

GEC AVIONICS

Annual Review of Activities



...into 1986

1985 ... year of achievement

In 1985, the Company had a wealth of good news to announce, which was well reported by the more objective members of the media. Despite positive developments on the Nimrod Airborne Early Warning (AEW) programme, its detractors gained some headlines, distorting the view of the larger and overall excellent work which everyone has done in home and export business.

For instance, the year began with the announcement of the Company's selection as prime contractor for an £80 million fixed price order for the British Army's Phoenix Remotely Piloted Vehicle (RPV). EOSD soon followed suit, announcing a fixed price follow-on production order for thermal imaging equipment, part of the United Kingdom's export-winning TICM II Programme. April brought the proud news of another Queen's Award for Technological Achievement, won for the Company by ADD.

ISD was chosen to fit the Italian Mangusta helicopter with its unique Air Data System and FCD continued

International Salute to the Queen's Award

The ceremony on 13 September, in which the Queen's Award for Technological Achievement was received by Airborne Display Division on behalf of the Company, was marked by an international salute. With typical Dutch generosity, the Royal Netherlands Air Force flew two F-16A Fighting Falcons over the factory before landing at RAF Manston. We were delighted that our friends from General Dynamics and the US Air Force were able to see the F-16 over our own factory - a unique experience for everyone and a tribute to ADD.

The Emblem of the Queen's Award for Technological Achievement was accepted from Her Majesty's Lord Lieutenant of Kent by John Read, ADD's Production Superintendent, and the Grant of Appointment by Jayne Wood, Software Project Manager, on behalf of their colleagues in ADD and every one of us in the Company.

The front cover illustrates two aircraft that will be of special importance in the coming year. GEC Avionics has invested heavily in systems for the next European fighter and Britain's EAP aircraft which has its first flight in 1986. The illustration depicts the EAP aircraft (top) and the fighter variant of the Tornado, now a major export winner, which enters service with GEC Avionics equipment in 1986.

a long association with the Airbus programme with the selection of its "fail safe" Slat and Flap computers for the latest A320 Airbus.

MASD continued an outstanding order record for submarine-hunting systems, with the Ministry of Defence contract to develop AQS 903 for Royal Navy versions of the European EH 101 helicopter. MASD was also selected by Fokker to integrate the complete avionics system for the Maritime Enforcer Patrol aircraft.

Among our Paris Air Show announcements was the news that AWSD had been selected as the Mission Avionics and Radar supplier for the projected Lockheed C-130 AEW variant. The APY920 is based on the AEW system under development for the RAF. Whilst the System has its detractors in the UK, it is highly regarded overseas and attracted world press interest in its big export potential.

ISD pulled off an enormous coup in June by winning the whole initial production of over a thousand new

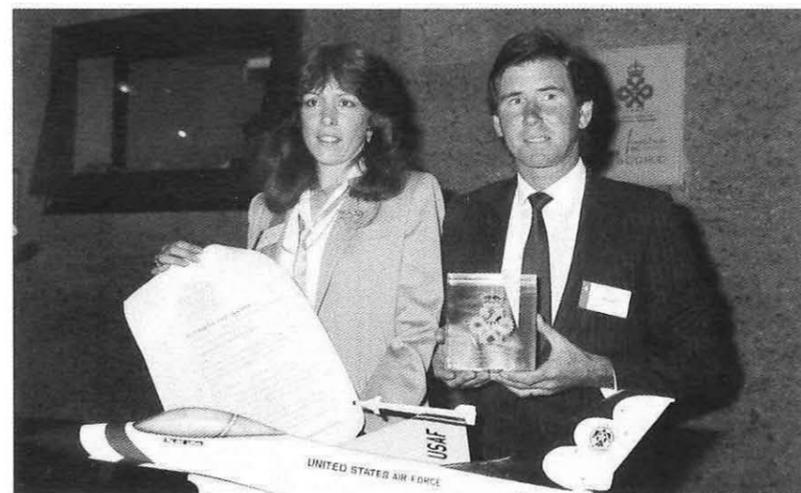
Standard Central Air Data Computers (SCADC) to equip over 30 types and variants of aircraft operated by the US Air Force and US Navy.

ADD continued its proud year by receiving a further production order, for F-16 C/D Head-up Displays (HUDs), worth \$75 million, bringing the total for this particular HUD to \$150 million.

EOPD continued to open up new market areas, winning the contract to supply a naval thermal imager to the US Navy for in-service evaluation on board an aircraft carrier.

EOSD again hit the headlines by winning the hard-fought competition to equip Royal Navy Lynx helicopters with thermal imagers.

We will have many more important announcements next year and we must hope that industry's good news will be better reported during the UK "Industry Year", 1986.



Managing Director's Report

In terms of the acquisition of orders, 1985 has been an outstandingly successful year. Our order intake for the year to date is some 40% above the order intake at the same time last year and I know that there are several substantial new orders which are well down the pipeline and are virtually certain to come onto the books a little later in the year.

As a result of this and barring unforeseen events I am anticipating that our total labour force will rise next year by between 500 and 700 people. It seems unlikely that we shall be able to sustain our growth by productivity improvements alone for very much longer although we shall certainly try hard.

It is particularly valuable that a high proportion of new orders relate to exports and thus do not form part of the load on the British taxpayer. It is also of very great importance that we demonstrate our ability to export, particularly to the United States, because it indicates that we have products which are both technically superior to and competitive in price with anything the rest of the world offers.

This will become of increasing importance as Government Policy makes Defence Procurement a more competitive business.

Our position in the export market can perhaps best be indicated by telling you that of the total exports of military equipment from the UK to the USA, which of course includes complete aircraft, we account for over one quarter.



J E Pateman CBE
Managing Director
GEC Avionics Limited

Rochester Establishment

covers Rochester, Nailsea and Yeovil

Foreword by
W H Alexander OBE
Assistant Managing Director of
GEC Avionics Limited and chief
executive for the Rochester Establishment.



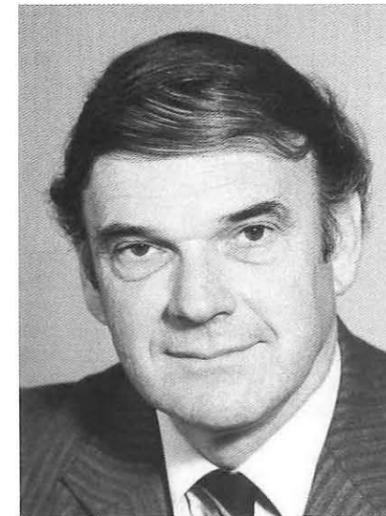
This year, as last, Peter Hearne and Ron Howard will be reporting separately on their parts of the business and I shall deal with some points of general interest at Rochester. Our sales continue to show modest growth but the order book has grown much faster, indicating an increase in sales from 1987 onwards. Exports, a vital element in our sales, are now 70% of the total. Competition, however, is becoming increasingly stiff and it is only by continually improving our technology and keeping our costs down that we can hope to keep up our progress. Our technological innovation has been recognised once again by a Queen's Award, this time to Airborne Display Division for the F-16 C/D Head-up Display. I congratulate ADD on the Award and also on the fine Open Day which they arranged for their families and friends.

There have been very few organisational changes during the year. The Offshore Projects Group continues to operate from Nailsea, but is now part of the Instrument Systems Division in Ron Howard's Group. Flight Automation Research Laboratory has been moved out of that Group to give emphasis to its role in providing a service to all

Divisions at Rochester. Central Manufacturing Services and Computing Services have been re-named to indicate more clearly their wider roles. A number of senior appointments have been made including, at last, a female Chief Engineer. Congratulations to Sue Marsh.

We continue to be very well served by the various service Departments. Works Engineering, in addition to all its usual tasks, is busily engaged in re-converting the old Fisher area and has even found time to install a new Energy Management System. The Personnel Department has been heavily involved in recruiting, both in this country and in Australia, all the new people we need for the business. The Canteen, in addition to keeping ourselves and our visitors well fed, has won a "Clean Kitchen Award" and has also been 'Highly Commended' in the City of Rochester-upon-Medway Council's Clean Food Premises Award Scheme. The Social Club's activities continue to expand and further improvements are to be carried out at the Clubhouse in the near future. Our thanks are also due to less glamorous activities such as Accounts, Security, Transport, Communications, Reprographics and Surgery.

Foreword by
R W Howard
Director and General Manager of
GEC Avionics Limited and chief
executive responsible for
CACD, FCD, ISD, OPG, PCSD and PSD.



The Group is entering 1986 with a record level of orders and the prospect of a significant increase in sales in the coming year, with an export content of over 60%.

We acquired Defence Prime Contractor status early in 1985 when FCD won the Army Phoenix programme and in mid-year ISD won the coveted USAF/USN SCADC programme, with a record first order for over 1000 computers.

Two underwater vehicles, the commercial Dragonfly and the military MICROV, are undergoing trials in joint developments with Offshore Systems Engineering Limited (OSEL) and other advanced offshore systems are under construction by OPG.

FCD is also now contracted to supply the electronic Slats and Flaps computer for the new Airbus A320, and CACD, ISD and PSD

anticipate substantial continuing production for Tornado, enhanced by the recent export orders for this aircraft.

CACD will be heavily involved in the Fly-by-Wire (FBW) system for the new European Fighter Aircraft (EFA) where the Division's considerable expertise in flight controls and recent demonstration success on the Jaguar FBW aircraft will bear further fruit.

PCSD continues to expand with a major power supply order for the Harpoon from McDonnell Douglas, and will share in the successes of the other Divisions.

We are making further substantial capital investments in advanced design, test and production facilities to support our high technology activity.

Overall, the future prospects for the Group are very encouraging.

Combat Aircraft Controls Division delivered hardware and software ahead of schedule for the important UK Experimental Aircraft Programme (EAP) aircraft, which has its maiden flight in May '86. This creates a strong position for CACD in the bid for EFA flight controls supremacy. Significant contract awards include the exciting new international LRSOM project, and the well earned Tornado SAGE support equipment order. AM-X continues successfully towards production with the first flight in Brazil. These successes have consolidated CACD's position in several important retrofit bids abroad.

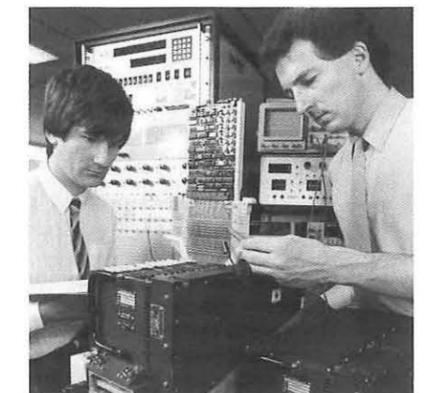
Flight Controls Division was awarded an £80 million contract for Phoenix, the British Army's surveillance Remotely Piloted Vehicle (RPV). The Division, leading a strong team from GEC and outside contractors, is committed to supplying the complete ground and airborne system. A320 SFCC development is in full swing and deliveries of A310 and A300-600 computers are well over 300. Boeing 747 auto-throttle system deliveries approach 500. Production continues on BAC One-Eleven computers, Lynx, Rapier and Drone system units.

Powerplant Systems Division teams handed over Automated Powerplant Test Systems in Canada, Italy, Germany and England this year. Control systems were delivered

for RB211-535 engines, and fuel flow equipment for Tornado, Harrier, Hawk and AV-8B. Also delivered were Maintenance Data Panels, Engine Speed and Temperature Indicators and flow measurement for the EAP. Work began on orders for RPV (Phoenix) Engine Control, Tyre Temperature Measurement and Liquid Crystal Displays. New aircraft export orders and EFA will be a source of further work.

Instrument Systems Division continues to expand its export order book. The winning of 100% of the first production order for the USAF and USN SCADC means that the Division is currently preparing for production rates of 100 per month. Further Air Data successes include EH 101, Agusta A 129, German F-4 and EAP. Tornado SMS continues to be a major business activity particularly with new weapon modification programmes and the new export sales successes for the Tornado aircraft. Interest in the Division's new Modular Stores Management System is gaining momentum within the UK and USA.

Offshore Projects Group, now administered by ISD, is currently working on its latest subsea control system for Exxon in the Gulf of Mexico. The Dragonfly Remotely Operated Vehicle has been successfully demonstrated underwater and the Group's major effort on ROVs is now aimed at proposals for the military market.



EAP Flight Control Computer under test.

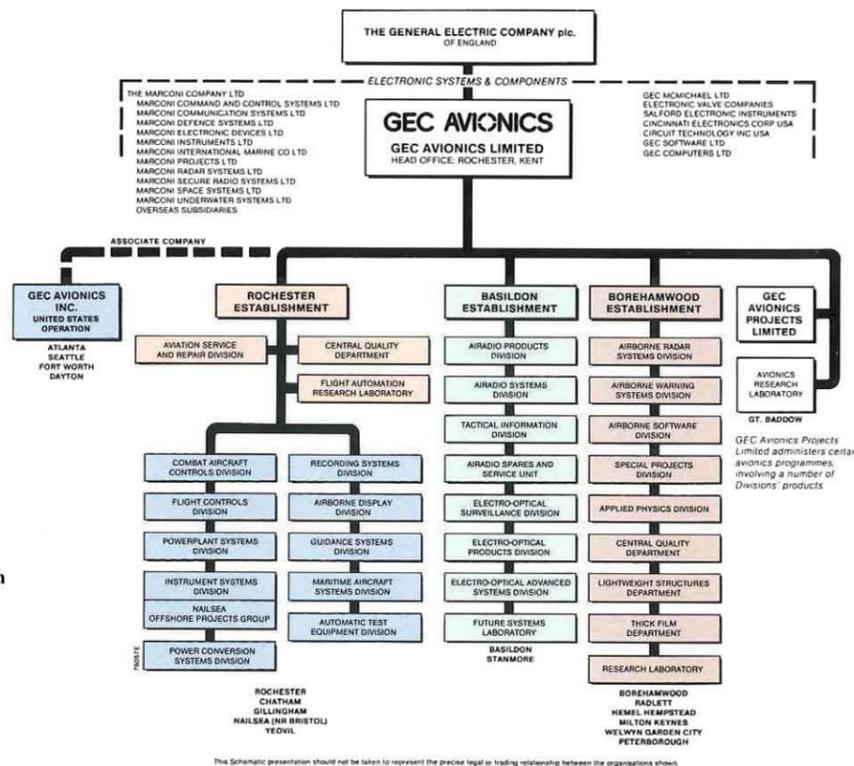
Power Conversion Systems Division has seen a year of continued achievement in attracting new orders as well as maintaining existing ones. New production orders include the SCADC and F-16 HUD power converters; new development orders include low voltage PCUs for the AQS 903 acoustic processor for EH 101 and the Division's first export order to the USA from McDonnell Douglas for a power converter for the Harpoon missile. Active marketing continues aimed at attracting further business.



New MICROV underwater vehicle is undergoing trials.

The Board of GEC Avionics Limited is:

- Chairman: Sir Robert Telford CBE
 Managing Director: Mr J E Pateman CBE
 Assistant Managing Director: Mr W H Alexander OBE
 Financial Director: Mr D C Rickard
 Directors: Mr P A Hearne
 Mr R W Howard
 Mr W R Paterson
 Marshal of the Royal Air Force
 Sir Michael Beetham GCB CBE
 Dr B J O'Kane CBE
 is Consultant to the Board
 Non-Board Directors are:
 Technical: Prof J T Shepherd
 Commercial: Mr C C F Naylor
 Personnel: Mr E J Bradley



The Schematic presentation should not be taken to represent the precise legal or trading relationship between the organisations shown.

Foreword by
P A Hearne

Director and General Manager of
GEC Avionics Limited and chief
executive responsible for
ADD, ATED, GSD, MASD, RSD and GAv Inc.



The past year has been one of consolidation of important marketing breakthroughs with a large increase in order book coming from substantial additional orders on existing contracts.

The order book for F-16 C/D Head-up Displays (HUDs) more than doubled and ADD won contracts for new generation HUD systems on several new types of aircraft. The Company's overall night attack capability was extended by very significant flight trials for export F-16 aircraft.

The finalized EH 101 Anglo-Italian helicopter contract brought a big order for MASD to develop and produce AQS 903 sonics systems. The India Sea King helicopter, with its integrated tactical/acoustic system, is attracting interest, and so is its fixed wing counterpart, the F27 Enforcer system, sales of which are expected shortly.

Airborne Display Division has received follow-on orders for the F-16 C/D HUD and new orders for the A-7G HUD. Production of the LANTIRN HUD has been authorized and the various refit HUD programmes are progressing satisfactorily, accounting for a significant proportion of the Division's business. Initial orders for "Cats Eyes" night vision goggles have come from the United States and such items, along with other helmet-related systems, carry the promise of future business.



Queen's Award-winning HUDs in production.

Maritime Aircraft Systems Division. AQS 901 delivery is almost complete. AQS 902, already used by the RN and Royal Swedish Navy, will soon enter service with the Indian Navy and has completed successful trials with the US Navy. AQS 903 gained a full development contract from the Ministry of Defence (MOD) for the EH 101 helicopter and has great potential for other anti-submarine warfare aircraft. Integrated Mission Avionics Systems

already on order for Fokker and the Indian Navy, are expected to attract further orders.

Guidance Systems Division has been very active in developing and marketing new products. After initial flight trials the Digital Colour Map Unit is generating widespread interest in the UK, USA and Europe. Terrain Referenced Navigation is producing promising results in flight. The Land Navigation System is performing well in artillery and vehicle trials. START gyro development is nearing completion with a promising future in high volume low-cost applications. Further major orders for the Control Sensors Unit are expected.



GSD's Land Navigation System.

Automatic Test Equipment Division has a broad customer base for sales of Orion Test Systems and supplies ATE hardware and software to most advanced systems programmes within and outside the Company. Further orders have been received from US programmes and

ATED obtained significant contracts for new Orion automatic test systems for aerospace and defence, including contracts from the United States, where the potential is considerable.

GSD is now in full production with Stingray strapdown attitude reference systems (unique in the UK), and has its first digital map display orders.

RSD is now well established at Nailsea, producing recording systems for a number of the Group weapon systems.

In the USA, GEC Avionics Inc. has successfully introduced the F-16 C/D HUD into production in Atlanta and, in conjunction with ADD, has obtained a substantial contract for a HUD weapon aiming system for retrofitting the F-5E aircraft.

This highest-ever order book reflects the outstanding technical capability and overall efforts of the Divisional teams.

airlines worldwide are showing increasing interest. The 1553B integration facility has enabled the Division to be associated with the UK Experimental Aircraft Programme (EAP) and will hopefully lead to work on the European Fighter Aircraft (EFA).

Recording Systems Division has consolidated its operation after last year's move to Nailsea and successful recruitment has brought the Division's strength close to the required level. The British Gas on-line pipeline inspection recorder and torpedo development recorders for Marconi Underwater Systems Ltd (MUSL) have attracted more production orders. Further orders are expected in these areas and for other severe-environment recorders. Development is well advanced on a new crash-survivable flight data recorder and work has commenced on new technology recorders.

United States

GEC Avionics Inc. continues co-manufacturing HUDs for the A-4, A-7 and F-16 A/B aircraft and has recently begun participation in the F-16 C/D programme. Product support activities continue and flight trial support of SCADC has been a significant special project. Development of operational test programme sets for the Angle Rate Bombing System (ARBS) HUD has been a major element of the effort in the Engineering Department as has the further work on CO2 lasers, which continues to show promise.

Flight Automation Research Laboratory completed the Digital Map Display Simulator System for RAE Farnborough, also the Underwater Stereo Viewing System. Notable first-time success was achieved with the new 2-chip MIL-STD-1553B CMOS/SOS design. Ongoing developments include Holographic HUD Optical Design, Software Engineering, IKBS Applications, Distributed Processing, Fibre Optic Sensors, Flat Panel and Helmet Displays, the Airship Fly-by-Light System, and heavy involvement in the definition of several future avionics standards.



New Underwater Stereo Viewing System.

Aviation Service and Repair Division continues to provide an extensive industrial support facility for the Company's Tornado products. A duplicate facility is being installed at the RAF's own Maintenance Unit. AS&RD's support services will be in demand next year for NAVWASS on exported Jaguars and Slat and Flap Control on Airbus A300/A310. Technical Publications Department is particularly active, with a major task of maintenance documentation for the F-16 C/D HUD nearing completion for ADD.

Central Quality Department provides environmental test facilities and mechanical, electrical and environmental calibration.

Both environmental test houses continue to expand their activities. Further procedures have been developed by the Environmental Test Laboratory for vibration, shock and gunfire tests. The Electro-magnetic Compatibility Laboratory has extended its dynamic EMC test simulation for car manufacturers by installing a 'Rolling Road' to simulate 'on-road' load conditions. The Environmental Calibration Laboratory has expanded its capabilities to include accelerometer and digital thermometer calibrations.

Computing Services, formerly Electronic Data Processing, has increased its activities in data processing, applications development, computing advisory services and its co-ordinating role on hardware maintenance and communications. The viability of the Information Centre has been demonstrated using International Computers Ltd (ICL) equipment, and a multiple supplier presence is envisaged during 1986. All site manufacturing Divisions can now use the developed MAPLE software and CS will be enhancing its facilities to match 1986 application software and processing objectives.

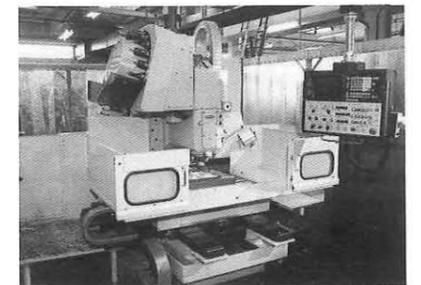
Works Engineering Services. Roofing of the Main Works is nearing completion and refurbishment to 70% of the area vacated by Fisher Controls Ltd is progressing. The area will provide clean air conditioned space of over 90,000 square feet for the expanding product Divisions. The telephone system is being updated to provide Voice and Data Transmission (DTX) capability and modern internal/external telephones will be fitted. Some installation work has been completed at the GAv/BP Kent Club.

Accounts Department. Following the completion of main-frame systems, this year has seen the development of over twenty micro-computer applications, including foreign currency records, preparation of MOD claims and Cash Office records. A flexible management accounts system has been introduced which enables us to meet the reporting requirements of the Management Groups within the Company. Future computer applications will include automatic invoice clearance and the completion of costing systems.

Personnel Department. Engineering recruitment continues to be an important activity. The employee and career development service allows employees to discuss their career aspirations informally.

The Second Year Award scheme for engineering students in their penultimate year strengthened our links with 40 universities. A collaborative development with the University of Kent provided vanguard "Ada" training for 80 key engineers, and 2 software conversion courses trained existing staff and new science graduates. Inter-site training in commercial roles began for graduates.

Central Manufacturing Services, formerly Central Machine shop, has had a successful year, with sales of products and services to Atlanta, Nailsea, Borehamwood, Basildon and all Rochester Divisions. The planned modernisation of plant continues, with the arrival of the second Makino 20 Station Autochange Machining Centre and the delivery last December of a 30 Station Autochange Mori-Seiki Mini Machining Centre.



More of the latest machining equipment in CMS.

GEC Avionics Research Laboratory, Great Baddow, undertakes research specific to the Company in microwave techniques, lasers, holography, infrared (IR) systems, signal processing for IR and radar and stabilisation and servo control. Current programmes include investigating computer generated holograms for more compact HUDs and for IR optics, integrated avionics systems, novel microwave radar techniques and a new design of compact synthetic aperture radar. The Laboratory also carries out future studies and supports long-term avionics-related university research.

Audio Visual Unit has already produced over 60 video and slide programmes for use throughout the Company. This year's output includes Phoenix, Night Vision, C-17 HUD, Thermal Cueing, FASTAR and HERMES (Battlefield Radars), MICROV (Unmanned Submersible System), TATTIX (Tactical Information Handling System) and C-130 AEW. Programmes are in preparation for the GEC Centenary Exhibition, AS&RD, CACD, MASD, SPD Welwyn, and the Basildon Establishment.

Borehamwood Establishment

covers Borehamwood, Radlett, Hemel Hempstead, Welwyn Garden City, Milton Keynes and Peterborough

Foreword by
DI Jackson
Chief Executive of the Borehamwood
Establishment of GEC Avionics Limited.



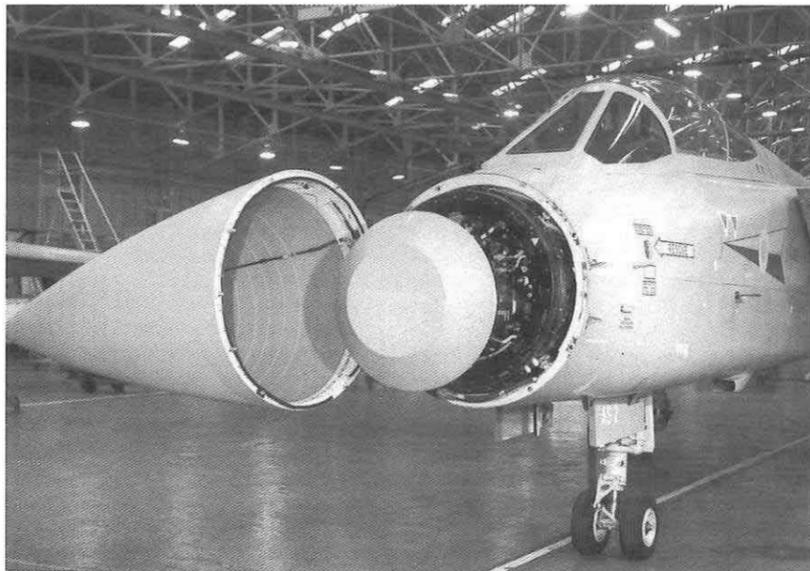
1985 has been a year of solid achievement at Borehamwood, and both sales and order book are being maintained at a healthy level.

In particular, the Foxhunter radar programme has made major progress with production now in full swing, and radars being operated in-service at RAF Coningsby. The reliability of this complex system promises to be almost an order of magnitude better than previous generation radars currently being used by the RAF, and favourable reports on its serviceability and performance are being received.

In spite of considerable adverse publicity, the Nimrod AEW programme has made a lot of progress over the last year, and the first production aircraft based at RAF Waddington is soon to be joined by a further two. It is hoped that current discussions with the Ministry of Defence (MOD) will soon result in our accepting a

Airborne Software Division continues full and active involvement with Nimrod AEW and Foxhunter programmes, including the supporting projects of computer based test equipment, mission simulation and analysis. The "Software Engineering with Ada" course carried out by the Training School is proving very popular. Alvey collaborative work is progressing steadily and Consultancy is playing an increasing role with emphasis on Command Control and Information Systems (CCIS), multi-level security and transportation projects.

Airborne Radar Systems Division. The AI-24 Foxhunter radar is now in service with the Royal Air Force. Serviceability is unprecedented, particularly for such a new and complex system. Significant overseas sales will begin in 1988. An additional export order has been obtained for Skyraider radars and support equipment. Increasing emphasis is now on Company-funded development of advanced radars for the next generation of fighter aircraft, again largely for export.



Foxhunter radars are installed in RAF Tornado fighters.

contract to manage the development programme totally, including taking responsibility for the British Aerospace airframe work.

Other activities of note include the delivery of advanced sonar processing equipment to the Netherlands, new orders materialising for Foxhunter and Skyraider radars, and the receipt of a contract from the MOD for the project definition of MSTAR, a new battlefield radar.

Although recent years have seen a heavy concentration on developing major new systems for the UK Government, we must now look more towards export opportunities if we are to further expand our business. This is particularly true for our AEW business, where opportunities to satisfy the AEW needs of overseas countries are being actively pursued with both Lockheed of the USA on their C-130 Hercules, and Aeritalia of Italy on the G222.

Special Projects Division's Sonar equipments are in operation in ships and submarines of the Royal Navy and deliveries continue on schedule. Reports from sea show that the equipments have greatly improved the anti-submarine capability of the Fleet. Operators say the equipment is easy to use, suffers few faults, is rapidly repaired, and above all detects submarines. The Division has supplied two sonar processors to the Royal Netherlands Navy, which will be installed in the Dutch WALRUS class submarines. The first will begin sea trials early in 1986. An order for two further systems is expected next year.

Applied Physics Division is increasing work on Neutron Generator products, on which development for use in nuclear waste assay is almost complete, and should increase sales in this important market. Laser development has continued and lasers are being offered for a number of systems. Substantial laser production orders look increasingly likely for next year.

Mobile Radar Department has won a competitive Project Definition Study for MSTAR, the British Army's planned replacement for the Company's successful ZB 298 Medium Range Battlefield Surveillance Radar. A substantial order for ZB 298 spares has also been received from an overseas user. The Department is preparing proposals against a MOD invitation to tender for a Battlefield Remote Sensor System (BRSS), for use in Europe.

Airborne Warning Systems Division. The protraction of the Nimrod AEW Mission System Avionics development has led to delays in RAF acceptance of the AEW Nimrod and commencement of the AEW training programme. Although attacked in the press, the project has been making steady and significant progress, with a fixed-price incentive development contract in negotiation. In parallel, engineering feasibility studies on multi-role AEW export versions of the C-130 and G222 aircraft have been successfully carried out with Lockheed and Aeritalia respectively. USA export clearance for the C-130 AEW has been granted for many countries and joint GEC Avionics/Lockheed international marketing presentations have brought keen overseas interest.

The Research Laboratory has a number of projects in development and prototype stages covering microwave, laser, signal processing and mechanical engineering techniques. Recent examples include the Reconfigurable Signal Processor for multi-mode radars, a coherent-detection far infrared laser rangefinder, an ultra lightweight microwave scanning aerial for Phoenix RPV and a fast nose-radar scanner for future fighter aircraft. Such hardware activities are fully supported by systems study and software development.

Central Machine Shop. Developments in applying automatic Computerised Numerical Control (CNC) mode have improved manufacturing potential. This improvement will expand capability and the contribution to group activity, with emphasis on meeting increasing customer requirements. Constant review is being given to other existing manufacturing, assembly and processing facilities to give optimum flexibility - a major challenge in 1986.

The Model Shop supports the Research Laboratory and all Divisions in Hertfordshire and Buckinghamshire in the manufacture of mechanical/electronic prototypes and small batch production and has contributed substantially to the Nimrod AEW, Foxhunter and new radar work.

Thick Film Department has increased its business activities within the Company and to external customers, notably the MOD which has placed further orders for the manufacture of products developed within the Department. With new automatic equipment we are now able to increase production and development activities still further.



Lockheed's proposed Hercules C-130 AEW System.

Central Quality Department has enhanced its facilities for electrical and physical calibration and in the environmental test laboratory. The initial phase of cataloguing components used in support activities has been completed, and work has started on a data-bank. The Department continues a wide range of activities to support Establishment contracts, including the Nimrod AEW and Foxhunter radars.

Lightweight Structures Department continues to offer expertise, advice and manufacturing capability in the growing field of advanced composite materials to in-house Divisions and other GEC companies. Cassegrain antennas for the Nimrod AEW and Air Defence Variants (ADV) Tornado are currently the Department's best-known products - constructed from Glass Reinforced Plastic and lightweight honeycomb materials. Large carbon fibre antennas for future AEW systems and the Phoenix programme are undergoing successful development and will be in full production next year.

Publications Unit, after divisionalisation of technical authorship and drafting, still provides a complete service for editing, designing and preparing sales proposals, brochures and reports. Facilities include printing, illustrating, bookbinding, photography, word processing, a fast, high quality 35mm and 16mm microfilm service and in-house photo-typesetting.

Accounts Department. Major developments were, continued implementation and improvements to the Mecca system in the Purchasing and Bought Ledger areas, and expansion of the Data Input and Computer Operations Unit to a self-contained Department, offering a bureau service to other GEC companies at Borehamwood.

Personnel and Training Departments. Significant activity in the recruitment of engineering and software staff continued, and in particular, 130 graduates were recruited. A new Employee Handbook was issued in August. Following the success of the Apprentice Association, a Young Engineers Section (YES) has been formed for all young professional employees. Training positions have been increased to include software apprentices and graduate commercial trainees. In-house training courses have been well supported, and module courses for development at various levels have been especially effective.

Site Services has added the Transport Department and Catering at the remote sites to its established roles of works engineering and telecommunications. The largest project has been to refurbish premises at Welwyn to provide storage facilities for spares support of sonar equipment for the RN. The opportunity was taken simultaneously to upgrade the Staff Restaurant and to construct adjacent Social Club facilities, creating a unified catering and social complex.

Basildon Establishment

covers Basildon and Stanmore

Foreword by
W R Paterson

Director and General Manager of
GEC Avionics Limited and chief
executive for the Basildon Establishment.



1985 was remarkable at Basildon for the many new developments undertaken. Business activity has increased in all Divisions with the accent on manufacturing. Production rates on "Stingray" SPU's and AI Radar LRUs have doubled. The first deliveries of Wide Band Secure Speech Systems took place on schedule. Production orders have been received for three new Airadio products, AD 2780 TACAN, AD 150 VCU and AA 5504 Gun Muzzle Velocity Sensor. Assembly of hybrid thick film circuits is now under way in EOPD. Further production orders have been received for sets of Thermal Imaging Common Modules (TICM II), now being delivered at 30 sets per month. The first Joint Tactical Information Distribution System (JTIDS) terminals have been received by TID and returned to British Aerospace after testing.

Airadio Systems Division. The first production Lynx and Sea King Secure Speech Systems were delivered to MOD (Procurement Executive) on time on 16th October 1985. The Division is leading a MOD (PE) funded contextual DVI feasibility study team comprising Marconi Secure Radar Systems (MSRS), Marconi Research Centre (MRC) and FARL. Private venture development of data link modems is continuing; a Link 11 version will be offered for the EH 101 and a derivative will be built for the export market. EH 101 communications sub-system development is progressing.



Acceptance Test Station for JTIDS.



A major milestone achieved by Airadio Systems Division.

In order book terms there has been a dramatic increase at Basildon due to "package-deal" (development and production) orders on Phoenix and NSR 6643 Passive Identification Device. To implement this growth in activity the development of 'K' building, acquired in November 1984, has been speeded up.

EOSD gearing up for the implementation of three major programmes has taken over the front third of 'K' building with more moves planned. All in all, a satisfactory year. Much of the investment needed to improve our performance is now in place and improve we must, particularly in the quality of our products and the competitiveness of our prices.

Airadio Products Division.

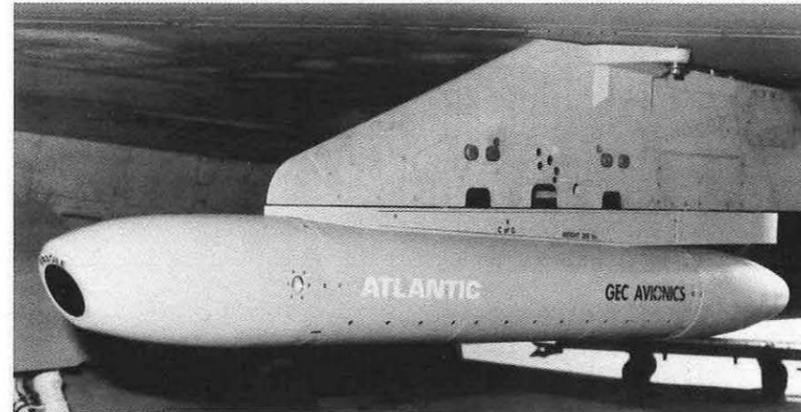
AD 2780 TACAN continues in production for European military markets. A major contract has been won for a sonobuoy command transmitter, and confirmation of a very large follow-on export contract for the AD 3400 is expected. Work will soon commence on 250 Voice Conditioning units for British Army fighting vehicles. Having invested considerable effort into development of a muzzle velocity radar, we have now received a large order for the British Army.

Electro-Optical Surveillance Division

produces the UK's TICM II, the world's most advanced Thermal Imaging Common Modules, which are being sold throughout the world. Capabilities in system integration and sensor stabilisation technique have won, against intense competition, contracts for sensor turrets for Phoenix and NSR 6643, plus supporting electronic processing, night navigation FLIRs for front line aircraft and a huge 1.25 ton, 5 axis stabilised platform for the USA.

Tactical Information Division

is continuing work on JTIDS. A maintenance depot is receiving equipment from the United States of America; the first deliveries have been made to British Aerospace (BAe). Naval applications of JTIDS have started with Project Definition work in partnership with other UK and USA companies, covering implementation into ships and the Sea Harrier. The Division is also extending its capability into simulation, modelling and study work.



New FLIR pod in supersonic trials.

Electro-Optical Advanced Systems Division

has assured its position in advanced signal processing with new orders for systems on land, sea and in the air. Capability in automatic target detection and tracking has provided new work on tank fire control, ship to air missile guidance and high quality night flying aids for combat aircraft. These novel systems augment continuing production orders for underwater signal processing equipment, including work for the future heavyweight torpedo.

Electro-Optical Products Division.

V 3800 Thermal Imaging Sensors continue to be supplied to UK MOD and to overseas customers. The V 3342 Daylight Camera is being incorporated by Marconi Radar Systems Limited (MRSL) into their Target Tracking Systems. Javelin continues as one of the main equipments in production. Development is proceeding using the CCD Camera for a variety of low-light and security applications. EOPD also has orders to supply commercial cameras to MOD (PE), British Nuclear Fuel and British Rail.

Airborne Radar Systems Division

has continued to grow during the year. Although the rate of production of LRUs for the IDS Tornado aircraft has passed its peak, more than sixty power supply units and terrain following transmitters are being manufactured each year. The delivery rate of AI-24 Foxhunter Radars for the Tornado ADV has increased, with over half the first production batch of fifty sets of LRUs delivered.

Future Systems Laboratory.

Significant hardware developments include a fibre optics video distribution system delivered to the Royal Aircraft Establishment for evaluation, a new automatic tracking unit and an improved processing system for "staring array" sensors. Studies of

future systems have increased, especially in the field of operational analysis, and longer-term studies into artificial intelligence and its applications have commenced. The main activity has been research into future enhancement of night flying aids.

Central Machine Shop fully utilises its computerised manufacturing system to shorten lead times by speeding up planning, monitoring orders and improving machine loading. With various numerically controlled machining facilities and conventional machining, fabrication, assembly and finishing areas, and an able work force, CMS gave full engineering, procurement and manufacturing support to Customer Divisions and won several large orders for long-term delivery.

Central Quality Department

gave an independent Quality Assurance service for Basildon Divisions. It is responsible for

standards, calibration and repair services, product assurance and engineering standards and manuals, as well as software QA and control. The central QA part of the Department covers activities associated with system and product audits including vendor assessments, performance and registration.

Works Engineering Department.

Much activity has taken place in the recently acquired 'K' building (Ex Carreras-West wing), which has a gross area of 129,000 square feet. Considerable capital investment has been involved and 25% of the building has been altered to provide offices and laboratories for EOSD expansion. On the main site an additional area for the Personnel Department with training and conference room facilities has been created.

Services Control

provides non-production purchasing, communications, travel and despatch services. This year a permanent staff shop was successfully introduced and the GEC Reliance SL-1 telephone switchboard handled nearly one million calls.

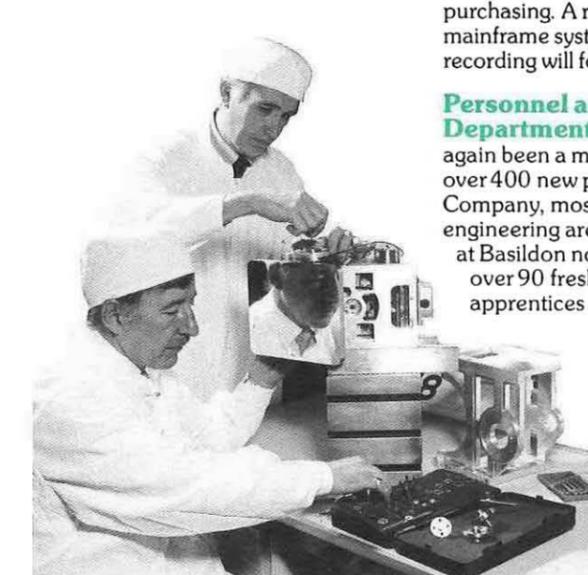
Accounts Department

has continued to progress microcomputer developments with the successful implementation of the Nominal Ledger and Fixed Asset systems, both showing productivity improvements. Personal Computers (PCs) are now networked with resultant security and flexibility gains. A Site Systems Department has been created, responsible for centrally provided systems. Initially it has been heavily engaged, with Divisional assistance, in the conversion to MECCA purchasing. A review of other mainframe systems and time/job recording will follow.

Personnel and Training Departments.

Recruitment has again been a major task in 1985 with over 400 new people joining the Company, mostly into direct engineering areas. The total employed at Basildon now exceeds 2550, and over 90 fresh graduates and 70 new apprentices and trainees have been recruited.

During the year, the Company has invested in new training facilities including two training rooms to accommodate the increasing need for in-service training of existing staff in new technology.



EOASD engineers reflect on new missile tracking mirror.

This publication has been designed and prepared on the latest automatic Video Composition System, by the Technical Publications Department of Aviation Service and Repair Division who also created the photo montage on the front cover. The publication is based on data furnished by all Divisions of GEC Avionics Limited and other departments, whose participation is gratefully acknowledged.

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