

MARCONI
AVIONICS

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TICM
New Airborne FLIR

Thermal Imaging Systems
for Airborne use

Half-Ton



TICM II



into 1983....

annual review
of activities

1982 achievements

In a company as big and active as Marconi Avionics, achievements are continually made, by teams and individuals. As often as practical, the company releases news about these achievements, with the co-operation of the people concerned. By this means, we seek to promote business and a better understanding of our company by customers, other organisations and our neighbours.

In 1982 we made these announcements:-

Organisation ...	On 31 March 1982, Marconi Avionics Ltd became a trading company in its own right, reporting direct to GEC. Customers received news of this important development.
Honours for individuals ...	In the New Year's honours list, Alf Harrison, our Director of Manufacturing Services, received the MBE, and Jess Griffiths, Editor of MAV News, the BEM for services to Industry. The influential US magazine "Aviation Week" cited the Head-Up Display work of Staff Ellis, Arthur Colwell, Robin Sleight, Bob Eves and Ian Whitehouse, as outstanding for the year, and Director and General Manager Peter Hearne was awarded the much-valued John Curtis Sword for Anglo-American business.
Airborne Radio ...	Our privately-developed AD3400 communications system was delivered to the MOD for the Royal Navy, and won another export order – this time for Brazil.
Rhine army ...	Our up-dated audio and visual communications system for BAOR went successfully into operation.
Head-Up Displays ...	The first of the advanced holographic HUD systems under development for the US Air Force was handed over, and our HUD production set yet another world record, when Secretary of State for Industry, Patrick Jenkin, presented the 1,000th F-16 HUD to General Dynamics.
Civil Aviation ...	The world's first all-digital "intelligent" slat and flap control for an airliner was delivered to Toulouse for the new A310 European Airbus.
New Aircraft Programmes ...	We announced our selection to work on these new aircraft programmes: AM-X ... flight control for this important Italian/Brazilian military aircraft. CF-18 ... engine test systems for Canada's Hornet fleet. EH-101 ... new antisubmarine system for European ASW helicopter. ACA ... major involvement in P.110, Britain's forerunner to the European Agile Combat Aircraft involves our radar, flight control, HUD, Air Data Computer, Radio Systems and Maintenance Panel.
Farnborough Air Show ...	World interest was caused by our announcement of new programmes, new production contracts and 9 newly-developed products.
Thermal Imaging ...	The all-important production contract, for the UK Thermal Imaging Common Modules programme, has now been received.
Industrial ...	New remote control techniques for wellheads were demonstrated in Houston, Texas, at the Offshore Technology Conference, and TVS featured our 3D underwater camera in an historic broadcast of three dimensional television.
Antisubmarine Defence ...	We announced two new products during the year: MOSAIC, a general-purpose mission system for helicopters, and new HISOS 1, a joint venture with Plessey Marine's latest dipping sonar.
Vehicle Navigation ...	MAVHRS, MAV's new heading reference system for land vehicles, which needs no compass, was unveiled at the Farnborough Air Show.
Laser gyros ...	First details have now been revealed of our breakthrough in UK ring laser gyro performance, with a demonstration of "inertial grade" accuracy and consistency.
MAV facilities ...	Another outcome of company investment in new aids, in every Establishment, was the formal opening of the newly-equipped Hydraulics Facility at Rochester.

Managing Director's Report



1982 in retrospect has proved to be very largely a repeat of 1981. The economic recession continues unabated and unemployment in the country as a whole is at an even higher level now than it was a year ago.

In facing this situation we have been able to maintain our total employment substantially constant during the year with some areas expanding slightly and others contracting slightly. Our order backlog today is almost exactly the same as it was a year ago so that in real terms it has fallen by the amount of inflation over the year, say, by about 10%.

As a result of past development work we can reasonably hope to acquire substantial new orders for Holographic Head-Up Displays, Standard Air Data Computers and for Infra-Red equipment and Radio equipment. I am also extremely optimistic that export sales of the AEW aircraft will be made in 1983.

However, we must face the fact that there are few if any new programmes starting in the U.K. and it is clear that we must look more and more to export sales in order to maintain our employment level. I have myself visited some ten different countries during the year to try to promote our sales in those areas. We have over the past two years established a number of permanent representatives in different parts of the world, to assist us in securing further sales, and I am confident that these arrangements will start to pay off in the near future.

It is, however, very depressing to see so much of this country's defence expenditure taking place in the United States and elsewhere. The sooner we can, as an industry, convince our own Government that it is economic to place defence contracts in this country the better off we shall be. We shall all need to work very hard in this direction in the coming years.

A handwritten signature in dark ink, appearing to read 'J E Pateman', with a horizontal line underneath it.

*J E Pateman CBE
Managing Director
Marconi Avionics Limited*

14th December 1982

World leader ...

Increasing our output in real terms, despite ever-growing competition, has enabled us to establish a team second to none in the world. This has demanded skill and effort by members of the team and heavy investment by the company, in premises, equipment, technology, training and new products.

The extent of these achievements is dramatically reflected in the proportion of our total sales which are made to customers overseas.

In our own right ...

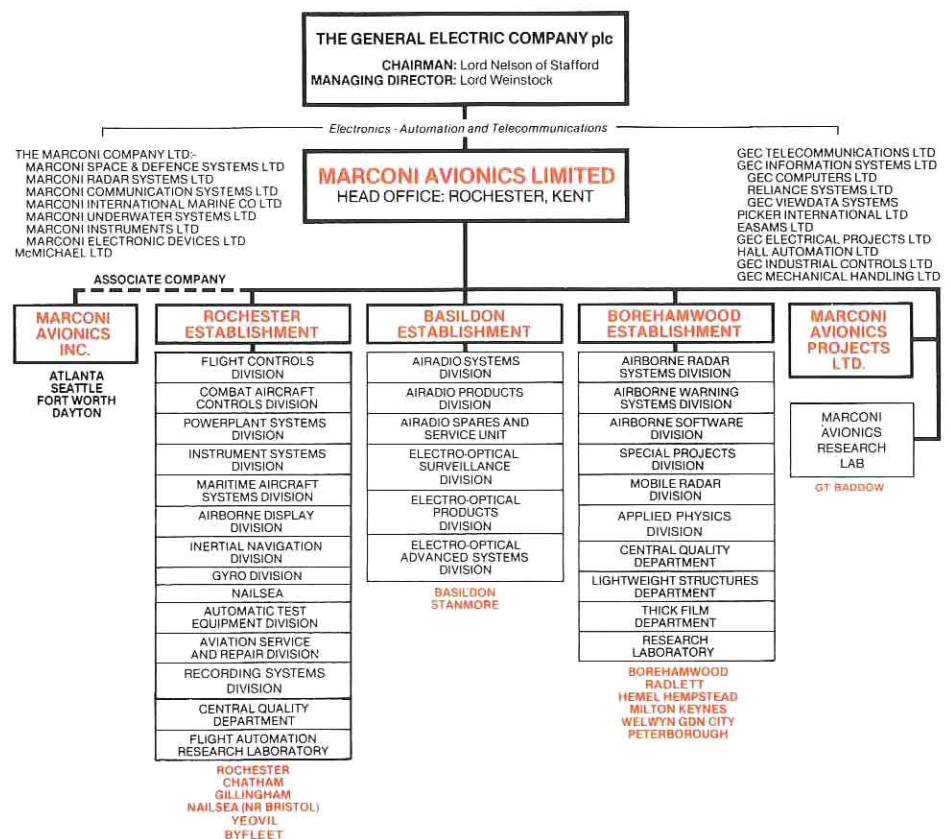
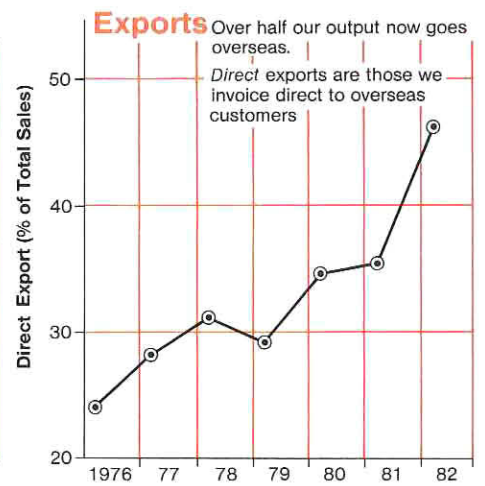
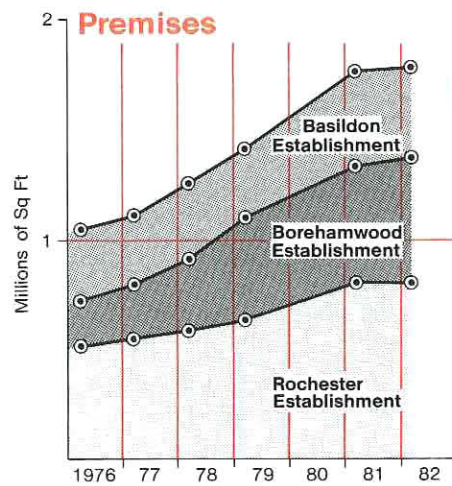
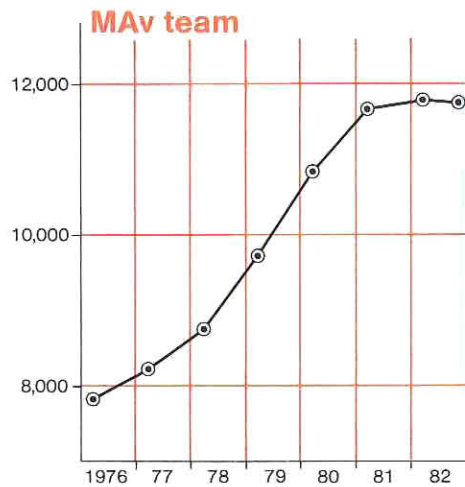
Marconi Avionics Limited now trades in its own right, as a major GEC company, and not as part of any intermediate group. As Europe's biggest company for avionics, we are organised to innovate, so as to compete successfully in world markets.

dedicated to customers ...

Our Divisional organisation enables us to dedicate our resources and skills to the needs of our customers, and to seek new orders right across our large product range. Administratively, Divisions are grouped into geographically-defined Establishments, covering a number of sites.

The Board of the company and its Directors are:

- Chairman: Sir Robert Telford CBE
- Managing Director: Mr. J.E. Pateman CBE
- Consultant to Board: Dr. B.J. O'Kane CBE
- Assistant Managing Director: Mr. W.H. Alexander OBE
- Assistant Managing Director: Mr. P.F. Mariner
- Financial Director: Mr. D.C. Rickard
- Director: Mr. P.A. Hearne
- Director: Mr. R.W. Howard
- Director: Mr. W.R. Paterson
- Technical Director: Professor J.T. Shepherd
- Director of Manufacturing Services: Mr. A.J. Harrison MBE
- Director of Personnel: Mr. E.J. Bradley



Rochester Establishment

– covers Rochester, Nailsea, Yeovil and Byfleet

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



1982 has been a year of solid progress on all our current work. In many Divisions the production output has been mainly equipment for the Tornado. Other established manufacturing programmes going well include Head-Up Displays for the A-7 and F-16 aircraft, for which we have produced more than 2000 and 1000 sets respectively and the Air Data System for the Cobra helicopter with over 500 delivered.

Our newer projects have also started well. The first two units for the Standard Central Air Data Computer (SCADC) have been delivered to the United States Air Force on schedule and LANTIRN Head-Up Displays have been flown in both the F-16 and A-10. First flights have also been achieved on the system for controlling the Slats and Flaps on the A310 Airbus and the Flight Control System for the Advanced Subsonic Aerial Target (ASAT).

Among the orders received during the year were those for the AQS 903 Acoustic Processing System for the Sea King replacement, the Electronic Flight Control System for the Italian/Brazilian AM-X and the Automated Powerplant Test System (APT) for Canada.

A number of awards were received by our people during the year. We congratulate Alf Harrison on receiving the MBE; Jess Griffiths the BEM; Peter Hearne the John Curtis Sword for outstanding effort in Anglo-American aerospace activities and the HUD Team the 'Aviation Week' award for significant technological achievement.

Although this year has not seen any great expansion in our numbers we are able to report that all our staff at Nailsea are now housed in their proper places in the new building and very recently we have welcomed a new division to our ranks, the Recording Systems Division at Byfleet. We have also commenced work on the 'Falcon' building alongside Airborne Display Division where we shall be manufacturing the holograms required for our new technology displays.

Airborne Display Division has continued to make progress, the highlight for the year being the delivery of the first prototype LANTIRN Head-Up Displays to the US Air Force, for flight testing in the F-16 and A-10. Two production records were set, when the Industry Secretary, Mr Patrick Jenkin, handed over the 1,000th F-16 production HUD to General Dynamics and when the 2,000th A-7 system was delivered to the Vought Corporation.

Maritime Aircraft Systems Division continues to expand its ASW system inventory with extensions to the AQS-902 (LAPADS) range and MOD contracts to develop the AQS-903 acoustic processing system for the Royal Navy's Sea King Replacement helicopter.

Work on integrating sonobuoy systems with other sensors has led to MOSAIC – a concept for lightweight system integration using common displays and controls – and HISOS 1 – a joint venture with Plessey Marine for the development of a new lightweight dipping sonar.

Flight Controls Division achieved first flights with two new products. In

February, the Advanced Subsonic Aerial Target (ASAT) of Flight Refuelling Ltd successfully flew with its microprocessor-based flight control system. Since the first flight in April, of the European A310 Airbus, with high integrity micro-processor control of its

Slats and Flaps, it has logged over 600 hours. Both aircraft flight programmes are continuing. Production of actuators for Rapier radar and automatic flight control systems, for BAC 1-11 airliners, Lynx helicopters and target drones, continues.

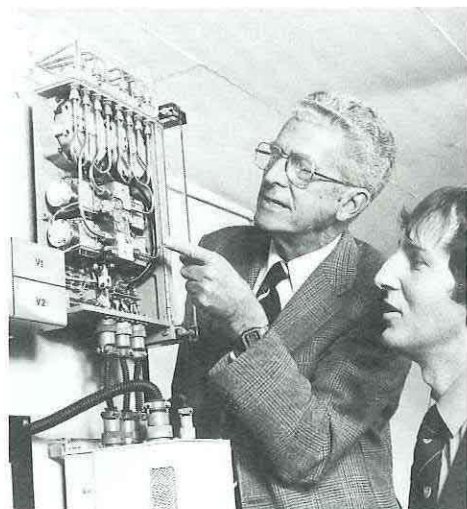


Secretary of State for Industry Mr Patrick Jenkin congratulating Mr Pateman on the handing-over of the 1,000th F-16 Head-Up Display to General Dynamics Corp.

Inertial Navigation Division has augmented its regular products and services through the development of a new heading reference system, based on IN technology and designed for high volume production, to meet a large world demand. MAVHRS has attracted much home and overseas interest for armoured vehicles and further product innovation is envisaged.

Gyro Division continues to expand and maintain a very healthy order book. The Navy is now the largest customer, taking over 90% of sales, 70% of which are gyro systems. Production of 'Strapdown' Control Sensors Units, for the Sting Ray Torpedo, is expected to continue for several years and development work on the Strapdown Attitude and Heading Reference System, for the Spearfish Torpedo, makes the Division better equipped to compete for future high technology business.

Combat Aircraft Controls Division has again successfully met production schedules, acquired new business and improved its facilities. Significant investment in new product development, following the "fly-by-wire" Jaguar integrated flight control system, has culminated in selection for the P.110 forerunner of the European Agile Combat Aircraft. Marketing efforts have also been increased in the USA. New contracts have been acquired, for the AM-X aircraft, and system studies of advanced control concepts for combat aircraft and missiles. Application of new computer aids to all departments continues.



"Fly-by-light" system demonstration rig for the next generation of advanced flight control systems.



Presenting the new SCADC air data equipment to our customers

Instrument Systems Division's high delivery rates of Cobra Air Data and Tornado Stores Management systems will slacken with the aircraft programmes and new marketing effort has increased. The Standard Central Air Data Computer programme, helped by computer-aided design; is nearing flight test, with many of the 56 deliverable units built and on test. Production orders should come in 1983 for early 1984 delivery. New computer aids include automatic storage retrieval. ADS and SMS work continues for the P.110/ACA and new orders, for European and US helicopters are anticipated.

Powerplant Systems Division ends the year on an improving note. The RB211-535 engine's Supervisory Unit is in final qualification tests on the Boeing 757, for airline service in 1983.

Success of the RB199 system has led to an order for Automated Powerplant Test Systems for Canadian Forces "Hush Houses", for testing CF-18 Hornet aircraft and their GE404 engines. Fuel Flow Systems were mainly produced for Tornado, Harrier AV8B and Hawk. Orders may also follow the Hawk's adoption as the USAF's T45 advanced trainer.

ATE Division's involvement with Europe's front line aircraft continues with seven LF ATE's ("low frequency" automatic test equipments) now delivered to the RAF and the Luftwaffe, for the Tornado programme, and with increasing use of ATE for the Nimrod at RAF Kinloss.

In the factory, COMPACT α , now testing modules for FCD's new A310 Airbus controller, will soon test the

whole unit. Three other COMPACT α units are in use on the Thermal Imaging Common Modules programme.

ATE Division's VAX 11/780 computer is being increasingly used within GEC for LASAR™ Automatic Test Program generation, and HILO is now available, together with other Engineering Software support packages.

Aviation Service and Repair Division has installed, and is operating, new facilities for repairing Tornado equipments, and has a US Air Force contract to repair F-16 Head Up Displays in Europe.

Spares orders for the A310 Airbus Slat & Flap Computer and associated test equipment are being received and a full support programme will start soon.

Development of audio-visual maintenance programmes is arousing considerable interest. An advanced automated graphics preparation service is planned for Divisions.

Flight Automation Research Laboratory provided an improved 'fly-by-light' flight control demonstrator for the Farnborough Air Show Exhibition. A holographic head-up display was supplied to General Dynamics for a simulator.

Colour displays, including digital map presentations, are being produced for the Royal Aircraft Establishment. A flightworthy "connected speech recogniser" is well advanced. A video system with helmet display, as a maintenance system, has attracted favourable comment. Our 1553B LSI design now has USAF approval.



The cockpit which "hears and obeys" – FARL's direct-voice input developments

Central Quality Department's Standards Laboratories continued electrical, mechanical and environmental calibration, and component testing, whilst the Electro-Magnetic Compatibility Laboratory introduced automated emission measurement methods. Two more screened enclosures are planned, as type approval/qualification EMC facilities, and capacity has now doubled.

The Environmental Test Laboratory has developed a random vibration technique for gunfire simulation, in accordance with MIL-STD-810C, and an additional vibration system, with 12,000lb thrust, is due for delivery.

Nailsea's team is now fully established in its new factory built on the old Nailsea Cider Works site.

The Offshore Projects Group has supplied control equipment to BP for use in the new Magnus oilfield. Engineers from Nailsea are assisting BP with the installation and commissioning of the system on the Magnus platform.

The Power Conversion Group has delivered power supplies for a number of major programmes, including SCADC, LANTIRN, Spearfish and Tornado.

Electronic Processing Department is meeting Divisions' commercial requirements with a major reorganization of manpower and computer resources. Further upgrading of the ICL 2094, and an additional machine, together enable ISD, ATE, ADD and CACD to use MAPLE software on-line, via a 7502 terminal network. A recently-installed CMC Sovereign system is linked to the Accounts Department for remote job entry into the GEC Computer Centres.

Accounts Department has continued to introduce improved computer techniques. Payrolls, wage analysis and sales ledger are to be transferred to the main-frame computer at Great Baddow, via the EDP communications link, using direct entry equipment already installed in the Department.

A recent re-layout has improved working conditions and security in the area.

Central Machine Shop is still gearing its work to the commercial and design activities of product Divisions.

Box assembly manufacture by riveting, dip brazing, spot welding and redux bonding, continues as a major activity, with redux bonding services also provided to other Establishments.

Works Engineering Services

involvement in the re-layout of a number of Divisions included the move into the new 61,000 sq ft factory at Nailsea and the Rochester new Hydraulics Facility. Construction of the Falcon building at Rochester started during the year, and will be ready in June 1983

Electrical, Mechanical, Civil Engineering, Transport, Despatch, Incoming Goods, Telecommunications and Postal Services, were also successfully provided to the Establishment Divisions throughout the year.

The Personnel Department reports recruitment almost at a standstill although a reasonable graduate intake (50) was retained. Implementing "Self-Certification" was a major achievement.

The re-housed Training Department recruited 115 trainees and apprentices and provided Divisions with 155 newly qualified staff, including 12 Graduates from the HND Trainee Computer Programmer scheme. Reduced labour turnover and changing technology emphasised re-training, and 300 adult staff attended special technological short courses. A major 38 week course, to re-train hardware engineers in software engineering, was started.

The company now employs 18 out of 34 youths involved in the Work Experience Scheme.

United States Report:

Marconi Avionics Inc, which has its main base in Atlanta Georgia, continues to progress with products and services for US defence programmes.

F-16 and A-7 Head-Up Displays systems continue as the main production, the 2,000th A-7 system being delivered from Atlanta. Work in CO₂ laser rangefinders is still progressing and marketing effort are being maintained at a high level.

Borehamwood Establishment

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

Foreword by

Mr P.F. Mariner, Assistant Managing Director of Marconi Avionics Ltd and the Company's chief executive for the Borehamwood Establishment.



Throughout the year we have concentrated our effort on progressing through the many detailed tasks entailed in fulfilling the design objectives of our major development programmes. In the case of our Advanced Signal Processing Systems we have succeeded in completing prototypes which have been delivered and performed fully at sea. The first of the production equipment has been delivered, to performance, and precisely on time.

In the case of the two major airborne radar systems which have reached simultaneously the final development proving stage and the entry into production, the engineering and production staffs are concentrating on eliminating the very large number of interface design parameter tolerances, which are intrinsic in such large systems, and setting to work the production staff and extensive test equipment facilities necessary to the production phase. It is important that we continue to attack these problems with the utmost determination and vigour because, until they are solved, we cannot complete and supply the equipments for our main customer, the R.A.F., nor will we be able to realise the considerable world-wide sales potential that our marketing teams have established.

Following a period of several years of energetic recruitment, to build up the development teams needed to fulfil our various major projects, our numbers have stabilised, a small fall in the early part of the year, due to an exceptionally large number of retirements, being offset as newly-graduated engineers joined us in the autumn.

Similarly, the desperate need for increased floorspace has been met and only small further acquisitions at premises at Welwyn Garden City have been made, to provide for the production build-up of our Signal Processing projects. Planning for the permanent buildings at Milton Keynes and negotiation with the Development Corporation are under way.

A great deal of effort has been directed towards assuring our future, both by our Marketing and Sales staff, in seeking out and promoting new business, and in the Research and Development areas in advancing the concepts, designs and technologies appropriate to new generations of equipment. This technically exciting work is expected to bear fruit as the capability of our products is rapidly extended.

Airborne Software Division's mission software for AEW Nimrod and the Foxhunter radar continues satisfactorily in flight trials, Foxhunter commissioning uses the Division's ATE Software.

Software delivered for one computer-controlled security system is performing well and another is under development.

Work proceeds on advanced software tools which include Ada, the new real-time programming language, and MENTOR, a sophisticated specification control system.

A VAX computer was installed in November for mechanical design and stress analysis, VHPIC design and Ada developments.

Airborne Radar Systems Division. Production of the Foxhunter radar is well under way with delivery of complete systems planned for 1983. Advanced work on technical innovations is for future performance

enhancement, as well as a wide range of home and export applications.

Test Equipment, validated against radar hardware, is being installed in production.

Delivery of the lightweight low-cost radar has begun for export, and liaison and trials facilities have been set up with the principal overseas customer.

The Division has been selected to supply the radar for the European Agile Combat Aircraft.

Airborne Warning Systems Division has now commissioned and supplied all development models of the Mission System Avionics for AEW Nimrod. The Flight Trials programme involving two complete systems is now well advanced. Service models are being installed in production aircraft.

The Training Centre at Hemel Hempstead has begun training RAF personnel destined for AEW Nimrod.

Projects for supporting Test Equipment and the RAF Mission Simulator are well advanced.

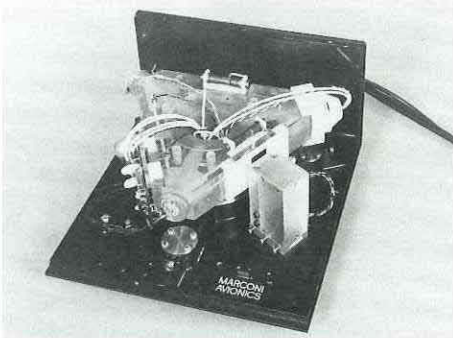
With worldwide interest in acquiring an AEW capability, the Division is working with a number of potential customers and pursuing all export opportunities.



Mission System Avionics on board the AEW Nimrod

Applied Physics Division. The recent name change from Neutron Division reflects the wider coverage of market areas. In particular scientific X-ray and

gas laser activities have produced substantial sales volume. The High Intensity X-ray generators and associated cameras have continued to sell overseas and new distribution arrangements in the USA have already led to an upturn in orders.



Laser gyro, under development for future navigation systems, has now demonstrated "inertial grade" performance

Mobile Radar Division has successfully obtained several significant contracts for computer-controlled security systems, an expanding sector of the security business. These are being executed in conjunction with Airborne Software Division, whose considerable expertise in software creation has been a strong factor.

As work continues to create new products for battlefield surveillance business, an important contract has been obtained for up-dating ZB 298 battlefield radars already in service with one of the NATO armies.

Special Projects Division has continued to develop a range of acoustic signal processors for Naval sonar equipments. Initial sea trials of the first prototype were completed successfully and the first operational equipments are being delivered for installation in HM ships and sea trials next year. The manufacture of pre-production equipments has started against continuing orders. Overseas interest in the Division's products has increased and the first export order is confidently expected before the year's end.

The Research Laboratory supports technologies for current and potential business, through advancing techniques and expertise, feasibility studies, and advanced development, and as a centre of expertise and information for systems design,

engineering, manufacturing and marketing.

Among some 30 current R & D items are ultra-low power consumption signal and display processing for battlefield radars, compact frequency analysers, coherent detection systems for new laser radars, radar technology, system studies for future aircraft, and new 3mm waveband techniques.

A new department brings together the scientist and engineer teams designing new signal processing systems for future advanced weapon systems.

The Model Shop at Borehamwood, Radlett and Milton Keynes, which supports the Research Laboratory and all Divisions, by the manufacture of mechanical and electronic prototypes, has contributed substantially to the AEW Nimrod, Tornado ADV and lightweight radar projects.

The Central Machine Shop has been developing its facilities by introducing new and more capable numerically-controlled equipment, and by improving and extending the machining, sheet metal and surface finishing qualities of existing plant, to fulfil the increasing demands of our major production commitments.

Central Quality Department has continued to update its facilities and improve its services to support the Company's projects. The Physical and Electrical Calibration and Standards Laboratories have been re-formed as the Central Calibration Laboratories. The Component Test Facility has extended its capabilities. The Environmental Test Laboratory has received Natlas Approval and made a significant contribution to the Qualification Testing and Flight Certification programmes for the AEW Nimrod and AI Radars.

Thick Film Department. The Thick Film Department has succeeded in obtaining Full Capability Approval to BS9450, for the design and manufacture of its products, an asset for competing for work outside the Company.

Further progress has also been made in establishing thick film techniques in products manufactured by the Company.

Lightweight Structures Department. The manufacturing capability

developed for the high performance, ultra lightweight 'composite' antennae for AEW Nimrod and ADV Tornado has provided the technology and experience for competing in outside markets. High precision components, in carbon fibre, glass fibre or kevlar-reinforced sandwich structures, combine low weight with exceptional electrical and microwave performance, demand for which, and supporting engineering and testing facilities, is increasing within Marconi Avionics and numerous other companies.

Central Publications Department provides a complete documentation service, embracing handbook and specification writing, editing and preparation of Company sales proposals, brochures and reports. Reprographic facilities include illustrating, photography, word-processing, offset litho printing, a 9200 Xerox and full dye-line print service.

Further word-processor systems have been acquired and the Micrographics Department now provides a fast quality service for 35mm & 16mm microfilming.

Accounts Department has consolidated major system developments in the Payroll, Supplier Accounts, Sales Ledger and Fixed Assets computer routines, which, with a re-location in new offices at Borehamwood, has helped to improve services. Main developments are the improvement of routines covering the matrix of multi-site and divisional activities, and meeting the growing demands of MOD audit.

Personnel Department has generally fulfilled recruitment needs, applying extra effort in specialist areas where shortages are still apparent.

Welfare and counselling needs continue to increase.

The Training Department extended its activities, featuring development programmes for groups of Section Leaders and Production Supervisors. Courses in the use of Test Equipment for Electronic Technicians have been held at the Kenwood House Training Centre. Short specialist courses ranged from microprocessor techniques to multilayer PCB repair.

Personnel and Training Departments have been involved in Work Experience Programmes for unemployed school leavers.

Basildon Establishment

– covers Basildon and Stanmore

Foreword by

W.R. Paterson, Director and General
Manager of MAV and the chief executive for
the Basildon Establishment.



In many ways 1982 has been a satisfying year for Basildon Establishment. Uppermost in our minds is the success of the U.K. Armed Services in the battle for the Falklands. All three services used and operated Basildon equipment in that campaign, and informed opinion suggests that it performed well. Management has received many expressions of thanks for the way the workforce responded to the needs arising from the conflict, particularly the long and unsocial hours put in by many of the staff throughout the campaign, and the ingenuity in solving the many new problems presented to us.

By contrast it was a delight to be associated with the raising of the Tudor warship Mary Rose. Doug Howick of EOASD has been active in the Mary Rose Trust diving team for many years. The BBC used an EOASD high quality underwater television camera throughout the lift.

Maintenance of the order book has been the priority and we have received a number of important production orders, for new products, including "Thermal Imaging Common Modules (TICM)", AD3400 Wideband Transmitter/Receivers for Brazil, V3800 Thermal Imaging Sensors for export, and a production contract for a new missile guidance system. Further orders for "Stingray" signal processors have been received. It is very gratifying to have the excellence of these products confirmed and to look forward to their continuing success.

The future well-being of the site is being safeguarded by company investment in plant and machinery, private venture product development and training. Considerable effort is going into the reorganisation of B, D & E Buildings to cope with programme requirements of ARSD, ASD, EOPD & EOSD. A wide variety of computer-based aids continue to be introduced, including test and assembly, as well as the extended use of computer-aided design (CAD). The installation and commissioning of the new SLI automatic switchboard is well under way and it is hoped to have it fully operational early in 1983.

New and interesting developments are going on in doppler systems, speech conditioning and recognition, target acquisition and tracking, secure and jam-resistance communications, underwater acoustic signal processing, and automatic inspection.

With the help of a skilled and dedicated workforce the MAV Basildon Establishment has weathered another year of the recession. Thanks are due to everyone at Basildon and Stanmore who has contributed to and supported our operations.

Airadio Systems Division has completed production deliveries of communications equipment for the AEW Nimrod programme. Installation of a ground training simulator has started. RAF maintenance training is in progress at Basildon.

A range of new communication equipments is being designed for the EH 101 Sea King helicopter replacement programme.

Secure communications systems involvement continues to expand and marketing opportunities are being vigorously pursued.

In new fields, Automatic Speech Recognition for Direct Voice Control is a priority and overseas sales activity for existing products is particularly active in France, South America and the Middle East.

Airadio Products Division's second major export order for AD3400 Multimode Radios, was from Brazil. With the Royal Navy's initial order, sales now exceed £10M.

Repeat orders include approximately 50 VHF/FM Tactical Communications Systems with an imminent order for Tacan.

The AD150 Voice Conditioning Unit has successfully completed RAF trials. As diversification, new Doppler devices can measure artillery shell velocity and road and rail vehicle speed. A version of the AD660 Doppler Navigation System is on offer for a major U.S. military helicopter programme.

Electro Optical Products Division has continued civil and military business development. The new V3800 naval thermal imaging sensor has won



Diversification : new AD550 Doppler speed sensor introduced for land vehicles.

considerable home and overseas interest and has achieved its first export sale. A major production contract has been won for missile guidance equipment, further development of which, together with V3800, creates a strong position to compete for future naval surveillance and weapon systems.

A fibre optic duplex transmission link has been developed, for civil and military markets.

Electro-Optical Surveillance Division

now has the production contract for Class II Thermal Imaging Common Modules (TICM II). First production deliveries are due in 1983 for integration into UK weapon systems.

Work on many TICM applications has included Forward Looking Infra-Red (FLIR) Systems, for high speed aircraft and helicopters, and imaging sensors for RPVs.

Heli-Tele's international sales success has continued. The potential of this helicopter-borne surveillance system has been enhanced by the development of sensor options, including TICM for day/night operation.

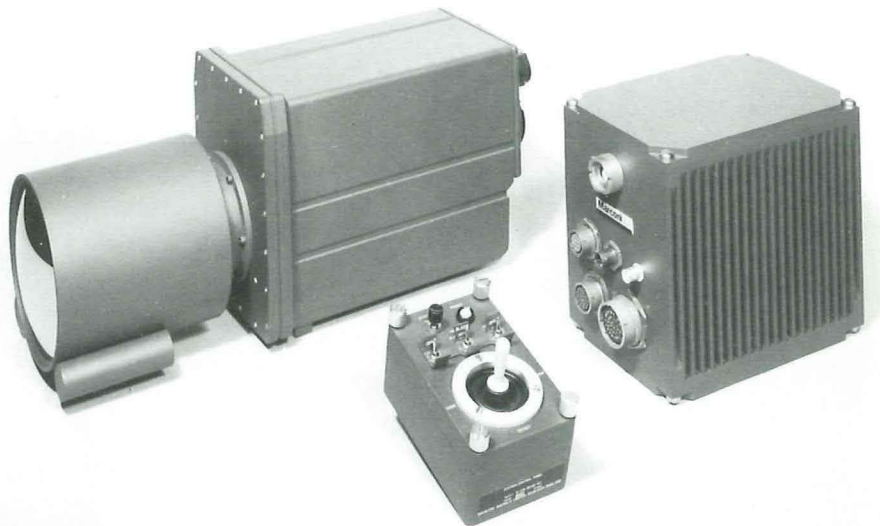
Electro-Optical Advanced Systems Division now 350 strong has, in one building, all the facilities and resources for competitive design and manufacture. A CAD system is being installed for in-house LSI circuit design.

Sting Ray torpedo units are in full production, and the first prototype Spearfish unit has been produced.

In Robotics and Automatic Inspection, the first system has been delivered for carburettor inspection, and other orders include exports.

Future Systems Laboratory has obtained over £1M of contracts for a variety of applied research projects.

Airborne Radar Systems Division at Basildon has met Tornado IDS delivery schedules with 130 line replaceable units (LRU) delivered to Ferranti, AEG Telefunken and Fiar. Pre-production LRU for Foxhunter radar are well advanced and production is imminent. With expansion agreed, work has commenced on new semi-automated stores and assembly areas, to be closely followed by the new Foxhunter radar test area.



Typical day/night viewing system, made up of Thermal Imaging Common Modules, now in full production.

Central Machine Shop has made full use of tools and computer aided Production Control Services, with mini computers now in Production Engineering and Control. It is proposed to integrate these systems, as a Computer Aided Design/Computer Aided Manufacturing link with Airradio Products Division.

The Plant Engineering Department's many completed projects include new premises at Miles Gray Road, now operational, and additional toilets, medical block and car parking, under construction.

The newly-constructed 9 acre sports and social club complex was opened in September.

An energy management system is being installed to save electricity. To meet additional loads, a new 800 KVA sub station has been built. The increase in plant to maintain, includes some 30 additional A.C. Plants, 9 environmental chambers, 2 air compressors and many heating and ventilation units.

Service Control's team of 50 provides Transport, Packing, Telex, Telephone, Post, Reception, Goods Inwards, Central Purchasing and Stores for Maintenance, Spares, Consumables, Stationery and Overalls for the site.

Effort is concentrated on installing the new Reliance Systems SL1-VE telephone exchange, to enhance communications from 28 February 1983.

Accounts Department's essential services included payroll, cashier, invoice clearance, data preparation, control accounts and management accounting services. The computerised systems have been further improved.

Monthly management accounts, produced on time, have given Divisions the accounting information needed to control their business.

Personnel and Training, with recruitment again strictly controlled, overall numbers decreased slightly. Changes in demand, from semi-skilled to technical staff, has commanded considerable redeployment effort. Technical apprentice recruitment was maintained and over 20 direct-entry graduates came into engineering. MAV became Basildon's first employer with a pilot Youth Training Scheme under the MSC-sponsored New Training Initiative

Special attention has again been given to employee communications with the continued publication of "Insite", on-site exhibitions, and regular meetings with union representatives on future workload and manning.

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