

VISION

FIRST MAJOR VISIT TO GEC-MARCONI AVIONICS



"GEC (Marconi) Avionics has sold more Head-Up Display Units than any other Company in the world. I think that's a point worth savouring, worth contemplating."

*Prime Minister, John Major
26 March 1993*

On the morning of Friday 26 March, at 10am, Premier John Major, under tight security, emerged from the VIP car at the William Elliott Entrance at GMAv Rochester to be met by a cheering workforce.

Warm Welcome for Premier

Coming a year after his last visit to the County, John Major's whistle-stop tour of Kent was organised to underline the importance of industry to the South-East. GEC-Marconi Avionics, the area's biggest employer, was the first visit in a busy schedule and the Prime Minister looked relaxed and in high spirits as he arrived to see some of the Company's latest technology. After making an unscheduled stop to speak with a group of workers he was welcomed on the steps by The Rt Hon Sir Geoffrey Pattie, Chairman of GEC-Marconi; Roy Gardner, Managing Director (of GEC-Marconi) and Derek Dickinson, Managing Director of GEC-Marconi Avionics.

John Major with (l-r, in dark suits) The Rt Hon Sir Geoffrey Pattie, Roy Gardner and Derek Dickinson

Into the Helicopter Simulator

Moving into the Conference Room, Brian Tucker - GMAv's Director of Programmes - was introduced, and local MPs Dame Peggy Fenner, James Couchman and Andrew Rowe joined the party. They then toured displays of F-22 Systems, EFA and Boeing 777 equipments, each clearly underlining the importance of the international success of the projects to UK industry, and the importance of this high-tech industrial base to the country. Next on the itinerary was a visit to the Cobra Venom Helicopter Simulator where a demonstration was given by Peter Jones and Keith Reid of the state-of-the-art cockpit for this proposed future UK attack helicopter. The Prime Minister, in private, 'flew' the cockpit with Keith Reid and experienced for himself the technology which will dramatically reduce the pilot's workload as he operates in the increasingly hostile battlefield environment.

The main purpose of John Major's visit, however, was to officially hand over to Dr Vance Coffman - Executive Vice President of the Lockheed Corporation - the 10,000th Head Up Display, this also being the 5,000th

that GMAv has supplied for the Lockheed F-16 Fighting Falcon aircraft.

Arriving in the main Conference Room further presentations were made to the Prime Minister prior to viewing a Head-Up-Display Exhibition which included a working example of an F-16 equipment.



Relaxed and in high spirits, the Prime Minister waves to those watching from above.

Handover Ceremony

In his Welcoming Address Sir Geoffrey Pattie thanked John Major for interrupting a busy Parliamentary schedule to join the Company in celebrating a significant milestone in its history. He acknowledged that the Prime Minister continually argues that, as a nation, we should spend less time talking the country down and more time highlighting successes; and was therefore delighted that we could demonstrate that, in the field of avionics systems, the country leads the world. Sir Geoffrey, before calling on the Premier to present the 5,000th HUD to Dr Coffman on behalf of GMAv, proudly announced that, as the largest employer in Kent, the Company has supplied more HUDs than all its competitors combined. Our domination in this field is illustrated by current HUD contracts for both the world's leading future fighter aircraft - Eurofighter 2000 and the US Advanced Tactical Fighter F-22.

In thanking Sir Geoffrey and GEC-Marconi Avionics for the warm welcome, the Prime Minister's reply centred around his commitment to manufacturing industry:

Continued Page 8

Nite-Ops for Sweden



Members of the NVG team at Displays Division, South Gyle: (l-r) Brian Thomson, Richard Brown, Maureen McKenzie, Maurice Craib and David Todd.

Displays Division in Edinburgh has won a significant order from the Swedish Ministry of Defence to supply Nite-Op night vision goggles for its army helicopter pilots.

Marketing Executive Brian Thomson said: "It was a tough contract to secure as there was a rigorous trials and evaluation procedure to go through. We succeeded because of the technical excellence of the product and the dedication of the team who worked on the project."

"Nite-Op night vision goggles were selected because they were the superior option and the Swedish MoD particularly liked their design and robust construction."

As the Swedish MoD is well-known for its high standards when choosing equipment, sales staff at Displays Division hope the contract will lead to further orders from Europe. Nite-Op night vision goggles are already in use with the three British armed services.

ONE TEAM, ONE NAME, ONE MAGAZINE....

VISION

I take this opportunity to welcome readers to this first edition of VISION, the new corporate magazine for GEC-Marconi Avionics. This magazine will be used to provide the 12,000 strong workforce around the country with information which I hope will be both interesting and stimulating.

Through VISION I firmly believe that we have the opportunity to provide a balanced view of what our industry is really like and cover issues which directly affect us as employees.

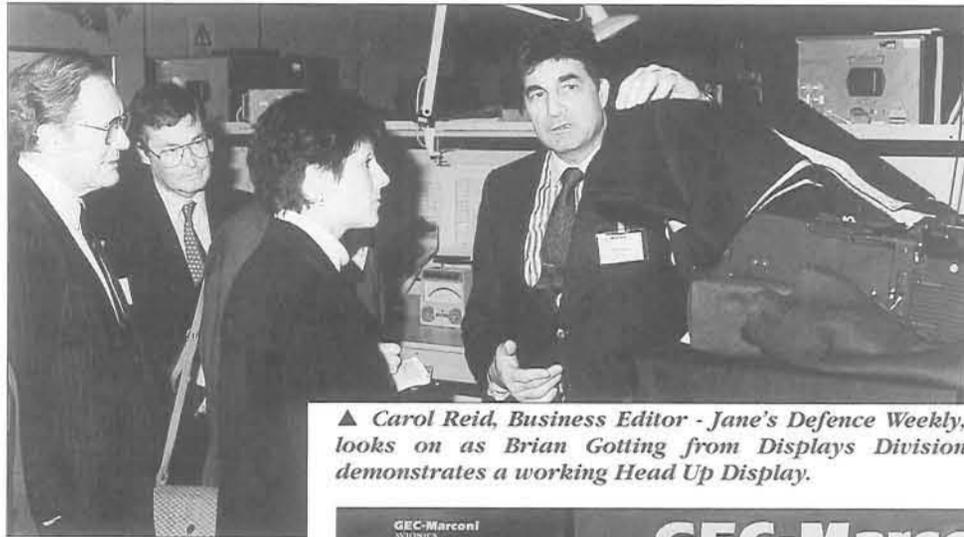
Employee reaction to VISION will determine its evolution in the years to come. Its usefulness will be governed by the interest generated from its readers, each of whom has a part to play in keeping it up to date with news of both Company and individual achievements. It is this interest that will guarantee success.



I am delighted to have been given the opportunity to become Editor of this new venture and in recent weeks have been fortunate in visiting the various sites which form GEC-Marconi Avionics. The warmth of the welcome given wherever I venture is encouraging and I am confident that, working together as a team, the magazine VISION will help to keep us informed of the broad spread of our activities as we move towards the 21st century.

*Colin Langlands
Editor
April 1993*

GMAV OPENS ITS DOORS TO THE MEDIA



▲ Carol Reid, Business Editor - Jane's Defence Weekly, looks on as Brian Gotting from Displays Division demonstrates a working Head Up Display.

► Helene Cox, Publicity Manager, introducing (l) Brian Tucker and (r) Derek Dickinson to the members of the press.



Stewart Penney, Editorial Assistant with The Royal Aeronautical Society 'gets to grips' with night vision goggles.



PRESS BRIEFING HELD AT ROCHESTER

The official launch to the media of the new GEC-Marconi Avionics took place in the form of a Press Briefing at the Company's Rochester headquarters on Monday 8th March.

Hosted by Managing Director Derek Dickinson and Brian Tucker, Director of Programmes, the Briefing was attended by representatives of the national, local and

technical media who were given a full and detailed account of the reasons behind GMAV's formation, its world standing, its current business position, and product range and its plans for the future.

After the Briefing those present were entertained to lunch before being given a comprehensive tour of the site's facilities - this being the first occasion on which such a large contingent of media representatives had collectively been allowed to view specific projects. The accompanying photographs record the success of the occasion.

VISITING PROFESSOR FOR EDINBURGH UNIVERSITY

John Roulston, Technical Director of GEC-Marconi Avionics, was recently honoured with the title of Visiting Professor by the University of Edinburgh.

The award, in the field of electrical engineering, added to his existing qualifications from universities in Scotland and Northern Ireland. John's first degree was in Electrical Engineering from Queen's University in Belfast and he also holds an MSc in Digital Techniques in Communications Control from Edinburgh's Heriot-Watt University.

John joined the former Ferranti Defence Systems Company in 1967 as a student and became a fully fledged employee with its Radar Systems Division in 1970. He has worked on all

the radars produced in Edinburgh since that time.

Rising through the ranks, he held the position of Chief Engineer with the Division before becoming Technical Director for GEC-Marconi Avionics as a whole. One of his most significant achievements was to head the pulse doppler technology work



John Roulston
Technical Director, GMAV.

which led to the development of the Blue Vixen radar, recently in service with the Royal Navy. Blue Vixen formed the basis of the ECR 90 radar for the Eurofighter 2000 (formerly the European Fighter Aircraft). John led the technical team which conceived ECR 90 and he contributed significantly to the success of the radar bid in the face of strong competition.

He said: "It is an honour much appreciated and it is a practical way of encouraging links between the university and technical industry. However, in industry, no achievement is individual in nature and I see this as a spin-off from having worked with excellent people in Edinburgh. In every sense it is their honour."

In at the Deep End!

Sea Trials for Multirole Turret System

On 12 March a team from Sensors Division's Multirole Turret Systems (MRT-S) Business Area set out to put the system through its paces from the end of Southend's Pier, in a simulation of a typical Search and Rescue scenario.

A trial was carried out to evaluate the distances which could be achieved in detecting a person in the water and using different techniques to

improve the thermal signature of that person.

The trial commenced from Two Tree Island in a 16' inflatable craft loaned from Sensors Division's Sub-Aqua Club; with Malcolm Court steering the dinghy, Business Manager Steve Pickering working the communications and Michelle Hopkins, (a volunteer!), in the water.

Having reached the Pier's end the trial commenced. With John Wright steering the MRT and Doug Friedrich controlling a colour TV camera alongside the turret,

the day's events were recorded on video.

After 'kitting-up' in the dinghy with a suit and breathing apparatus Michelle was thrown into the sea, which had a temperature of around 4°C. She then undertook a series of tests, varying from diving under the water's surface to climbing into the survival craft at varying ranges from the Pier.

The local river police showed great interest in the activities and extracted a promise that the team really would pick up Michelle at the end of the trials and not leave her floating in the middle of the shipping channel.

A resounding success, the trials achieved range performance results significantly greater than those predicted by the computer modelling.



Michelle performs to the MRT.

Michelle, as seen by the thermal imager.

Doug Friedrich, in contact with the dinghy, controlled the colour TV camera alongside the turret.



GEC-Marconi Oil & Gas Awarded Major Subsea Control Order

The GEC-Marconi Oil & Gas Group at Nailsea has been successful in winning a major order with oilfield operator Amerada Hess to supply subsea production control system equipment for the Hudson North Sea oilfield development. The potential contract value will be in the region of £4.5M.

The Oil & Gas Group is to provide equipment to control and monitor production from subsea wells located 95 miles north east of Shetland and in 160m of water. The Hudson field - which has been developed in 2 phases - consists, in total, of 6 oil production and 2

water injection wells approximately 11.5km away from Shell's Tern platform. The wells are clustered around a central manifold which is tied back to the Tern platform by a subsea pipeline. The produce is subsequently processed on Tern prior to onward transportation to Sullom Voe in Shetland.

The equipment to be supplied comprises a multiplexed electro-hydraulic control system which controls and monitors valves on the subsea wellheads and manifold, nine subsea control modules and associated subsea process instrumentation, together

with platform-based hydraulic power unit and master control station computers.

This award by Amerada Hess follows GEC-Marconi Oil & Gas' success last year in an order to supply similar equipment to Norsk Hydro for their 20 well Troll Phase II oilfield development, and further establishes the Company's position as a leading supplier in this highly competitive subsea market.

NEXT COPY DATE - Friday May 28th

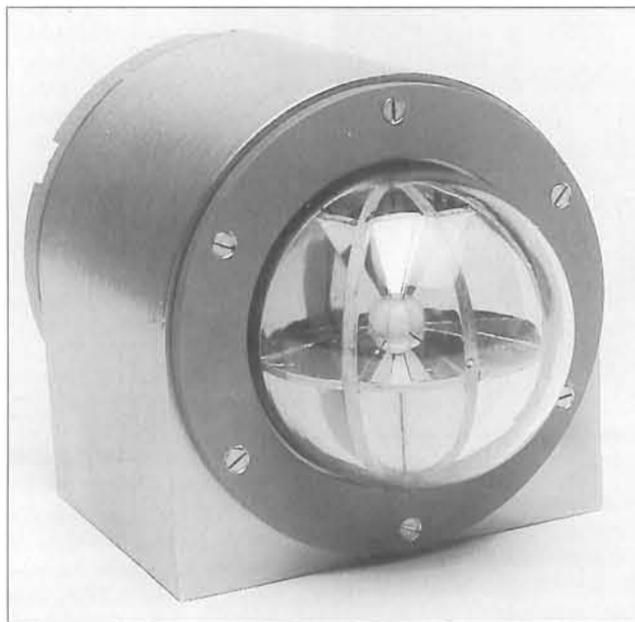
Eurofighter Success at Silverknowes

In answer to a Parliamentary question, Defence Procurement Minister Jonathan Aitken announced on March 19th that GEC-Marconi Avionics has been selected to develop a new laser warner system for the Eurofighter 2000. The contract, awarded to the Navigation and Electro-Optic Systems Division in Edinburgh, will be in the order of £20 million. The integrated system will indicate the presence of laser threats to the pilot.

The laser warner will work in tandem with the aircraft's Defensive Aids Sub-System (DASS) and is one of the first such warning systems to be selected for a fighter aircraft.

The equipment, which has been specified for the UK version, detects, identifies and classifies laser energy directed at the aircraft by sources such as laser range-finders and designators. When laser energy is detected, the information is passed to the DASS control processor and the pilot is then alerted to take appropriate action.

The laser warner uses a series of passive sensor heads distributed around the aircraft's skin. These heads are



The laser warner detects, identifies and classifies laser energy directed at the aircraft.

connected by fibre optic cables to a central processor unit. The use of fibre optics minimises the weight of the system and gives it some immunity from the effects of electro-magnetic interference.

The equipment will be produced by the Laser Systems Department of Navigation and Electro-Optic Systems at Silverknowes in Edinburgh. The Department has been

involved in military lasers since the mid-1970s, designing and producing systems for ground, air and naval applications.

This unique experience will be applied to give the UK version the latest electro-optical technology, thereby ensuring the maximum survivability in the face of envisaged air threats in years to come.

MP Steven Norris visits Sensors Division

Mr Steven Norris MP, Parliamentary Under Secretary of State to the Department of Transport, accompanied by his Epping Forest constituency agent Tricia Gurnett, paid a visit to Sensors Division, Basildon on Friday 19 March.

Impressed by the Division's activities during a visit to its former Loughton premises in October 1991, and having a keen interest in promoting industry, Mr Norris had requested a comprehensive tour of the Basildon activities to especially meet those employees who recently transferred from working in his constituency.

Mr Norris was officially welcomed to the Basildon premises by Divisional Managing Director Gwyn Thomas, after which a general overview of GEC-Marconi Avionics and a detailed introduction to Divisional business was given, including the Pyro Camera and the Diesel Emission Sensor. The latter greatly impressed the visitor who, in his capacity as both a Junior Minister and London Transport Minister, took the opportunity to present Gwyn Thomas with a commemorative model of both a lorry and smoke meter, marking the



Presenting Sensors Division's MD Gwyn Thomas with a commemorative trophy marking the production of the 3,000th smoke meter.

successful production of the 3,000th meter in February 1993.

Afterwards - with (Operations Director) Len Robinson and Mike Thornton, (Business Development Director) - a tour of the development and manufacturing facilities for both electronic and optical systems was undertaken, together with visits to the Diamond Turning area and the Aspheric ASG 2500 Turning machine which



THE APPLIANCE OF SCIENCE

GEC Scotland made a significant contribution to the annual Edinburgh Science Festival which took place in the city in April.

For more than two weeks, the headquarters of the Trustee Savings Bank in the city centre was host to an Exhibition entitled 'How Scotland Leads the World in Technology'. The display highlighted just some of GEC-Marconi Avionics' products manufactured in Edinburgh including:

- * laser gyroscopes used to navigate aircraft and space vehicles
- * laser designators which can pinpoint targets for laser-guided bombs
- * night vision goggles which allow users to see in the dark
- * an integrated helmet which displays to a pilot all the information required to fly a successful mission (this material is displayed inside the helmet visor)
- * a micro-miniaturised video camera, the size of a matchbox
- * a high-precision rotary mirror scanner which spins on a gas bearing and is used in applications such as the large screen laser projectors used at pop concerts

has been relocated from Loughton. During this tour Mr Norris took every opportunity to meet and talk with the workforce.

Again, having taken a deep interest in all that he saw, Mr Norris left in the knowledge that GMAV's Sensors Division remains a high-tech unit committed to the concept of continuous business improvement.

Eric Bush explains the Vacuum Coating Process.



EDINBURGH

* maritime surveillance radar which can be fitted on to an aircraft to police coastlines and prevent illegal fishing or smuggling.

Visitors to the Exhibition had the opportunity to view these pieces of equipment at first hand and there were also a number of videos and display boards detailing other technological developments pioneered by GEC companies in Scotland.

These included in-car map displays which help drivers to navigate, a thermal imaging display which helps drivers to see in the dark, computer-aided design for ships and electro-magnetic compatibility

testing which ensures that electrical devices do not interfere with one another.

Public Relations Manager John Ford, who is based at Crewe Toll, said: "This Exhibition gave companies in Scotland, and GEC-Marconi Avionics in particular, the opportunity to show the public that world-beating technologies are being manufactured here.

"From a public relations point of view, the Exhibition was a welcome opportunity to take our products out of the factory gate and demonstrate to people in Edinburgh that they have a market-leader on their doorstep."

HIGH-RANKING VISIT

GEC-Marconi Avionics' Edinburgh sites recently played host to a visit from students of the Royal College of Defence Studies (RCDS).

The RCDS, formerly known as the Imperial Defence College, was founded in 1927. It aims to give its students the opportunity to study problems relating to the defence of western-style democracies, but not just from a military perspective. National and international politics and economics are also taken into account.

RCDS students are generally of Brigadier or equivalent rank in the UK services and Assistant Secretary level in the Civil Service. The College is also open to foreign military and government personnel.

Bob Snedden of Displays Division, who is a former student of the RCDS, said: "As part of their Course, the students undertake regional tours. One party visited Scotland and came to the Company to discuss industrial issues.

"They talked to representatives from the unions, toured development and production facilities and talked to engineers and staff on the shop floor which gave them a valuable insight into our activities.

"Industrial strategy, international collaboration and changing technology were amongst a number of important issues raised during a most interesting discussion period."



Bernard Mackle of Displays Division, centre, discussing head down displays with Royal College of Defence Studies students.

Giant Viper MLI nearing Prototype Trials

Following the award, last year, of a contract from Royal Ordnance for the supply of launchers for the Giant Viper Mid Life Improvement Programme, GEC-Marconi Avionics at Titchfield is preparing for the assembly and test of the first prototype launchers.

The contract covers a two year design and development programme and the supply of 139 war reserve systems for MoD.

A full programme of tests is scheduled to provide confi-

dence in the new system prior to the first firing trials scheduled for the end of June.

Giant Viper is a minefield countermeasure system which has been in service with the British Army since the 1950s. Its name derives from the 200 metre long hose, packed with high explosive, which is projected into a minefield by an assembly of rocket motors.

The current system is shown in the accompanying photograph, by courtesy of Royal Ordnance. The GV



The current Giant Viper System (By courtesy of Royal Ordnance).

hose is packed into the hose box which is mounted on a dedicated trailer. The rocket assembly is mounted on the trailer hornbeam to the rear of the hose box. A cable attached to the hose is secured to the rocket assembly prior to firing.

Current systems use parachutes on the trailing end of the hose to straighten it out in flight and to initiate the safety and arming fuse which ignites the hose charge. Up to two trailers can be deployed by a single Chieftain AVRE (Armoured Vehicle Royal Engineer).

The hose clears a patch across a minefield approximately 7 metres wide by 200 metres long.

The system was used very successfully during the Gulf War and performed extremely well, with US Forces being particularly impressed by its effectiveness. As a result a decision to update the current system was taken.

The objectives of the Mid Life Improvement programme include faster assembly time,

improved accuracy, reliability and safety, reduced training through simplification, and reduced overall height during transportation.

The GEC-Marconi designed launcher achieves major improvements over the existing fixed launcher in projection accuracy of the hose and by the facility for trainability in both elevation and lateral tilt to compensate for uneven ground. Sensors, supplied by Royal Ordnance and attached to the launcher, control the GEC-Marconi actuators which position the launcher to the optimum launch angle within 1°.

Further improvements include the replacement of the rocket assembly by a new rocket motor designed by Royal Ordnance, and the provision of an innovative tear webbing, designed by Cargo Equipment International, which replaces the parachutes.

Royal Ordnance believes there is excellent export potential for the MLI version in the Far East, Middle East and USA.

THERMAL IMAGING EQUIPMENT FOR FIREFIGHTERS



For the first time, thanks to Sensors Division's new uncooled thermal imaging sensors, firemen can operate more effectively in poor visibility.

GEC-Marconi Avionics Inc. has won from Cairns and Brother, a leading US supplier of firefighters' equipment, an order worth in excess of \$10m for the supply of several hundred advanced thermal imaging sensors. The New Jersey-based Company will integrate the sensor units and displays into firemen's helmets.

This export order from the United States represents a major breakthrough in the civil application of the Company's revolutionary thermal camera. The Cairns IRIS (Infra-Red Imaging System), will greatly assist firefighters in search and rescue missions and in the detection of the seat of a fire.

The camera was developed by Sensors Division at Basildon and the display optics by GEC-Marconi Avionics in Atlanta, Georgia. Deliveries will begin early next year and the new helmets will be supplied to major firefighting organisations throughout the USA.

Today's firefighting is far more demanding than ever before. Modern building materials emit very dense smoke from which the firefighter must be protected. Cairns and Brother has recently introduced breathing apparatus and voice communications into

its product range. Now, for the first time, thanks to Sensors Division's new uncooled thermal imaging sensor, firemen will be able to operate more effectively in poor visibility.

The equipment made its public debut at the Fire Department Instructors Conference in Cincinnati which started on 4th April 1993.

TECHNICAL NOTE

The uncooled infra-red staring array sensor uses a ceramic detector chip which is the result of more than ten years of research and development led by GEC-Marconi Materials Technology, Caswell. It is sensitive to thermal radiation in the 8 to 12 micron region of the electro-magnetic spectrum. The detector's ability to operate at normal ambient temperatures obviates the need for the cumbersome and expensive cryogenic cooling systems needed in conventional thermal imagers. The resulting light, compact sensor can be built into hand-held equipment, for example Sensors Division's new PYRO 2000 thermal camera or, as in this case, into the fireman's helmet. Inherently low power consumption allows the sensor to be operated for long periods from standard batteries.

AIRBORNE IN ARIZONA

The Company's technological expertise is currently under scrutiny in Arizona where field trials are in progress on a significant civil business initiative.

Last year, the Civil Business Directorate at Crewe Toll in Edinburgh secured an agreement with an American crop spraying consortium to remodel its traditional equipment.

The new crop spraying device was intended to cut down on 'spray drift' and to target sprays dispersed from an aircraft more effectively. The Company is working on the project in partnership with a local inventor, Maxwell Davidson, and Edinburgh University.

John Kaighin of the Civil Business Directorate said: "The sheet metal shop at Crewe Toll built a triple-headed crop sprayer which was shipped to the USA and gave a wider spray spread than expected."

"We have since manufactured another seven individual spray nozzles and these have been used in different

combinations on the crop spraying aircraft.

"The results have been good with a uniform spread of spray across the wingspan of the test aircraft and good dispersion of the chemical. Some aerodynamic adjustments are still needed and the University of Edinburgh is conducting experiments in its wind tunnel."

Displays Division engineers are also involved in the project, working to develop an infra-red sensor and display device which will enable the pilot of a crop-spraying aircraft to 'see' which part of a crop has been treated.

* Maxwell Davidson has also offered the Company an exclusive licence to manufacture equipment for his patented GERMINOX process. This subjects seeds to pure oxygen in a pre-germination treatment resulting in stronger growth and improved yields.

Tests have been carried out over several years and are currently taking place in Africa, the USA and Laos. First orders for equipment are confidently expected before the end of the year.



These crop spray nozzles are now in the USA undergoing field trials. The presence of Jimmy Main, of the Film and Video Unit, shows the scale of the equipment.

EXXON ZINC

The accompanying photograph shows the Exxon Zinc template during tow-out to the Gulf of Mexico prior to subsea installation at a depth of 1,500 ft and tying back to the Alabaster platform some 6 miles distant. The Oil & Gas Group's scope of supply includes control modules, electrical distribution and hydraulic distribution skid and associated protection assemblies. The final weight of the template will exceed 650 tonnes, of which 60 tonnes is the GEC-Marconi Oil & Gas Group controls equipment, the majority of which was designed, manufactured and tested at Nailsea.

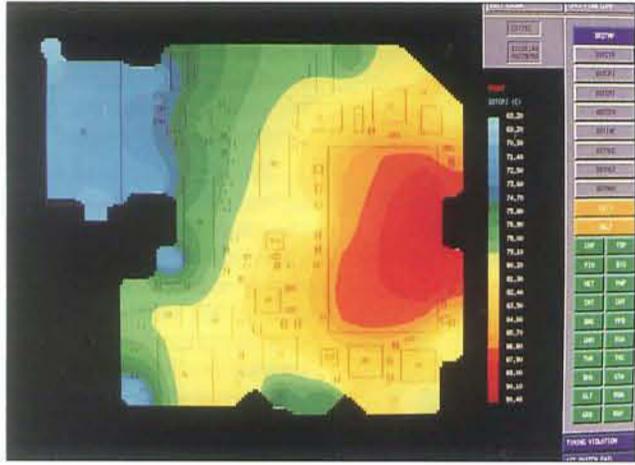
This template was installed in late December 1992 and is due to start producing gas in mid-1993.

(Photo courtesy of Exxon).



A close-up view of the GEC-Marconi Oil and Gas part of the template.

THE BIG HEAT



A computer-modelled prediction of the operating temperatures in a printed circuit board.

Without thermal engineers a simple printed circuit board would have its operational life cut, avionics boxes could overheat and radar systems would fail to function. Keith Davidson found out about the importance of thermal engineering to GEC-Marconi Avionics in Edinburgh.

Electrical and electronic equipment generate heat. The more equipment there is in an enclosed space, the hotter it is. The hotter it is, the shorter the equipment's operational life.

This is a basic, physical difficulty which applies to a number of areas in the Company's work and a good example is the modern practice of fitting more and more complex avionics systems into aircraft.

Radar Systems Division at Crewe Toll in Edinburgh has a Mechanical Engineering Group with 28 professional engineers divided into a number of specialist disciplines. Thermal Engineering is one of these disciplines and it is well versed in minimising temperature problems in radar components, boxes and entire systems.

Eric Ferguson, who heads the Group, said: "What we do is fundamental. Electrical energy creates heat. We ensure that this energy is dissipated effectively, so avoiding high temperatures."

"With the modern tendency for 'density' in components, heat is inevitable, so you could look on our job as a necessary evil to countermand the problems of packaging."

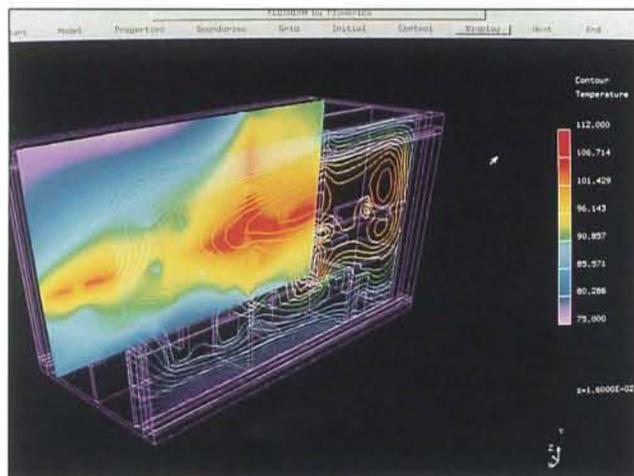
As this aspect of avionics design is of increasing importance, the Group's five thermal engineers have a vital role to play in

maintaining GEC-Marconi Avionics' product standards.

Printed Circuit Boards (PCBs) are the 'building blocks' of all avionics systems. A badly designed PCB can run much hotter than a well designed board and the excess temperature cuts its operating life. A PCB running at twice the temperature of its neighbour might have only a quarter or less of its neighbour's lifespan. This could create obvious operational problems for avionics boxes or even entire radar systems.

Considerations such as these mean that the Group must keep a careful watch on the thermal design of all the Division's products. As part of the Mechanical Engineering Group it works closely with electronic engineering and the drawing office. For example, a mandatory system ensures that thermal engineers screen all PCB designs before they go into production to ensure that the finished items are adequately cooled.

Eric said: "Our PCBs are surface-mounted, state-of-the-art technology. We analyse them to predict their operating temperatures in worst case conditions and identify the



A three-dimensional computer-modelled prediction of the operating temperatures in a dual in-line package switched mode power supply.

hottest components. Then we report the data to reliability engineers.

"The reliability engineers impose criteria on us and if we find something that exceeds a criterion, we modify the PCB."

A recent trend in avionics which produces similar problems to 'density' is the production of hybrid components. Eric said: "A hybrid is an amalgamation of various components in a smaller package produced for a specific project but with applications in other areas."

"Again, the density of components in smaller packages creates heat and because of the Company's activity in this area, we try to optimise the manufacture and structure of hybrids."

The equipment at the Group's disposal for thermal analysis is impressive. It includes an infra-red scanner which may be the only one in use in the Company as well as data logging facilities and a fluid flow thermal laboratory.

The infra-red scanner can produce full colour pictures of equipment under test conditions to show hot spots and critical areas. This allows the thermal engineers to make changes to equipment which will enhance its efficiency and extend its working life.

If necessary, an item such as a PCB or an entire avionics box can be placed in the flow test facility to see how it performs under working conditions. Everything from circuit boards to radars on projects as important as Blue Vixen and ECR 90 are subjected to the scrutiny of the thermal engineers. Eric added: "We are capable of taking on work for any Division in GEC-Marconi Avionics."



Aerosystems Course students and Company staff at Silverknowes, Edinburgh.

EDINBURGH HOSTS RAF EVENT

Edinburgh was the destination for a two-day visit from students on a Royal Air Force (RAF) Aerosystems Course recently.

The Number 25 General Duties Aerosystems Course is an RAF-sponsored training event which draws participants from all over the world.

Public Relations Executive Tim Orr said: "The students' visit to the Company's Edinburgh sites is an annual event. The Course provides an opportunity for detailed study of a range of aerospace and avionics matters."

"The students receive a full set of briefings from all the Edinburgh Divisions and we round off their visit with a dinner at Crewe Toll."

DAYS GONE BY

A recent visit to a radio repair shop by Alison Littleboy, Marketing Support Manager with Support Division in Edinburgh, revealed a treasure trove of 'bakelite beauties' and early GEC products.

The shop in Anstruther, Fife, also houses a museum of old radios and electronic artefacts. They have all been carefully restored and preserved by their owner, Joseph Urban, a radio enthusiast.

A boyhood fascination which began some 50 years ago developed into a full-time occupation for Joseph. The prominence of GEC's name in

the collection confirms the Company's important role in the early years of electronic communication which has continued up to the present day.

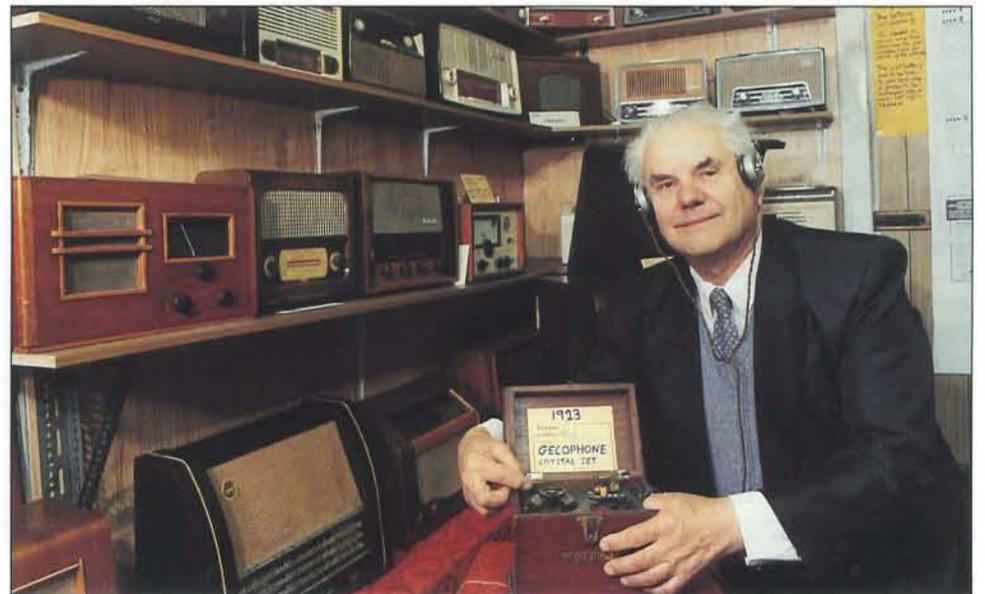
Through Joseph's enthusiasm, which has preserved the products of days gone by, a visit to his museum can enlighten and educate those who know little about the golden years of television and radio and the formative years of GEC.

In the museum a brochure, advertising an early GEC television set which cost £36 17s 5d, reveals some surprising selling points:

- efficient spot limiting and noise suppressor circuits prevent the programme being spoilt by interference from passing cars

- black and white pictures of exceptional brilliance which can be viewed in comfort under normal lighting.

The collection is a telling reminder of how far the industry has progressed in a relatively short time. Unfortunately, however, the future of this treasure trove of electronic heritage is uncertain as its upkeep is quite a burden. So if you want to see it, you better had go now!



Joseph Urban, in his museum, with an early GEC Radio (Crystal Set).

STEERING THE WAY

GEC-Marconi's Avionics Support Steering Group (ASSG) has been hard at work over the last few months providing a focus for avionics support requirements and opportunities within the UK armed services.

The ASSG was set up last year and its key terms of reference are the establishment of a bidding policy, the organisation of industrial teaming agreements, the supervision of specific proposal preparation

and the provision of timely information to senior management.

Its Chairman is Bill Rea of GEC-Marconi Avionics' Support Division. Bill, who is based at South Gyle in Edinburgh, said: "Good progress has been made in sharing market intelligence and in presenting a coherent interface to senior services and Ministry of Defence (MoD) staff.

"Within the current climate, the funding of traditional

avionics support activities is suffering severe cutbacks. The MoD recently launched a market test initiative which contains many new opportunities, but also many risks.

"Development of strategy and co-ordination of tactics is an essential task for the ASSG in order to maintain and expand the strong position of GEC-Marconi group companies in the provision of avionics equipment support to the armed forces."



GEC-Marconi's Avionics Support Steering Group. Chairman Bill Rea is fourth from the left.

A Professional Approach

Peter Ball, Engineering and Quality Manager with Support Division's Test Systems Department, has been appointed Chairman of the Association of Professional Institutes in Fife.

The API is an umbrella organisation for professional institutes and in Fife its members include the Institute of Management, the Chartered Institute of Marketing, the Institution of Electrical Engineers and the Institute of Physics.

Peter's principal activities are monthly Committee Meetings, representing the API at member Institutes' functions and the organisation of the annual API Convention which attracts more than 200 participants from local commerce and industry.

He said: "I see a high-profile role for the API being supportive of member institutes. Cross-fertilisation of ideas from joint meetings and mutual support are vital to ensure that professional institutes reflect the needs of the communities they serve".

Peter, who is also responsible for staff training and development at Test Systems, added: "I am keen to encourage the professional development of all staff and not just the engineers whose interests are fairly well catered for at present.

"If individual personal professional career aspirations are met, ultimately the Company

will also benefit. It is therefore important that the Company continues to have an active voice in the professional institutes at all levels".

Peter is also a member of the Institute of Physics Industry Committee and is the industry representative of the Scottish branch of that Institute. He has a keen interest in the professional development of physicists in industry.

He said: "The perception of physicists is changing rapidly in that they have been traditionally seen as working in academia. In reality, the majority are employed in industry and in a multitude of different job functions. This must be recognised if the Institute is to serve its members".

Support Division's Test Systems Department is based at the Donibristle Industrial Park, near Dunfermline in Fife.

The Association of Professional Institutes aims to:

- * be a focal point for its member Institutes
- * advance their professional standing
- * increase management knowledge
- * improve relations between Institutes
- * create a forum for discussion
- * improve the Institutes' representative role.

If you would like to find out more about the API, contact Peter Ball at Test Systems on Extension 3085 (G-net +471).

TESTING THE HARRIER

Support Division's Test Systems Department, which is based near Dunfermline, has won a contract worth more than £1 million to supply the RAF with second-line automatic test equipment (ATE).

The ATE will be used to support the Company's FIN 1075 inertial navigation system which is fitted to the Harrier GR7 aircraft.

Project Manager Peter Armstrong said: "The order is a reflection of the Ministry of Defence's continuing commitment to Avionics Systems Testers (ASTs) as the solution for its present and future needs.

"It brings the number of AST-based ATEs on order, or in service throughout the world, to more than 40. We expect to start supplying this particular ATE to the customer next year".

'Second-line' means that the equipment comes into play at the first workshop level of testing rather than when the aircraft is on the runway. The order follows on from a development task carried out by the AST post-design services team under Ken Irwin at Test Systems.

The FIN 1075 inertial navigation system was produced by Navigation and Electro-Optic Systems Division at Silverknowes in Edinburgh.



Test Systems has provided test equipment for the Sea Dart missile since 1972.

"The performance of the missile is being improved so there is a requirement for new test methods and equipment.

"This is the last in a series of test equipment enhancements related to improvements on the missile. Our involvement with the project has been long-standing as we have been providing Sea Dart test equipment since 1972."

Development of the new equipment should be completed later this year with delivery to the MoD expected early in 1994.

GOING UNDERGROUND

Winning non-military business remains an important goal for the Company and Test Systems played its part recently by landing a small but important civil contract.

Sam McVicker said: "We have won an order from London Underground following an earlier contract to supply test equipment for the on-board radio systems on its trains.

"We have provided this equipment for them in the past and now they have asked for enhancements and improvements for a greater range of test capabilities and to test a new radio.

"A demonstration of the enhancements has taken place and we hope that it will lead to more business. I can see further opportunities in communications test in transportation and we will take advantage of all opportunities to advance our business in this area."

Test Systems Hits The Target

Support Division's Test Systems Department at Donibristle has recently been successful in winning contracts which will support vital UK defence equipment. It has also made an encouraging step forward in the field of civil business.

STINGRAY

Test Systems has secured a post-design services contract likely to be worth more than £1 million over the next three years for the Stingray torpedo project.

The business was awarded to the Company

by the prime contractor, Marconi Underwater Systems Limited (MUSL), the end customer being the Ministry of Defence (MoD). Project Manager Dick Freeborn said: "This demonstrates our continuing ability to provide cost effective post-design services for this equipment."

SEA DART

Test Systems has also won a contract worth approximately £300,000 for test equipment related to the MoD's Sea Dart enhancement programme.

Customer Services Manager Sam McVicker said:

Basildon's Aspheric Turning Machine

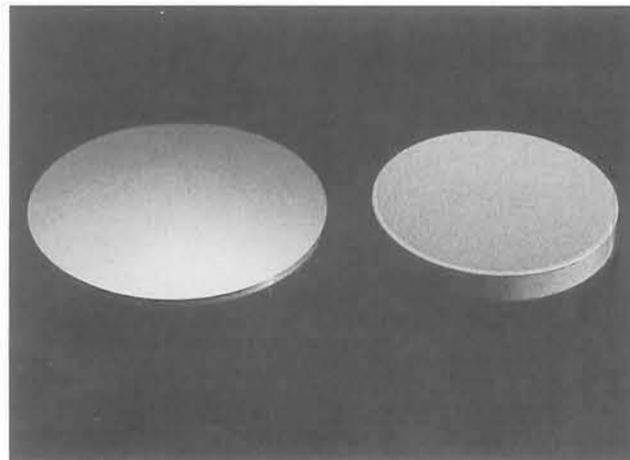
Sensors Division has recently invested in an ASG 2500 air bearing machine, for the single point diamond turning process used in the manufacture of infra-red optics.

This "In House" process will, for the first time, allow GEC-Marconi Avionics to manufacture aspheric optical surfaces. The use of aspherics reduces the number of lens elements in an optical system, allowing designs to be lighter and more compact, an example being the thermal telescope update of the GWS Sea Wolf System.

The machine underwent protocol checks in October, to verify its manufactured specifications. In November it was

installed in 'C' Building at Basildon, on a pre-constructed anti-vibration base. After its successful commis-

sioning, operator training commenced on component programming and machine use.



High quality aspheric lenses are now being produced on an ASG 2500 machine at Basildon.

TRAINING PAYS OFF

Management training in the Company continues to gather pace with the award of National Vocational Qualifications (NVQs) to three staff in Support Division.

Bob Spilsted and Norman Middleton, who work within Support's Test Systems Department near Dunfermline, and Bob Bryce who is based at the Support site in South Gyle, Edinburgh, undertook four months of study in their own time to achieve NVQ Management Level Five.

Bob Spilsted, Training Manager within Test Systems Department, said: "Our NVQs were awarded by the Institute of Management which is the foremost Institute of its kind in the UK. The qualification is the Manage-

ment Charter Initiative (MCI) Diploma in Management Studies."

The MCI is the industry head body for management standards throughout the UK. Other staff at Test Systems are studying for the MCI Certificate and MCI Supervisory Certificate.

Bob said: "The qualification was acquired through Accreditation by Prior Learning, or APL. The concept is that the skills have to be demonstrated in a work environment. We had to generate a portfolio of work and show that we had been involved in tasks such as setting up a budget, training and running meetings."

The NVQ Management Level Five is currently the top

vocational qualification of its kind. Bob said: "We will go on and do a higher level, equivalent to an MBA degree, when the courses are available. For the Company, initiatives such as these ensure that the skills of its staff are up-to-date and valid. It also raises our qualifications base."

Other staff are in the process of compiling their NVQ Management Level Five portfolios, thus Test Systems should have further training successes to celebrate in the near future.

* Time management was the focus of another Test Systems training initiative recently when 48 managers and senior secretaries were asked to consider how they could better organise their work.

Bob Spilsted said: "Last year we put 20 managers through the Course and this year we are concentrating on the next layer down. The response has been very enthusiastic and the most obvious benefit is that people are more aware of time wasting activities and focused time."

Glittering prizes. From left: Norman Middleton, Bob Spilsted and Bob Bryce collect their diplomas.



Controller Aircraft Visits GMAv

Mr Donald Spiers CB, Controller Aircraft in the Ministry of Defence, London, visited Rochester on 19 March 1993. After being welcomed by Derek Dickinson and Brian Tucker he was briefed on the structure of GEC-Marconi Avionics and given short presentations on the product range of the new Company. Mr Spiers was particularly keen to be updated on the progress of the 21 various equipments that GMAv is

developing for the Eurofighter 2000 and also the items which are in development for the proposed Tornado Mid Life Update.

Before leaving Rochester Mr Spiers took the opportunity to view some of the practical activities on the site.

Mr Spiers said that the visit and discussions were, "Enjoyable, very useful and worthwhile."

THE RAF's ROYAL REVIEW

Two members (one past and one current) of GEC-Marconi Avionics, Sensors Division, were present at RAF Marham for the Review of the Royal Air Force by HM The Queen on 1st April, to celebrate the seventy fifth anniversary of the formation of the Service.

Eugene Borysiuk, who recently retired as Quality Assurance Executive at the Basildon site, and Trevor Roberts, a Technical Author with the Airradio Group, were both invited guests. 'Boris' served in the RAF, initially as an apprentice at Halton, and Trevor has just retired as a Squadron Leader in the RAFVR(T).

The occasion, a family day for the Service in the truest sense with a thousand RAF personnel and guests in attendance, was highly organised in keeping with RAF tradition. However, the one oversight was the unexpected appalling weather which literally washed-out all outdoor events

including the largest flypast since the Coronation. As a consequence, the formal parade at which the Queen presented a new Colour to the Service was held in a hangar and precluded many of those present, who had to be content seeing the event on closed circuit television. However, an excellent three-course lunch, with wine, was served to all attending which offset the effects of the weather.

Although a Royal Walkabout was not possible, The Queen and her entourage travelled around the base in cars so as to visit the static displays and meet as many people as possible.

The RAF intends to include the cancelled flypast in the Air Display to be held at RAF Faringdon this summer and it is hoped that the Clerk of the Weather will be in better mood on this occasion!

GEC EXPEDITION TO NEPAL

The accompanying photograph shows Edinburgh employees Colin Munro and Graeme Douglas at the summit of Imja Tse, on the GEC sponsored Nepal expedition. Full story in the next edition of 'VISION'.



KEEPING IN TOUCH

Radar Systems Division's marketing staff were in Abu Dhabi, United Arab Emirates, recently at IDEX 93 (International Defence Exhibition 1993).

Sales Executive Richard Potter said: "One of the important reasons for attending the Exhibition was to maintain contact with a potential customer. We hope this will lead to a sale for Seaspray 3000 radars this year. We have other leads to follow up having made a number of useful contacts."

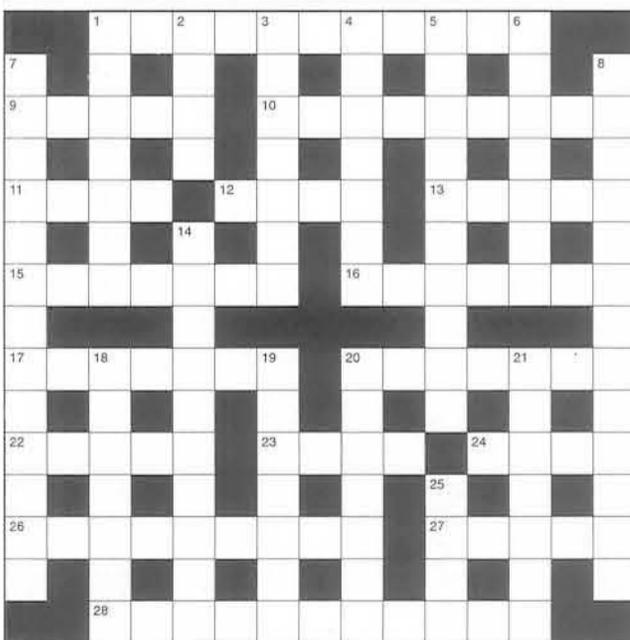
"IDEX 93 was well attended by UK companies and should establish itself as a regular event in the Middle East exhibition calendar."

Richard was thankful that IDEX 93 took place during a Gulf winter. He said: "The temperature was only 30 degrees Centigrade. The last time we went to the Dubai Defence Exhibition it was hotter!"

(Answers - next issue)

Contributions of Crosswords will be welcomed.

Crossword No. 1 (For amusement only)



ACROSS

1. A haggard pretender to the throne (4-2-5)
9. Film award (5)
10. Strings plucked (9)
11. Little drinks (4)
12. Sense by touch (4)
13. Make hot and dry (5)
15. You're a sucker, with lots of arms (7)
16. A trier (7)
17. Frilly skirt (7)
20. End call - or marriage ! (4-3)
22. Old magistrate (5)
23. His Holiness (4)

24. Bird of prey on a string (4)
26. Little bits of electricity (9)
27. Tearful bell-ringer (5)
28. I'm at the head of the queue (5-6)

DOWN

1. Top prize in lottery (7)
2. Airport near Titchfield (4)
3. To show injustice (7)
4. Small antelope (7)
5. Not at all impressive (10)
6. The parlour-maid used to carry it (3-4)
7. Not reassuring us at all really (4-9)

8. Did dad find her in an oyster ? (6-2-5)
14. Take out of the envelope - but who's it to ? (4-6)
18. Me again, or you (7)
19. Take advantage by a heroic deed (7)
20. Make a back fence (7)
21. We all have one on something (7)
25. People who arbitrate (4)



Prime Minister John Major presents Dr Vance Coffman (Exec. VP Lockheed Corp'n) with the 5,000th F-16 HUD.

"In what the Chairman had to say a few moments ago, there was one phrase which leapt out of his remarks to those of us who are concerned about the people of British industry and its manufacturing. 'GEC (Marconi) Avionics has sold more Head Up Display Units than any other Company in the world'. I think that's a point worth savouring, worth contemplating."

With the presentation HUD on the table - it was far too heavy to be ceremoniously lifted - John Major formally presented the unit to the Lockheed Corporation.

Dr Vance Coffman then completed the speeches. Accepting the 5,000th Display, "with great pride", he underlined that the HUD is a symbol of the long and prosperous relationship between GMAv and the Lockheed Fort Worth Company. "The Lockheed Corporation", he said, "is particularly pleased

with its relationship with GEC-Marconi Avionics, whose dedication and technical expertise have earned respect and appreciation." He concluded by thanking the Prime Minister for participating in the special event and helping Lockheed mark a milestone in its long tradition of mutually rewarding business relationships in the UK.

Sir Geoffrey Pattie then presented the Prime Minister and Dr Coffman each with a commemorative crystal HUD to mark the occasion.

Impromptu News Conference Given

On leaving the Conference Room John Major again met with Company employees who had been waiting patiently for a brief glimpse of the Premier. Here the Prime Minister also gave an impromptu news conference at which he again described GEC-Marconi Avionics as a



Keith Reid (in Simulator cockpit) demonstrates advanced helicopter technology.

world leader. To a BBC Radio Kent Reporter he said, "It is the best products that can be most effectively and efficiently produced that are the leading edge of technology, that take the market and create jobs. This is what GEC is doing, they have produced more Head Up Displays than anyone else in the world, easily. They've done it because of the quality of the product, that's very encouraging for sustaining existing jobs and, in time, creating more jobs. Now that, it seems to me, is what the best of British industry is now doing. Certainly that's true, as we see here."

Thus the Prime Minister's visit, which had lasted for an hour, reached its end. He left to carry out further engagements around Kent.

TEMPEST FOR ITALY

Support Division's Test Systems Department has won an order worth more than £100,000 from an Italian customer for a Tempest Test Receiver (TTR).

TTR is a spectrum analyser-based receiver used in checking the information content of signals and the Company is the only British manufacturer with UK National Tempest Authority approval.

Test Systems has supplied a number of TTRs to overseas customers. Product Sales Executive Steve Jaynes said: "We have other TTR system orders in the pipeline, in Europe and the Far East, and we hope that this contract will lead to further business in Italy."



Meeting John Major is something these people will always remember.

D1-9000 Approval for Titchfield

The Power Systems Division at Titchfield has achieved Boeing Advanced Quality System D1-9000 Approval which is a prerequisite for suppliers to the Boeing 777 aircraft.

The D1-9000 document is becoming a recognised practical standard for quality throughout the Aerospace industry worldwide and has gradually accumulated a following outside of this sphere. The standard does not introduce any new aspects of quality control, what it does is to lay out, in an understandable way, means of monitoring and improving the process.

The accompanying photograph shows John Brian, Divisional Managing Director, receiving the award from (right) Larry Watson of the Boeing office in London, accompanied by Stan Nicholson, Product Assurance Executive.



10 DOWNING STREET
LONDON SW1A 2AA

30 March 1993

THE PRIME MINISTER

Dear Mr. Dickson,

Thank you for allowing me to make such a fascinating visit to your company last Friday. It is so encouraging to see how the company is competing so successfully, despite the evident difficulties of the sector.

I was particularly struck by the very warm welcome I received from your staff, which made for a lovely start to the day.

I shall treasure the crystal head-up display as a striking reminder of my visit. Finally I should be grateful if you could pass on my thanks to all those involved in the arrangements for my visit.

*Yours sincerely
John Major*

Derek Dickinson Esq

**GEORGE'S TWENTY-ONE
'Wonderful Years'**

Every Kidney Transplant is a Gift of Life

George Graham has celebrated and given thanks for 21 years of life - at the age of 46.

When he joined the Company in 1969, George was undergoing Kidney dialysis found necessary following his collapse in an Old Anchorians rugby match, where he was a very useful prop forward. The 3-day weeks he was able to work ended when, in 1972, he underwent one of the first Kidney transplants in the early days of the treatment. After his remarkable recovery George became a stalwart of ADD, apart from 5 years in ATED. He is now a Project Controller.

One of the secrets of George's continued well-being since the major surgery has been the years of expert care by his wife Sandra. She was a ward sister at the London Hospital where he went for the months on the Kidney machine and his transplant. Following their marriage, which had already been arranged before the operation, his now teen-age daughters Fiona and Alison were born.

For the gift of these 21 years, George arranged a thanksgiving service at his local church, attended by many of the people who have cared for him including the renal consultant - and a Surrey man who was in the next bed and had his own successful transplant weeks later. "The doctors modestly describe me as a good statistic", said



George and Sandra Graham. (Photo courtesy of Kent Messenger Group).

George, "and they and Sandra and all involved have my heartfelt thanks. So have the unknown family whose generosity enabled me to receive this gift of life from the accidental death of their daughter".

The recent campaign for more people to carry Donor Cards, highlighted by Health Secretary Virginia Bottomley on TV and elsewhere, has again raised our awareness of the need. You can obtain a Donor Card from any of the Company's Surgeries.

GEC Avionics Club AGM

At the February AGM, the Committee Members were elected and the Management Committee now comprises:

- Chairman: John Bradley, Director of Personnel
- Vice Chairman: Keith Jones, Site Security (elected by new Committee)
- Members: Rod Cole, CQD
Hughie McArthur, Training
Cyril Moffett, CACG
Terry Oxenham, BP
Tony Oxenham, GDG
David Peachey, Accounts
Jim Troy, CACG
Dave Tudor, Fisher Controls
Brian Rogers, Personnel (co-opted)

- Appointed Members:
- Treasurer: Mark Perry, Accounts
- Assistant Treasurer: Valerie Squires, Accounts
- Secretary: Peter Bird, Hoo Clubhouse, Medway 251492 (Short Code 6009)

REMINDER

The Management Committee has decided to extend full membership to include direct relatives of Social Club Members, (brothers, sisters, parents, children), enabling them to use all facilities in their own right.

Recommendations should be sent in writing to Peter Bird at the Clubhouse, who will advise on subscription arrangements.

**COPY DATE FOR
NEXT ISSUE
28TH MAY**

**THE
STAMP OF
SUCCESS**

On a weekend in early March, Geoff Barling of GDG, currently seconded to the Attack Helicopter Group, was awarded a large medal by the French Post Office, one of only two of this top award to be given. This was at a philatelic exhibition in Valenciennes, France, the twin town of Chatham, where Geoff was representing the Medway Towns Philatelic Society at the annual French "Stamp Day" event.

Geoff's exhibit, called "The Serbs, Croats and Others - an Overview of the Postal History of Yugoslavia" covering the period 1838 to 1992, was described by the Judges to the Mayor of Valenciennes and to the Manager of the Post Office of the Department du Nord of France as - "An exceptional collection with many historic documents included".

Geoff Barling with his Medal.



**FAMILY
SPORTS
DAY
1993**

*Have you put
SUNDAY 11th JULY
in this year's Diary?*

The format of this year's tournament is still to be finalised; details will be published on notice boards and through Administration Officers as they become available. So keep training!



FORE!

Peter Warburton, Membership Secretary of the GEC Avionics Golf Society, says that new members will be most welcome for the season now starting. Contact him on Ext. 4404, or see your divisional representative:

- Alix McSweeney (ISG), Neil Baker (MASG), Paul Haigh (FCG/CACG), Steve Uwins (SD), Craig Watts (CMS), Michael Broome (GMV), Fred Nye (GDG), Mick Thorburn (WES).

This year, five outings have been arranged to courses throughout Kent.

HELP THE REFUGEES

*IN A RECESSION,
WHY BUY A BIGGER WARDROBE?
INSTEAD, GIVE YOUR UNWANTED CLOTHES/
SHOES/BOOTS TO:*

- BOSNIAN/CROATIAN REFUGEES
- ALL SIZES NEEDED FOR CHILDREN
AND ADULTS

*IN PLASTIC BAGS PLEASE
CONTACT: GEOFF BARLING
ATTACK HELICOPTER GROUP EXT. 4568.*

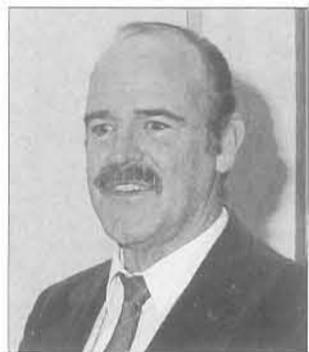
**'TOPIC' Prize comes
to Rochester**

Dave Simon, Production Technician in Test Department, Displays Division has won the big prize in GEC's Newspaper "Topic" for the 1992 Quiz of the Year. As this is written, Dave hasn't yet heard the exact arrangements for his prize, but it will consist of a continental trip based on a Scandinavian Seaways crossing from Harwich.

Dave had to answer 40 general knowledge questions on sporting events, films and so on for 1992. "Not all easy" he said "but I was fairly sure I was right". All he had to do then was make sure his entry was drawn from the hat.

25 Years Service

Three of Support Division's Quality Technicians have received their 25-years Awards.



Ray Porter has been in the Division all his time; he has worked on a great many projects and for 20 years was on night shift.



Bob Halliday's career progression to Chief Designer has followed the evolution of HUDs since their infancy, when he joined as a design draughtsman. His contributions to all the Division's major contracts give him some special memories. He certainly won't forget his visits to Egypt where snakes and sand were to be found in the aircraft, and where the airbase accommodation headed the minus-five-star category!



Cliff Carter, Fitter/Technician, first joined MACD but moved through FID, FCD and ISD until he settled in 1972 in IND and has followed through the re-namings up to GDD - and beyond.



Terry Jull, also a full-timer, has looked after Tornado equipment for the last 10 years, and before that was on Fuel Flow meters, Jaguar and 747 projects.



Dave Silsby has been in ISD and its predecessors for all of his 25 years, except for just nine months in MCD where he was Technical Manager last year. Over the years he has been TA and Engineer, becoming Design Manager on SCADC and Technical Manager in ISD. He has now returned as Business Manager, following integration of the two Divisions, and the formation of Flight Systems Division.



Ian Newton, Consultant Engineer in FCG (Flight Systems), joined the Company as a digital electronics specialist. Starting with the Concorde autopilot, he has since worked on the Jaguar fly-by-wire aircraft, Airbuses, Canadair RJ and the Boeing 737/777 projects. He has been Consultant for about ten years.



'**Veera**' **Veerappan** started with TACD/FCD, but since 1971 has been in PSD, becoming an expert on BAC1-11 and VC-10 autopilot computers.



Joyce Allison, Leading Hand Production Operative in GSD (Displays Division), has been employed in the semi-skilled wiring areas, firstly in TACD but since 1972 in IND. Early next year she will be retiring.



Ernie Smith first worked on A-7 HUDs, was promoted to Test Technician and, after transferring to IND, became Test Foreman. Later moves were to CACD as Production Foreman, to ISD as Assistant and then Chief of Test. In 1988 Ernie moved to CACD again, in Engineering, where he is now Project Administration Officer. He still hopes his Bowls will be good enough to join the Division's bowling group.

SOLUTION TO CROSSWORD NO. 112

ACROSS 1 Tutankhamun, 9 Snow, 10 Apple, 11 Beak, 12 Pinnacle, 13 Kinross, 15 Pele, 17 Iris, 18 Larch, 21 Stall, 23 Sty, 24 Acme, 27 Concord, 29 Zealand, 32 Tarn, 33 Virgo, 34 Sild, 35 Montgolfier.

DOWN 2 Unwin, 3 Anarchic, 4 Kepi, 5 Adelie, 6 Umber, 7 Endive, 8 Parsec, 14 Pinto, 16 Eil, 19 Aga, 20 Werewolf, 22 Thorax, 25 Manila, 26 Cravat, 28 Canto, 30 Lisle, 31 Brio.



David Salvage, now one of the Engineering Managers on the Boeing 777 contract in Flight Systems Division, has worked on most of the Division's big projects, starting with Concorde and through the Airbuses, Jaguar FBW and Phoenix developments. David led the 4-man team which won the Haskett Trophy ten years ago, for the Dissimilar Software principle used in the successful Airbus slat-and-flap computer.



Brian Smith says he has moved around within the Company more than most. In the early C-5A days when an air data computer was full of cogs and springs, he moved with his family to the Atlanta office - ten strong at the end of the 60s. Returning in 1972, he

has since worked in ADD, ISD, and FCD, on a number of USA programmes and more recently on Phoenix; now Brian is Assistant QA Manager in FCD (Flight Systems). He still remembers 'hardships' such as an 87 hour week on F-16 HUDs and the rigours of Phoenix night deployment trials, as well as his luxury cruise liner return from the US with his family.



Jeff Bishop, originally in TACD as Inspector, moved to IND/GSD inspecting test equipment in 1971. Since August 1990 Jeff has been an Electrician in Works Engineering.



Paul Keane, CMS Production Technician was, until two years ago, a Fitter in IND/GSD Production. Now he is in the 'Short Batch' Model Shop area.

Mike Farahar, Project Leader in Support Division Production, has been in the Division since he started as Instrument Technician. Working at various times in the Clean Room and as a Leading Hand, he also served as Shop Steward. Since 1978 he has been in Production Projects, and has not neglected his many sporting interests, indoor and outdoor. In this picture a younger-looking Mike (l) shares a cup he won in '78 at Euchre with Denis Brown, a draughtsman who left for another part of GEC ten years ago. One of a great many trophies won over the years.



Retirements

Peter Daniell has retired as QA Manager in FCD after fifteen years at Rochester, which followed his career in the RAF Engineering Branch. Peter initially worked in Marketing, contributing to many successful proposals, and when the recent FCD was formed he became a valuable member of the team which pioneered new markets in Remotely Piloted Vehicles and processor based safety critical systems for civil aircraft. Now Peter will keep up his interests in engineering and in sport - he still outlasts men a third of his age at his weekly circuit training.

Ken Billing first joined the Company in 1960 and spent thirteen years in IND Cost Office. Later in 1975 he rejoined AS&RD, as Cost and Budget Officer, and for the last 5 years Ken has been Administration Officer. We are sure he will keep up his gardening. His wife Ann is Secretary to Director of Systems Engineering Bob Wilkinson.

Gordon Austin has been Spares Compiler with the same Tech Pubs Section for nearly 32 years, in IND/GSD/GDD. His expertise further extends to natural history and a great interest in antiques.

Frank Eastwick, Consultant Design Engineer in CACD, was engaged on the mechanical engineering aspects of our systems. Nearly 30 years in the 'control' Divisions, from early auto-throttle projects onwards, have recently culminated in his work on our current range of Pilot's Control Stick designs for military aircraft.

'**Babs**' **Elmore**, Cleaner in WES since 1971, will be much missed from her recent fund raising activities, for the Scanner Appeal. It has been unusual to see a Leading Hand Cleaner dressed as a punk selling raffle tickets at Christmas - but it was she!

Eric Frow, with almost 25 years at Rochester, was firstly in ATED as Technical Clerk, but for nearly 12 years has

been in MASD, lately as Senior QA Engineer.

'**Bob**' **Payne**, Leading Hand Test Technician in IND/GSD/GDD, has become well known and appreciated over his 21 years for his particular attention to apprentices and their training, where his knowledge and patience have been of great value.

Site Co-ordinator

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Displays Division (Rochester)
Joe Cardwell, GDG

Flight Systems Division
Hannah Everett, MASG
Sid Golding, FCG/CACG
Phyllis Ellis, CMS

Barry Wallington, Hopewell
Drive

Tim Summerton, Nailsea
Lynne Bates, Atlanta USA

40 Years Service

Len Wigley, originally joining Elliott Bros in London as Cost Accountant Trainee, rose by 1965 to the post of Group Cost Accountant. At Rochester, Len was appointed Chief Accountant and has retained that title through all the Company's name changes including the most recent. At the end of the 80s Len spent some time in the USA with Lear Astronics.