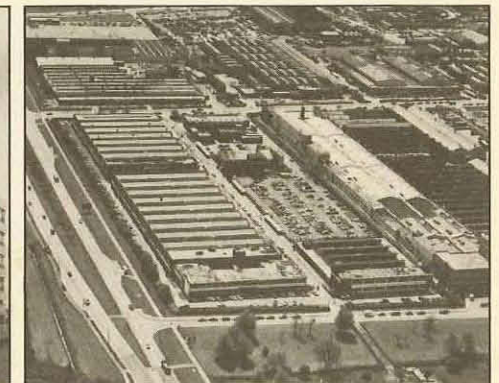
Our modern factories, in Kent, Hertfordshire, Essex, Avon, Buckinghamshire and Middlesex, are organised and equipped for the design, development, production and after sales support of our products, and for applied research.

*Part of the head office plant, Airport Works, Rochester, Kent*

*Aerial view of the plant at Christopher Martin Rd., Basildon, Essex*

*Principal factory at Elstree Way, Borehamwood, Herts.*

*Marconi Avionics Inc. factory at Atlanta, Georgia, U.S.A.*





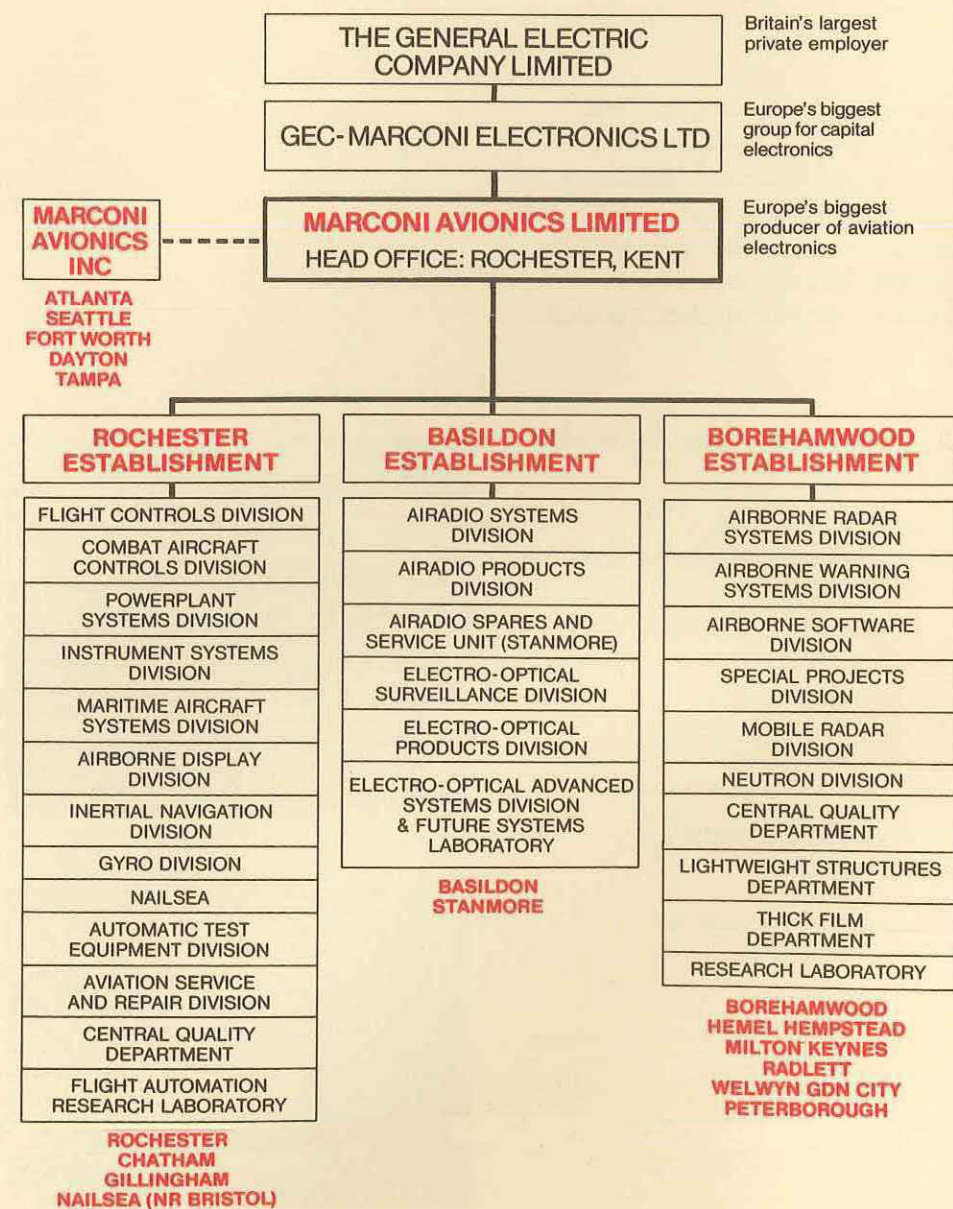
# ... from concept to reality

## ORGANISED TO INNOVATE...

To serve our customers best, we are organised into Divisions, each a specialist in its particular field, with all the resources and expertise needed for its success. On average, a Division is a 400-strong business in itself, backed by corporate facilities, including research into new technology, and backed by representatives throughout the world. Within each Division are expert, highly-motivated and customer-orientated project teams, whose work is backed by the resources of GEC, Britain's biggest private engineering company.

This method of organisation encourages individual talent and enables us to innovate efficiently, to meet our customers' objectives and to create better products.

Marconi Avionics Inc., a United States operation of some 400 people, has similar capabilities and is able to call on the extensive range of high-technology products and services which are associated with the name Marconi Avionics.



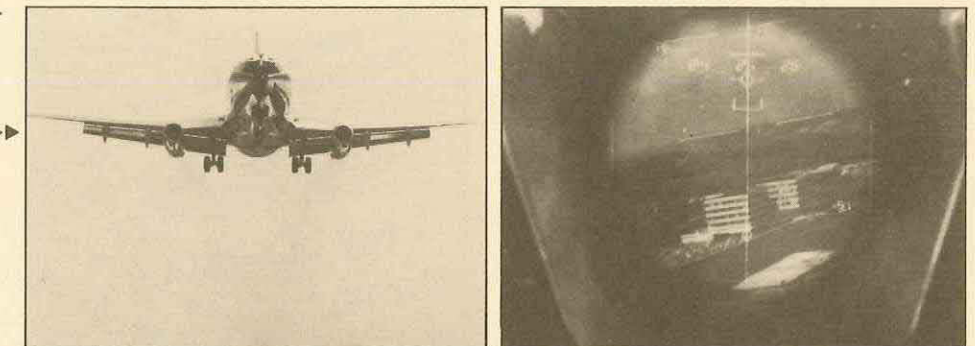
# avionics and allied high-technology products for a world market...

Over 150 types of civil and military aircraft, world wide, are equipped with major avionics systems that we supply.

These cover automatic flight control, including fully automatic landing systems, automatic throttle control and advanced "fly-by-wire" and "fly by light" control systems; powerplant control and monitoring systems, fuel flow and air data measurement systems and instruments; advanced head up display and electronic head down displays; complete aircraft mission systems, including mission software, airborne early warning radar and anti-submarine systems; acoustic processing and display systems; airborne interception radar; inertial navigation and weapon aiming systems; helicopter avionics; radio navigation and communication systems, from the simplest automatic direction finder to the most sophisticated mission communications system; electro-optical systems; gyroscopes and advanced sensor packages; automatic test equipment and comprehensive product support.

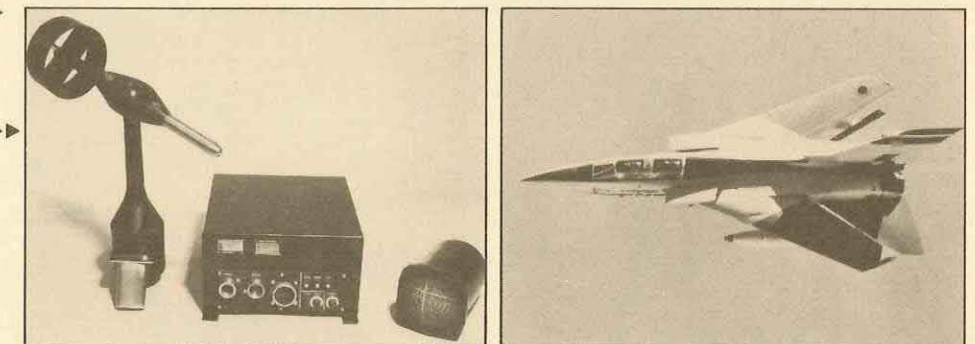
In allied fields, we supply perimeter protection and security systems, battlefield radars, X-ray, neutron and laser systems, gyrocompasses for ships and boats, television systems for virtually every kind of industry, thermal imaging systems and equipment, and control electronics for oil and gas production, a growing field of endeavour.

Boeing 737 airliners are being equipped with our new AD660 microprocessor-based Doppler Velocity Sensor.



We are first in the world in production with "see in the dark" pilot displays, like this one for US Navy A-7E Corsair aircraft.

Our microprocessor-based low airspeed sensing system is being fitted on US Army AH-1S helicopters.



The European Tornado is fitted with 17 major systems we supply. The RAF's fighter version has our world-leading airborne interception radar.

Boeing 747 airliners are fitted with our advanced automatic throttle control system.



We are applying our high technology in many other ways. One example is offshore energy production, where our "fail-safe" electronics help control subsea oil wells.



# succeeding in tough world markets...

## Beating overseas competition

In common with the rest of industry, we have to meet competition from the world's major companies, both at home and overseas. To win contracts, we have to offer the best price, performance, delivery, quality and support to our customers. These are aircraft manufacturers and operators, defence agencies and industrial, scientific and medical organisations, world-wide.

Here are some of our more recent announcements:

**NEW \$100 million contract for cockpit displays**

**Microprocessor Control Electronics for European Airbus**

**New TV Safety Aid ordered for Quarry Vehicles**

**Unique Quick-adjusting Tripod earns export orders**

**Marconi innovation wins \$2 million Boeing order**

**Trebled Exports win 7th Queen's Award**



## Expanding Sales

We are expanding the value of our output, in real terms, by:

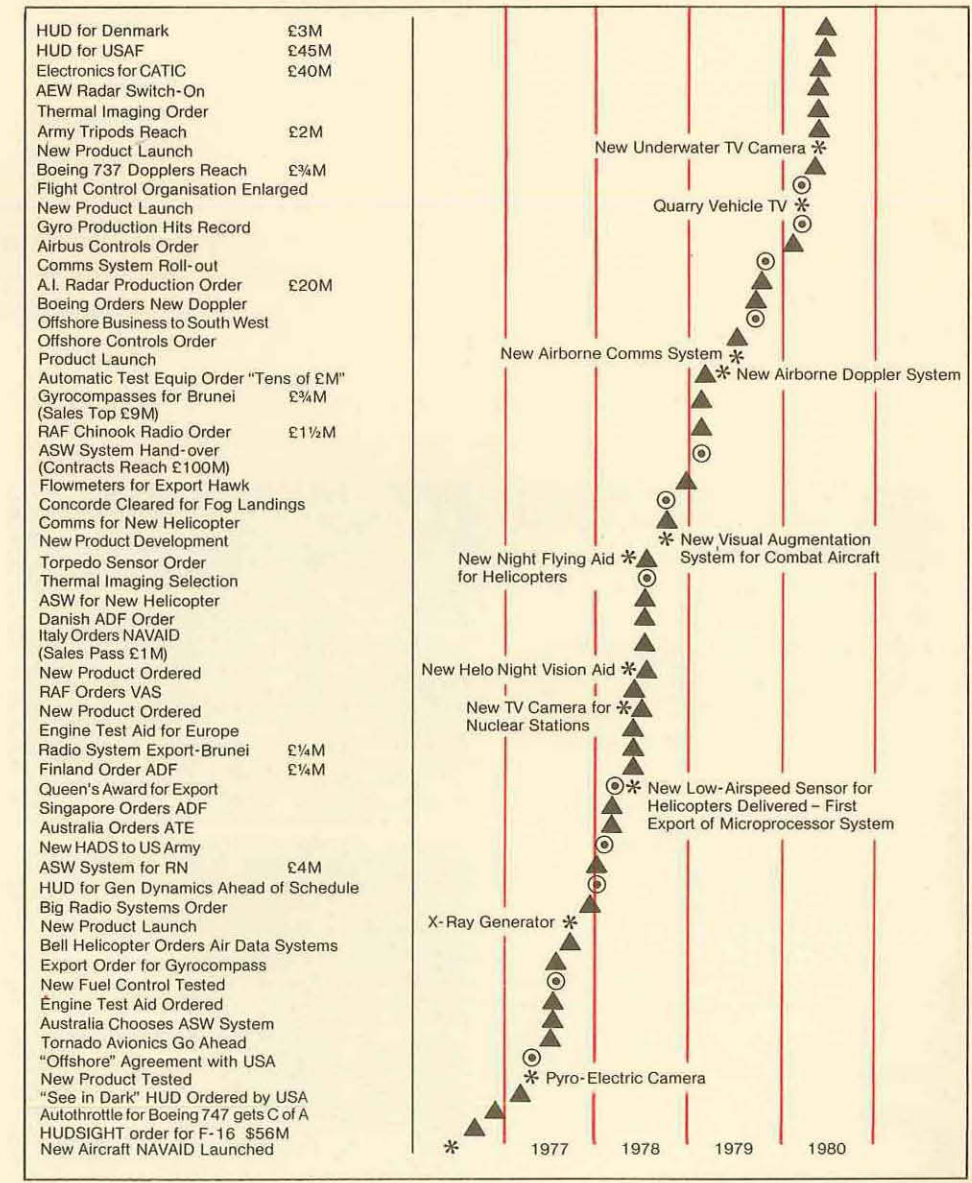
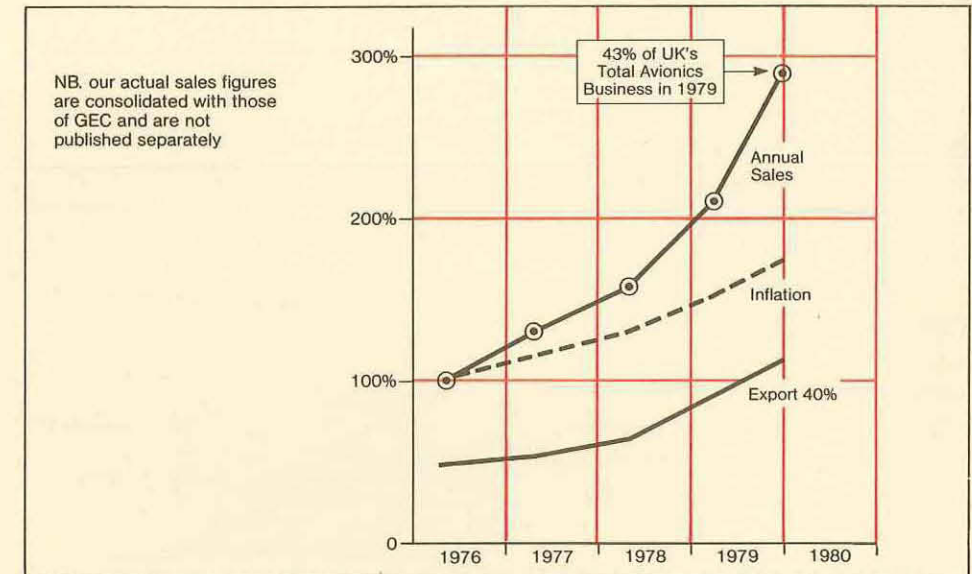
- winning new contracts
- increasing productivity
- expanding our team and facilities
- exploiting new technology

Our sales to overseas countries are similarly expanding, stimulated by success in applying new technology in our home market and by our performance in major avionics programmes.

## Achievements

Our achievements comprise new orders, new products, organisational development and improvements in our facilities. As we grow, the task of sustaining our level of activities grows accordingly.

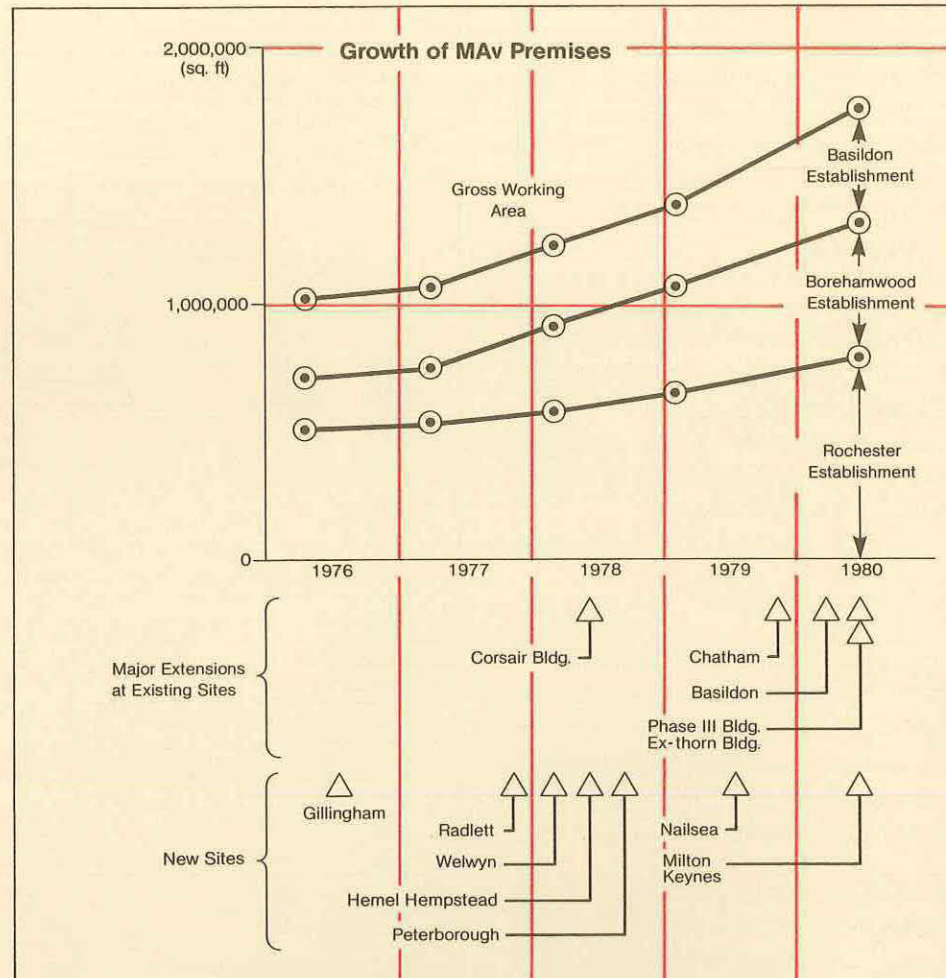
Each of our trading Divisions has its own specialised marketing and sales force, backed by corporate services for the control of overseas agents, for trade exhibitions, and for external relations.



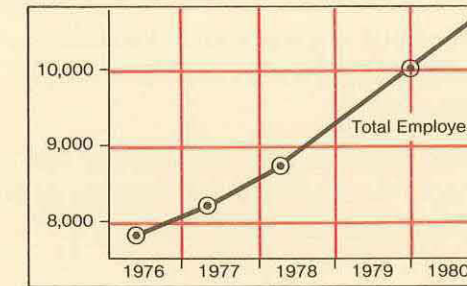


## opening new factories...

We have expanded at our three principal sites at Rochester, Borehamwood and Basildon and have opened up six additional sites during the past five years, to provide a gross floorspace of 1,800,000 sq ft, an increase of 80% during the past five years. This dramatic increase in facilities provides for our sustained expansion in future years. New sites have been chosen in areas which are attractive to qualified engineers, on whom today's high-technology industry depends.



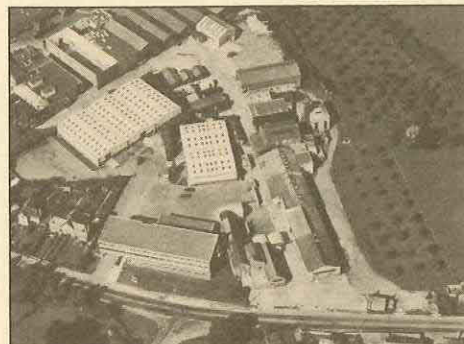
From 1976 to 1980, we have been creating up to 800 new jobs per year, a fact which is important for our customers, for industry and for the nation.



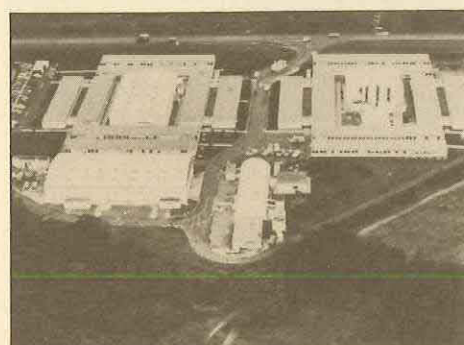
These new jobs in our own team are matched by a similar number which we create for our many subcontractors.

Project teams within each Division encourage teamwork and stimulate decision-making at all levels. This is one reason why we can appoint supervisors and managers from within, enabling people's careers and experience to grow with the company.

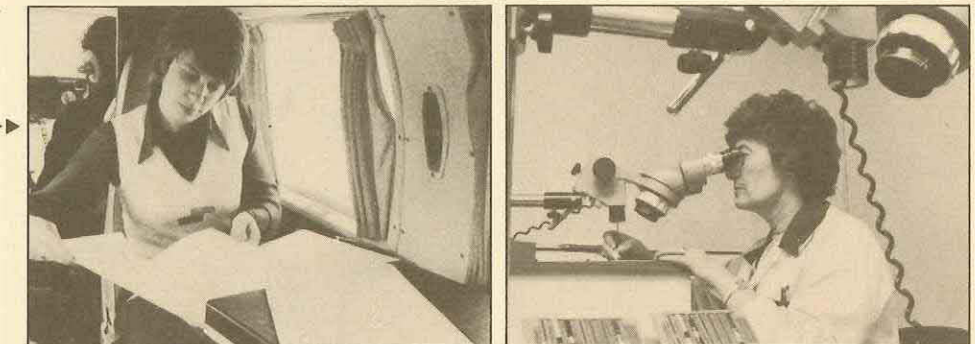
The new facility at Nailsea is providing important work in high-technology in the Bristol area. This includes new developments, and the production of control systems for the offshore energy-producing industry. Land has already been acquired for an extensive new factory, now being built alongside the one depicted.



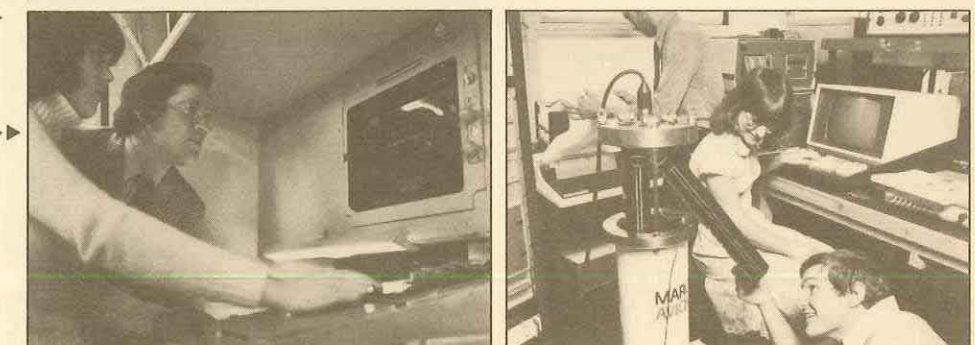
Our latest facility at Milton Keynes, Buckinghamshire is helping our Airborne Radar Systems Division to carry on important work on the world-leading radar for the Tornado air defence fighter, and to carry out a longer-term expansion.



Chief Programmer briefs her colleagues in a company aircraft-two hours before a meeting in Munich.



Attention to detail in the manufacture of digital electronics.



Project Manager and team member check their unique submarine detection system before delivery to Australia.

Offshore Controls team preparing new "fail-safe" equipment for installation on the sea bed.



## developing new skills ...

### Career development

As well as creating new posts for people with existing skills, we also create new categories of job, to keep ahead with changing technology.

This, and our policy of career development, underlines the importance of training and of the considerable resources which we dedicate to this task. It involves progressive training of our workforce, throughout all departments, initial training for new entrants, including apprentices, and liaison with schools, colleges and universities.

### Personal skills

The scale of these activities can be judged from the fact that well over 10% of our total workforce is undergoing training at any given instant.

Much of our work is devoted to encouraging women to make careers in engineering and a significant number of senior staff positions are now held by women.

### Further education

Initial training for technicians and apprentices is followed up by well-supervised on-the-job training in our Divisions and by opportunities for further education.

*On-the-job supervision from one of our top designers.*



*Apprentice training includes a great deal of individual instruction.*



*One of our teams participating in the GEC business training scheme.*



*Retraining gives better opportunities to those who already have industrial experience.*

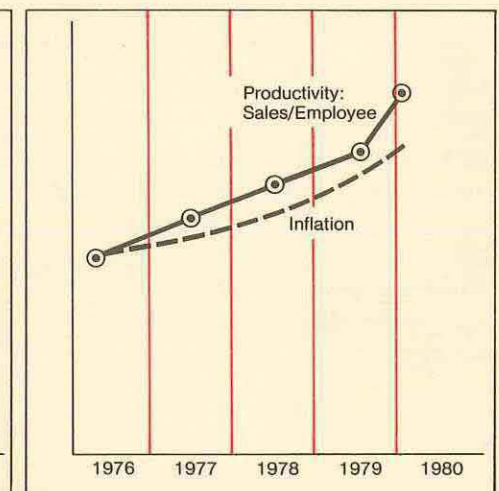
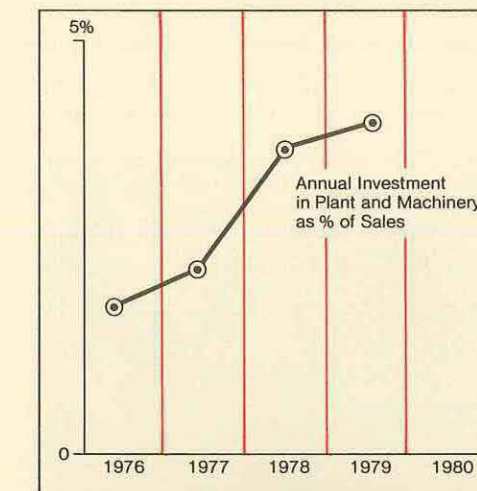


### A factor for success

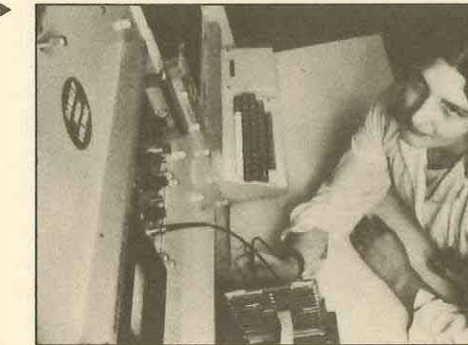
## investing in new plant and machinery...

By investing more and more in new plant and machinery, over the past five years, we have created the conditions in which our customers can get better service and more competitively-priced products. The use of modern machinery, computers and test equipment, enables our whole workforce to compete effectively with those from overseas companies, a necessary factor for our continued success.

The output per employee, which has risen in real terms, is a key to our ability to win new orders, and to create new jobs, in a high-technology market, where competition from overseas companies gets harder every day.



*Automatic Test Equipment is widely used to ensure quality in our output of sophisticated avionics. The one illustrated is manufactured in-house and is typical of those we supply to customers at home and overseas.*



*Computer-controlled machines are just one example of our extensive range of modern workshop facilities.*





## applying new technology...

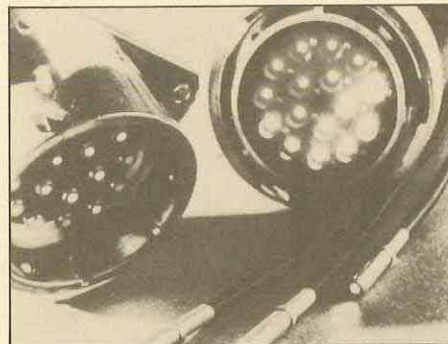
### For the products of tomorrow

Our Flight Automation Research laboratory at Chatham, the Research Laboratory at Borehamwood and research teams in our Divisions at Basildon, are continually advancing the technology we apply to our products. They are also fully equipped to undertake research contracts for our customers.

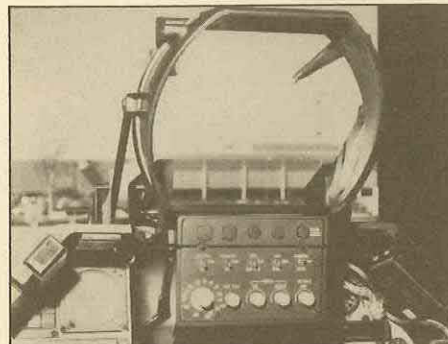
These teams work in close liaison with our product Divisions, and with other research organisations in GEC, in particular the Hirst Research Centre and Marconi Research Laboratories. This liaison ensures that new technology developed in one product area is available to any GEC company and is an advantage for more fundamental, long-term research for the products of tomorrow.

Our research and development work accounts for a high proportion of the value of the goods we sell and applies across the whole of our product range. We illustrate here just three examples.

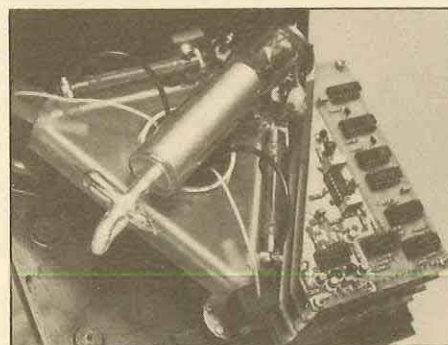
Our work for many years on optical data transmission, for many industries, has been applied successfully in the Boeing YC-14 STOL transport aircraft (a world "first"). We are now developing new forms of "fly by light" control system, to enhance performance and safety of future aircraft.



Our world-leading position in head up displays began with the world's first—still in service on Buccaneer aircraft. Since then, we have been first with digital systems, combined display/weapon aiming systems, raster "see in the dark" displays, solid state helmet-mounted displays, multi-combiner displays and, now, holographic displays.



Our gas laser systems and equipment have been applied in many scientific and industrial fields, including the measurement of air flows around runways. The illustration shows our privately-developed "laser gyro", for a new generation of accurate and reliable navigation systems.



### The ever-growing challenge

## seeking new opportunities...

Our expansion in jobs and facilities has to be sustained by a continuous search for new outlets for our advancing technology. In aviation, the limited number of new aircraft projects throughout the world, makes it imperative for us to secure the share of business we need on each of them, often in the face of strong political factors, such as agreements on international collaboration.

In industrial television, thermal imaging, energy production, perimeter protection and radiation devices, we are likewise seeking new applications overseas.

Our export achievements are not, however, made at the expense of our home market. We work continuously with government establishments and scientific, medical and industrial organisations, to ensure that we can meet new requirements and sustain our proper share of future business.

Some of the things we do to meet the ever-growing challenge are:

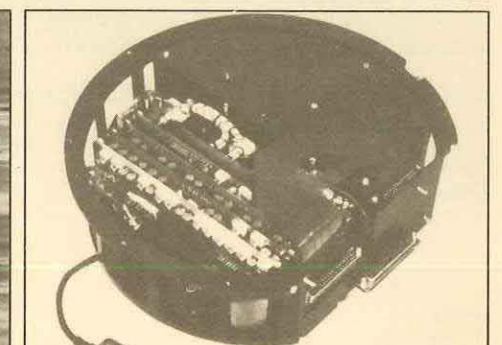
- develop new products to meet developing requirements
- carry out project studies for prospective customers
- augment our selling activities, world-wide
- augment our customer support facilities, world-wide
- provide off-set arrangements for big overseas contracts
- negotiate licences with overseas companies
- innovate constantly

Our privately-developed Mono HUD, fold-away display for future airliners and helicopters has an important part to play in the United States Space Shuttle programme.

We developed this "natural colour" underwater television camera for the safer inspection of oil rig structures and ships' hulls.

We are actively working on unmanned aircraft, to meet future defence requirements. The Marconi Avionics MACHAN is our first venture into the field of complete aeroplanes.

Europe's pioneer in the production of "strapdown" attitude sensing systems, we are now offering new versions for the guidance of the latest kinds of air vehicle.





The Fairchild A-10 is to be equipped with our "see in the dark" head up display – the most advanced in the world.

Quality Assurance experts maintain the highest standards of quality, reliability and operational safety in all our products.

Our unique printed-circuit aerial in this new doppler equipment is a key to its export success.

Pilots of 5 NATO air forces fly our advanced head up displays in General Dynamics F-16 multi role fighters.

The AEW Nimrod is equipped with our advanced early warning radar and complete Mission System Avionics.

The Airborne Interception radar for Tornado is a world leader in this vital area of technology.

Thermal imaging, enabling scenes to be viewed in total darkness, has widespread industrial and defence applications.

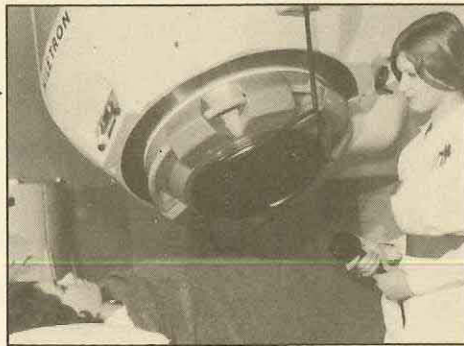
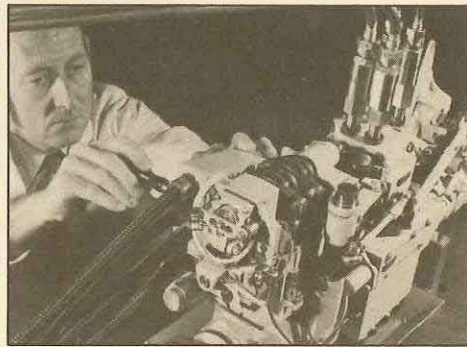
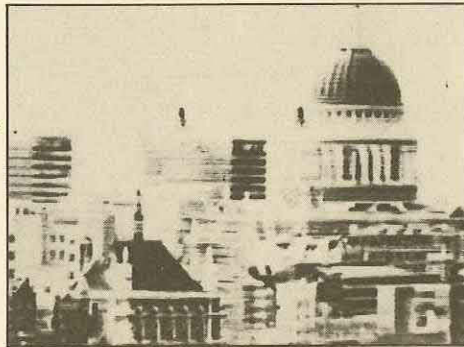
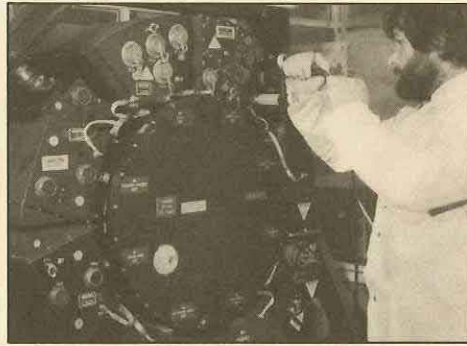
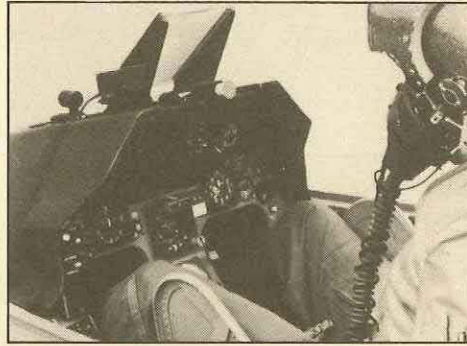
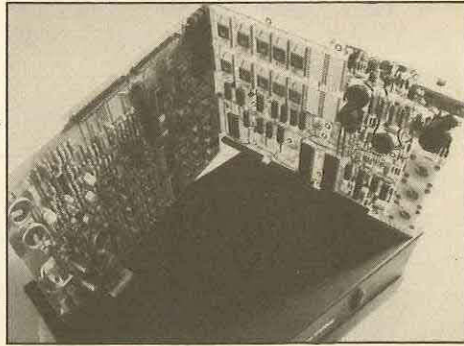
The usefulness of helicopters of every kind is extended by our avionics.

Project engineers, twin sisters, involved with the design and testing of A310 Airbus electronic controls.

A high-integrity "fly by wire" control system for aircraft.

Our HILETRON neutron therapy equipment is in hospital service for the treatment of cancer.

We don't forget the social side of life. This "It's a knockout" team exemplifies the very active sports and social activities which exist throughout Marconi Avionics.



## Head Office

Address:  
Marconi Avionics Limited,  
Airport Works, Rochester,  
Kent ME1 2XX  
Telephone (0634) 44400  
Telex 96333

## Rochester establishment

covers:  
Rochester, Chatham, Gillingham  
and Nailsea, with a small team  
in Yeovil  
Address:  
As head office

## Borehamwood establishment

covers:  
Borehamwood, Radlett,  
Hemel Hempstead, Welwyn  
Garden City and Milton Keynes,  
with a smaller team in Peterborough  
Address:  
Marconi Avionics Limited,  
Elstree Way, Borehamwood  
Herts. WD6 1RX  
Telephone (01)-953-2030  
Telex 22777

## Basildon establishment

covers:  
Basildon and Stanmore  
Address:  
Marconi Avionics Limited,  
Christopher Martin Road,  
Basildon Essex SS14 3EL  
Telephone (0268) 22822  
Telex 99225 and 99451

## In the United States

Marconi Avionics Inc.  
covers:  
Atlanta Georgia, Fort Worth Texas,  
Seattle Washington, Dayton Ohio  
and Tampa Florida  
Address:  
Marconi Avionics Inc.  
4500 N. Shallowford Road,  
Atlanta Georgia 30338 USA  
Telephone 404-394-7800  
Telex 44292 708447

## our locations...

Flight Controls Division, Powerplant Systems Division, Combat Aircraft Controls Division, Instrument Systems Division, Airborne Display Division, Maritime Aircraft Systems Division, Inertial Navigation Division, Gyro Division, Aviation Service and Repair Division, Automatic Test Equipment Division, Flight Automation Research laboratory, Central Quality Department, Nailsea Operation.

Special Projects Divisions, Mobile Radar Division, Neutron Division, Airborne Radar Systems Division, Airborne Warning Systems Division, Airborne Software Division, Research laboratory, Lightweight Structures Department, Thick Film Department.

Airadio Products Division, Airradio Systems Division, Electro-Optical Advanced Systems Division, Electro-Optical Surveillance Division, Electro-Optical Products Division, Airradio Spares and Service Division.



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**Marconi Avionics Limited**

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a GEC-Marconi Electronics Company

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**AVIONICS**

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