



MOTTO FOR THE MONTH

"Think wrongly, if you please, but in all cases think for yourself"



Marconi Avionics gets British Standards approval for microcircuit manufacture

Thick film hybrids now available to BS9450

Marconi Avionics Limited has now received full BSI approval to design, manufacture and test thick film hybrid microcircuits. As well as being a major user itself, the Company also supplies thick film hybrids to other customers.

The Company's Thick Film Department at Radlett, England, is among the comparatively small number of approved suppliers in the United Kingdom who can deliver a wide range of microelectronic circuits to BS9450 specification. The wide-ranging applications for such hybrids include all kinds of capital electronics, where specialised circuits have to be realised in very compact form and with high reliability.

As well as its obvious significance for the business of Marconi Avionics, this new achievement is particularly important also for other members of Britain's General Electric Company, who, like Marconi Avionics, have to offer home and export customers second sources of supply for the components they use, including custom-built hybrids. With Marconi Electronic Devices Limited, Lincoln, England, also holding approval, any GEC company can now offer such dual-source facilities from within the group.

The BS9450 specification assures users of an assessed standard in the design and manufacturing

process, together with rigorous quality controls, which are subject to regular audit by the National Supervising Inspectorate on behalf of the BSI.

Packaging techniques covered by this approval include leadless, ceramic, "chip-carrier" assemblies, seam-welded and epoxy-sealed ceramic packages, containing CMOS and bipolar elements, power transistors and other, more usual, active and passive devices.

Among currently manufactured products are a range of active filters, switched filters, amplifiers, control circuits for servomechanisms, and a wide range of custom-made hybrids, for important defence systems. These include the new LANTIRN head up display under development for the United States Air Force, the Airborne Interception Radar for Royal Air Force Tornado fighters, the COMPACT ALPHA automatic test equipment and sonar signal processing systems for the Royal Navy.

The establishment of the Thick Film Department in 1977 was part of a long term investment by Marconi Avionics in new plant and facilities, to increase the Company's competitiveness in world markets. Since that time, the Company has substantially increased its share of the avionics market.

New Airport Control Tower



The completed Control Room, showing the Airfield.

A new shape has soared into the skyline at the airfield, in the building behind the Hangar—a new Control Tower, to replace the one destroyed some time ago by fire has now been erected. This will be to the advantage of the users of the Company Aircraft, Air Taxis and Flying School Students.

The structure, made of Brazilian Mahogany gives an all round unrestricted view, and is fitted with non glare glass. The size 15ft x 13ft at the base, and 19ft x 17ft at the top gives trouble free vision in bad weather.



Exterior view

The makers—

Dave Holder and Sam Eldridge.

Designed in house, by the teamwork of Don Fraeman and Paul Johnson, it was made and erected by Sam Eldridge and Dave Holder, under the direction of Cyril Cawley, Works Engineering Foreman. The base structure was built by outside building contractors, while the Control Room Unit was the work of the carpenters. It almost had to be done in situ, but eventually the unit was prefabricated in the vacant Hangar One, and then reassembled on site.

MORE SUCCESSES

Jayne Wood, a Senior Software Engineer of Airborne Display Division, is pictured receiving her award from H.R.H. The Duke of Kent on 14th December 1982, as runner up in The Girl Technician Engineer of the Year Award.

The award, sponsored jointly by the Caroline Haslett Memorial Trust and the Institution of Electrical and Electronics Incorporated Engineers, is made each year to girls who have not only gained academic qualifications and completed their training, but are successfully holding responsible jobs and have gained professional experience as electrical or electronics Technician Engineers.

Jayne, who is now 24, joined the Company as a Trainee Computer Programmer in 1976. She is in charge of 13 staff, predominantly male university graduates. Her duties include: management and analysis for several airborne application software projects; assessment and provision of testing facilities for operational software; design of future and advanced systems; procurement of software support tools and organisation of in-house software training.

Our congratulations go to Jayne for her achievement and our best wishes for her future career.



www.rochesteravionicsarchives.co.uk

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 Other are required for: COD, RAS, CMS

Volunteers should offer their services through Divisional Administration Officers or direct to the Editor

Acknowledgement

We have received the letter below from the Medway Society for Mentally Handicapped Children, expressing thanks for the Annual Mentally Handicapped Party.

Dear Sirs
 May I, on behalf of the above Society thank you most sincerely for all help that you gave to our Children and Adults Party which was held at Marconi Bros works carislen on Saturday 29th January.
 I am sure you will agree with me that they all had a wonderful time, and it is all thanks to the willing band of helpers that you had. May I take this opportunity of wishing you all a very Happy New Year.

Yours sincerely,

 Joan Mitchell

Apology

The Editor apologises for the omission of clue 17 down in Crossword no. 48. As it was spotted when the papers were being distributed, certain "crossword solvers" were advised of the omission. However, all did not get the message, and one has penned the following.

"Cry from the clueless"

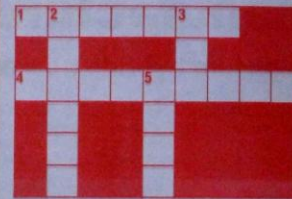
"O Puzzle Compiler, tho' you do your best
 And your jobs not easy, so I'll not jest,
 But try to give us all the clues
 In the next edition of MAV News
 Us poor readers off sit and stare
 Looking for answers that are not there
 When nine across or sixteen down
 Are quite left out, it makes us frown
 The puzzles are hard, for some poor thinkers —
 Without your help, they're really stinkers
 If it happens again, this day you'll rue
 Here's what will happen, I'll give You a clue"

ACROSS

1. For an extra penny, establish the end of the needle.
4. Argue about this puzzle.

DOWN

2. For each child, not daughters!
3. Know less a thousand.
5. Imminently, etc.



Puzzled Dave ADD

Editors Note! Please, Please, do not be too harsh. Like the pianist - he does his best. But thank you, for your interest, and the implied message that you enjoy the challenge of the puzzle.

FOR SALE

FERROGRAPH TAPE RECORDER
 Series 7, model 724D. Four track mono/stereo, Dolby B, built-in power amps, 'portable'. Semi-professional specification. With handbook and 25 reels 7" DP tape. Very good condition
£300 ono

VOLKSWAGEN CAMPER VAN
 (Air cooled) 1600cc 1973(L)
Cooker, Sink Unit, Cupboards etc.
£1200 MOT to Nov'83

Contact: Geoff Gosling, int 2684
 or Meday 724508

Congratulations

Wedding

Tony Kybert to Helen Duffy on 5th February 1983 at RC Church in Horley, Surrey.
 Tony, who hails from Surrey is a Planner in CACD, while his bride Helen is at present between jobs. Friends and Colleagues subscribed for a Clock, to mark the marriage, which was presented by Mr. S. Wells Production Manager CACD

Engagements

David Freeman a Contracts Officer in PSD became engaged to be married on 22nd January to Wendy White, who is employed at Anchorage House, Tax Office, Chatham.

MASD personnel send their congratulations and Best Wishes to John Hollands and Alison Ward on their engagement.

John the Divisional Cost and Budget Officer while Alison is a Confidential Secretary in Contracts Dept.

Members of ATE offer their sincere congratulations to Andy Nicholson, a Development Engineer, on his engagement to Joyce Towers, a Nurse who works in Sunderland General Hospital.

Birth

Mrs Wendy Pennell (nee Blackman) late of AS&RD Cost and Budget, gave birth to a daughter Carol Ann Wendy on Wednesday 29th December 1982 at a weight of 7lb 12 1/2ozs. A niece for Ian, ADD Purchasing and granddaughter for Derek FCD Q.A.

The Bitter End

He grabbed me by my slender neck,
 I could not call or scream,
 He dragged me in his dingy room,
 Where we could not be seen.

He stripped away my flimsy wrap
 and looked upon my form,
 I was so cold, damp and scared,
 While he was hot and warm.

He pressed his feverish lips to mine,
 I could not make him stop,
 He drained me of my very self,
 I gave him every drop.

He made me what I am today,
 That's why you see me here,
 An empty bottle thrown away
 That once was full of beer.



SISTER, WE'RE BRINGING ANOTHER ONE DOWN
 SUFFERING FROM ASPICON EYE-BALLS,
 AND COMPUTER CRAMP

CASTAWAY

Our victim this month, to experience the loneliness of being "Castaway" is Andy Edmonds a Tester within CACD.
 Andy is well known, as the "tuck-shop" man, and as an ex-company apprentice. He had a spell in South Africa from 1971-1972 when he joined AS&R on his return, and was in Iran 1978-1979. Joining CACD in 1979, he was a member of the Elliott Sports & Social Club, and privately he enjoys Wine Making, Photography and Football. His choice is:

MUSIC

1. Billy Joel "The Stranger" — My favourite being "Just the way you are" purely sentimental.
2. Simon and Garfunkel "Bridge over troubled water" — To soothe away any blues.
3. Beach Boys "Good Vibrations" — A vocal harmony unmatched to this day.
4. Johnny Cash — He makes every song sound as if he actually lived of what he sings.
5. Roy Clark — An extraordinary entertainer, whether he is singing a ballad, banjo plucking or guitar playing. A master at Duelling Banjos.
6. Johann Strauss "The Blue Danube Waltz" — Lively and gay, it is probably the most popular of his waltzes.

BOOKS

1. "The Gulag Archipelago" by Alexander Solzhenitsyn — A true account of life in the Soviet Union interment camps.
2. "Trail and Terror" Edited by Joan Kahn — An omnibus of suspense, fact and fiction of criminal trials to tales of terror.
3. "Beginners Book of Boat Building" by N. Ark

Answers to Puzzles

(Issue 47)

Double Acrostic

A - Thyme B - Hiding C - Element D - Whist E - Hope F - Itch
 G - Totalise H - Evoke I - Offal J - Abide K - Know L - Blend
 M - Remits N - Oils O - Think P - Hamster Q - Emmet R - Remind
 S - Stymie T - Ruinous U - Oath V - Cups W - Hoist X - Erase

The Quotation "All through the winter the house with its five chimneys seemed to be sunk in meditation. From the chimneys smoke rose like its meditations made palpable"

The Book "The White Oak Brothers"
The Author Roche

VERY FISHY

A PENGUIN!
 (Cut pieces out, and arrange)

Irish Wit!

Driving through the countryside one weekend, I became stuck in a traffic jam, the tail back of traffic extended for at least a mile, and being unable to turn round I decided to find the cause of the trouble.

What had happened was that a 14ft high sided lorry had become wedged under a 12ft high bridge and the driver was attempting to reverse out of his predicament; resulting in a lot of smoke from burning rubber. Eventually the police arrived and asked the driver to alight from his cab.

The driver was the largest Irishman I had ever seen, six foot twelve tall and as wide as two barn doors. In a meek voice that trembled at the awesome sight before him, the Police Constable asked

"Are you stuck then sir?"

Whereas Paddy replied in a flash —

"Not a bit constable. You see I was delivering this damn bridge and I lost the address."

Moral — Don't ask damn fool questions!

Winter is a busy time for poring over seaside brochures and being tempted by holiday ads on the telly. But you could opt for more than just a two-week change in your life style by broadening your horizons to include the Open University.

You don't need formal educational qualifications or have to want to study for long periods at a time. For as well as offering degree courses and single 'one-off' years of study, the Open University has an informative range of eight-week courses covering many aspects of everyday life.

Bringing up children, buying a car, sticking to a healthy diet can all become more meaningful activities with the Open University.

So if you want a convenient way on untangling your problems — or preventing them — the Open University's short 'Living with Change' courses could help. They could also provide you with many interesting hours of winter study.

Longer term, they might save you both time and money. For instance, the Open University's newest offering, 'Parents and Teenagers', can turn family bickering into smooth co-operation — and even suggests ways to help your teenager go about looking for work.

Then there are all the money-saving hints of 'Consumer Decisions' and 'Energy in the Home'.

Courses in the 'Living with Change' series cover the whole of growing up, from 'The First Years of Life', to 'The Pre-School Child' to 'Children Five to Ten'. They extend, too, to the other end of the age scale, with a course on 'Planning Retirement'.

The series includes two other 'life style' courses, 'Health Choices' and 'Governing Schools'.

All these courses, which cost £20, are open to people over 16. However,



WINTER WINNERS

21 is the normal minimum age to start studying for a degree with the Open University.

The Open University has already helped over 51,000 mature adults to gain the degree they missed through lack of opportunity, motivation or money when they left school.

Like all Open University courses, those in the degree programme take students on a 'first come, first served' basis.

On average it takes six years of part-time study to earn a degree at home. But you can take a year or so off, or do a half-course, if work or family commitments become heavy or you just want to unwind.

Students learn from specially written correspondence texts, from audio-visual material, from radio and television. Some courses, particularly the first-year courses and science and technology, include a compulsory summer school which gives a taste of life at a conventional university.

First year students have the choice of five Foundation Courses: Arts, Social Sciences, Mathematics, Science or Technology. They can then choose from 140 individual courses.

The Open University is also focusing on Scientific and Professional Updating with a range of self-instruction packs aimed to upgrade skills at work.

Two microprocessor awareness packs for managers and engineers have already proved very successful as over 24,000 people have studied them in the past two years.

Now the Open University is embarking on more specialised computer courses with the introduction in 1983 of 'Data Analysis for Information System Design', which takes some 40 to 50 hours of home study and includes practical work through the Open University's Academic Computing Service.

Other computer courses planned for the spring will give an introduction to commercial data processing with COBOL; to systems analysis and design; and to structured programming with PASCAL.

Another venture likely to prove popular in commerce and industry is the Open University's new management programme introduced through its Centre for Continuing Education. This means that managers

can update their skills without having to take time off to attend business school.

'The Effective Manager', the first of four management courses in the pipeline, becomes available next Summer. It focuses very much on the manager and his job, the manager and his team, and the manager within his organisation, lasts three months and includes a weekend residential school.

About 100 hours of home study will be required and the course starts twice a year, in September and January.

Next in line for launching is 'Personal Selection and Interviewing', available from September 1983. Fifty hours of study will deal with the mechanisms and stages of selection; interviewing skill; group dynamics; and arrival at the final 'judgement' in selecting a candidate.

Study again spreads over three months, starting in September and January, and includes a short residential school, tutor marked assignments and TV programmes.

The other two management courses, ready in 1984 are 'Accounting for Managers' and 'International Marketing'.

For details of management and other 'one off' courses from the Open University, write to ASCO, PO Box 76, Walton Hall, Milton Keynes, MK7 6AN.

To study for an Open University degree, from February 1984, write to PO Box 48.

Details of eight-week community education courses costing £20, such as 'Energy in the Home', are obtainable from ASCO, as above.

Instalment fee plans operate for degree and 'one off' course, and the University has a financial assistance fund to make access to the Open University as open as possible.



Appointments

The following appointments are announced

- Mr. A.J. Colwell formerly ADD to be Divisional Manager ATE
- Mr. J.C. Spinks formerly CACD to be Divisional Manager ADD
- Mr. C.R. Reese formerly ISD to be Divisional Manager CACD
- Mr. J.M. Colston to be Divisional Manager ISD
- Mr. J.F. Smith formerly CACD to be Production Manager ADD
- Mr. J.E. Clover to be Production Manager ISD
- Mr. C.S.L. Wells formerly ISD to be Production Manager CACD

Mr. C.W. Ecob of Aviation Service and Repair Division has decided to retire. In consequence, we announce the appointment of Mr. D.T. Brown to be Commercial Manager with immediate effect.

Mr. Ecob has agreed to act in an advisory capacity until the date of his retirement.

Ode to Chrissie (late of MASD)

*Here's to Chrissie, our rather plump pal,
Who's gone to produce a boy or gal
It's a dead cert for sure,
She'll miss all the jaw,
But certainly no more than we shall.*

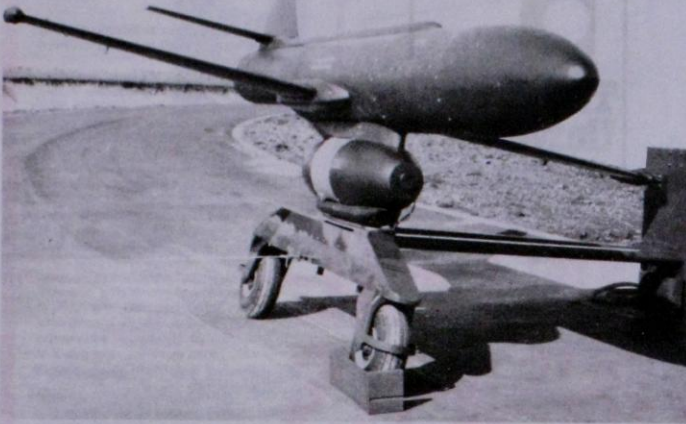
*We'll miss her verbosity
At a rattling velocity,
Her laugh will haunt us,
Till she comes back to taunt us
With some of her well known ferocity.*

*Hurry back, Chrissie, as soon as you can
'Cos the lasses and lads miss you to a man
All your pals wish you well
There's no more to tell
Just good luck, God Bless to you and your man.*

Anon



Around the Divisions



Pilotless plane



ASAT equipment

FCD

Review of Activities

With over 1000 hours of flight testing completed, the micro-processor based slat and flap control system for the new A310 Airbus is expected to enter passenger service in March. Activity in the division is intense to support the route proving and certification flights. With orders for over 100 units the latest additions to a long line of Flight Control Systems from the Division, which should ensure a bright future. In parallel the first computers for a similar slat and flap control system are being produced in readiness for the first flight of the A300-600 Airbus in June this year. To support both projects Andy Hills and his team spend a lot of time commuting between Lindenberg where the prime contractors Liebherr are based, the design

authority VFW at Bremen and Toulouse where the flight trials activity is centred.

A less well known activity of the Division is in the design and manufacture of flight controls for unmanned aircraft (UMA). This work goes back to the very earliest days of Elliott Bros. with the joint MOD, Australian government Jindivik target of which over 400 have been built to date. For the future, unmanned aircraft are likely to grow in importance by filling a number of new roles. The Company is at the forefront of these developments with its MACHAN aircraft. MACHAN is a new breed of UMA designed for real time surveillance tasks. It can carry real time video pictures back to base via a radio link, thus providing valuable battlefield intelligence to troop

commands. Following on from MACHAN, FCD are leading the companies studies of a new surveillance UMA for the MOD called project Phoenix. In this activity FCD are continuing the long association with Flight Refuelling Ltd., who are responsible for the vehicle, and EOASD Basildon who are responsible for the Thermal Imaging sensor. The team have been successful in reaching the final stage of the MOD competition with a new vehicle design which incorporates novel features which simplify the task of operation and target identification under battlefield conditions. The division is also producing the flight control system and ground control console for the new Falconette command target which Flight Refuelling are developing. Since the first flight in February 1982 flying has continued at RAE Larkhill in readiness to move to the operating range in the Hebrides later this year.

Last months Marconi Avionics News reported the opening of the new hydraulics facility. Following the success of the Rapier missile in the Falklands campaign demand for the hydraulically powered, high precision drive assemblies for the Marconi ground based tracking radars has increased. A high percentage of these new orders are for export as is the case with many of the Divisions other products notably the Airbus equipment and the autothrottle for the Boeing 747. The 747 autothrottle computer has been delivered to 43 airlines world wide and to date over 350 systems have been built. Development of this product continues, the latest being for the new stretched upper deck variant of the aircraft.

Ten hardware engineers from various Divisions are currently half-way through an experimental retraining course organised by the Training Department in response to a suggestion from Technical Managers and Chief Engineers.

The course is 38 weeks long, involving 19 weeks on-job training and specially-designed courses tutored by staff from Cranfield Institute of Technology, the University of Kent at Canterbury, Mid-Kent College and Marconi College (Chelmsford). The course plan is shown in Fig. 1.

The course aims to produce software engineers who, with their background of hardware, will be well equipped to contribute to resolving those hardware/software interface problems that often arise. The increasing proportion of embedded software in our avionics systems calls for more people with a good understanding of both hardware and software and the course is one contribution to meeting this need. Some modules of the course are also being taken by other students where they match their individual training needs.

Although the course is just over 9 months long, the students have a lot to learn and the pace is quite intensive. However, this immersion in software has convinced them of its attractions: the challenge it brings and the satisfaction of producing a 'debugged' program. One of the students said during their period at Kent University: "There's no way I'm going back to hardware now".

During recent discussions with the students, they all confirmed their pleasure at being on the course. One said he felt his career was taking off in a new direction and he was gaining more job satisfaction as a result. Another said he'd been pleasantly surprised at such a major course being put on and was very grateful of the golden opportunity that it had brought.

Software engineering had been sadly neglected by the educational system in the past and the students thought the Company was very wise to plan for vastly expanded software requirements and particularly the need for integration between hardware and software. Many of the students saw the course as a way of enhancing their prospects and enlarging their outlook of a subject which had been for some a source of mystery and even fear.

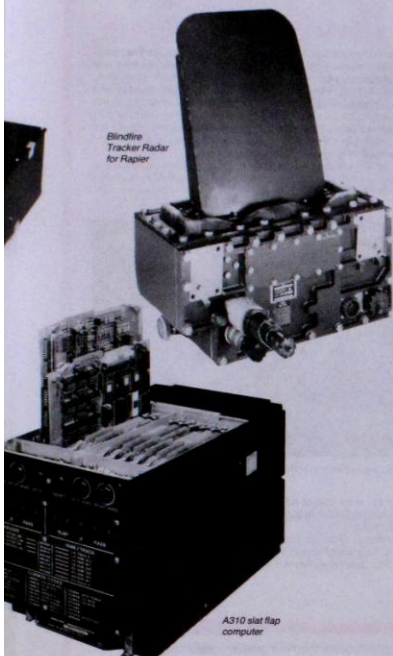
The students are now in their first period of on-job training in their various divisions. The photograph shows some of them.

A decision on whether to run the course next year (Autumn 83 to Summer 84) will be made at about Easter-time and further information is available from the Training Department.

Major Course in Real Time

REAL-TIME SOFTWARE ENGINEERING COURSE							Legend	
OUTLINE COURSE PLAN							MC	Marconi College, Chelmsford
82/83	Week	Day	Topic	Tutors	Location	Notes	MC	Patrick Page & Associates
Mon							CIT	Cranfield Institute of Technology
Resins	4/11	1				(Introduction to Assembly Language)		
		2				(Programming and Microcomputer Systems Software (3 half days per week))		
		3	Introductory	MC Staff	MC			
		4	Module	Collene Staff	Horsted	(Mathematics (2 half days per week))		
	6/12	5				(Microprocessors - Hardware Aspects (1 day per week))		
		6	Confirmation			(Introduction to High Level Languages/FORTRAN (3 half days per week))		
Finishes	27/12	7	of attitude					
		8	closure					
Resins	4/1	9	Software	MC Staff	MC (Real)	(Structured Programming)		
		10	Development	University	MC (Real)	(Pascal)		
		11	Techniques	(MC) Staff	MC (Real)			
		12		MC/NAV Staff	MC	Software Documentation and Control		
	11/1	13						
		14						
		15	On-job	Divisional		Work on small well defined training tasks in the Division in		
		16	training	Supervisor	NAV (R)	order to become conversant with the host computer environment		
		17				in the Division and divisional control and documentation		
	7/3	18				procedures.		
		19						
		20						
Resins	5/4	21	Real-Time	MC Staff	MC	Real-time programming techniques and hardware/software		
		22	Programming	MC Staff	NAV (R)	considerations		
		23		MC Staff	MC	Real-time Practice		
		24				CORAL		
	2/5	25						
		26						
		27	On-job	Divisional		CORAL and/or assembler training tasks in Division exercising		
		28	training	Supervisor	NAV (R)	host and target environments appropriate to the Division.		
		29				Tasks to have a specifically real-time context.		
	6/6	30						
		31						
		32						
	27/6	33	Software	CIT Staff	CIT (Real)	(Software system design techniques in an avionics context.)		
		34	System	CIT Staff	CIT (Real)	(Project definition and partitioning)		
		35	Design	Divisional	NAV (R)	(Detailed module design and coding)		
		36	Project	Supervisor	NAV (R)	(Debugging, integration and testing)		
		37		CIT Staff	CIT (Real)			
	1/8	38		CIT Staff	CIT (Real)	(Project write-up and presentation of the paper in front of supervisors)		

Fig. 1



Blindfire Tracker Radar for Rapier

A310 slot flap computer

Because of the wide range of technologies used within the product range, from the latest microprocessors in the A310 computers to magnetic amplifier technology in the autopilot for the BAC 111 aircraft the production department retains a wide range of skills. It is interesting to note that the first BAC 111 autopilot was produced in the early 1960's and that the same equipment is still in production today for the aircraft which are being built in Romania, for use by the state airline Tarom.

Probably the most prestigious project which the Division has undertaken in its long history was the flight control and autoland system for Concorde. Currently our engineers are studying the feasibility of an automatic landing system for a Future European Space Launcher. Variety is indeed the spice of life for FCD.

PSD

Powerplant Systems Division, what do they do? Where do I find them? The common questions which we are often asked, and in this article we hope to provide some answers.

We have heard FSD summarised as 'the providers of counters to the Kerosene Keepers and controls to the Kerosene burners'. This is a reference to our relationship to aviation fuel, a kerosene, and our products of fuel flow measurement and engine controls. The fuel measurement systems are a vital service to the pilot keeping him informed of the amount of fuel remaining on the aircraft and the rate at which it is being consumed by the engines. The engine control system has an equally vital role of metering the correct amount of fuel to the engine to maintain the thrust selected by the pilot as the conditions around the engine vary.

The Division had its small beginnings in 1972 when it was formed to develop products to satisfy the demands that the engine manufacturers were starting to make for digital electronic control and monitoring equipment. Later in 1977 the Division took over the Company's well established fuel measurement business, and today provides the following range of products to the kerosene keepers and burners.

The Division currently manufactures fuel flow measurement systems for the British Aerospace, Harrier and Hawk, the Panavia, Tornado and the McDonnell Douglas, Av8B. For the Tornado we expect to deliver the 1,000th fuel flow transmitter in April 1983. This represents the largest delivery of a single type of transmitter. This must be set in the context of our fuel measurement business which covers a total of 27 different aircraft installations, and has accumulated over 100 million operating hours. All of these installations are supported by our Post Design Services team, the custodians of the wisdom of many years, who cover a range of technology from equipment using thermionic valves which is still in service on the Dominie, to the microprocessors used in the Hawk System. To ensure the future and to expand the business, Engineering is currently developing new sensors for flow and quantity measurement, more advanced processing techniques and new solid state indicators.

The development work on the new indicators provides an extension to the product range. As well as the fuel and engine indicating instruments, indicator units for aircraft maintenance information, the Maintenance Data Panel and for standby instruments are being developed. The standby instruments, which capitalise on work done by FARL, feature small installed size, high reliability and low power consumption.

The entry into service of the Boeing 757 with Eastern and British Airways places into airline service the Engine Supervisory Control Unit manufactured in the Division. This unit contributes to the superb handling, a feature particularly noted by the pilots during the test flying, and the low fuel consumption of the Rolls Royce RB211-535 engine. The Supervisory Control Unit is mounted on the engine fan case where it operates in a severe environment exposed to large variations in temperature and high levels of vibration. In fact conditions typical of our engine mounted fuel flow transmitters. The Division is rightly proud of the skills in manufacture and in design which enable our equipment to operate reliably in these severe conditions.

For the kerosene burners PSD manufactures computer controlled test systems. The Division leads the world in developing these Automated Powerplant Test Systems which were first installed for the RAF, to test the Adour engine from the Jaguar. The engines, for diagnosis or after repair, are placed on test beds and automatically coupled to the Automated Powerplant Test System. The System prompts the operator through the test and automatically measures many engine parameters, analyses the results and provides the engine performance information. The system proved to be so effective that to support the Tornado, Engine Test Facilities were purchased for the RB199 engine. These facilities, comprising an acoustically lined building, a test bed and the Automated Powerplant Test System, are supplied by the combined resources of three companies and are being installed in various locations stretched across Europe. A further contract, won by the same three companies, is to design and install for the Canadian Forces three facilities which allow the complete F18 aircraft to be secured in the acoustic building. This enables the Automated Powerplant Test System to test the GE404 engines either installed in the airframe or removed from the airframe and secured to the test bed. The sales department is actively seeking further contracts in Europe, Australia and America.

As to the second question, where is PSD? We are well distributed on the Rochester Site with the Production Department in the Towers and with Engineering, QA, Sales and Admin sharing New Road with FARL. Part of the Division is also found in the Fuel Flow Lab, now sandwiched between Phase Three and the Corsair Buildings and in the Fuel Flow Rig, the detached building set in its own lawns, between Tower Three and the Huts.

Finally although well distributed, PSD looks forward to delivering current equipment for such as the Av8B, the RB211 and the Hawk, under its new guise as the USAF T45, to the successful development of new products and to installing Automated Powerplant Test Systems throughout the world.

*We have it from a man profound
That if for PSD you're bound
Then you should stop and look around,
For PSD is simply found
Because we are so spread around.
Do you remember years before
We were together on one floor,
Then in 'cabins by the score
Now we're dispersed, contact's a chore,
How many places? More than four.
For our Production try floor two
In Tower One, and also Two.
To find our Stores you go on through
And down the stairs in Tower Two
Till 'Inward Goods' comes into view.
Go out the back of Tower Three
Our Fuel Flow Rig you there will see;
On through the Works passed RST,
And underneath the new Phase Three
At our Fuel Lab is where you'll be.
From there you walk, the bus to catch
For in New Road we have a patch
Where Engineers and Admin match
The wily schemes which Sales will hatch
As contracts for another batch.
With apologies to Hamish McGonagla.*

Software Engineering



Left to right — Back row: Alf Knight, Geoff Gosling, Kit Patel, Trevor Blight, Richard Baron, Iain Cannell, Chris Hodson. Front row: Ian Graham, Jeff Coster, Mark Smith.

RETIREMENTS

Mr. Charles Whiffin of Import/Export Department has retired from full time service, but is continuing an association as a Consultant for this work.

Charles has had indifferent health over the past few years, and everyone hopes that an easier existence will enable him to fully regain his health and vigour.

The presentation on retirement was made by Mr. W.H. Alexander OBE, Assistant Managing Director.



Charles Whiffin with Mr. W.H. Alexander, O.B.E. (A).

In October 1982, Reprographic Department lost another of its personnel when Peggy Davis decided to retire. After starting in October 1969, in MACD as a Print Room Operator, she moved over to FCD on the merger with TAC, also as a Print Room Operator.

In April 1973, she joined the MAV Reprographic Department as a Reprographic Assistant, where she remained until her departure.

Her friends and colleagues subscribed to give her a parting gift of a Coffee Maker, which Mr. S. Clayton, Divisional Manager - Reprographics presented.



Peggy Davis with her colleagues (A).



Peggy Davis with Mr. S. Clayton.

It is with regret that MASD have bade farewell to Jim Ferguson on 8th February on his retirement. To mark the occasion he was presented on 4th February with a walking stick, the inner lining suitably fitted with a glass container for "liquid refreshment" and two drinking glasses for use when walking in the fields, a pastime which he hopes to continue doing during his retirement; he also received premium bonds, the presentation being made by the Commercial Manager (Tony Baker). Numerous expressions of goodwill were made by his colleagues.

Jim joined the company, then Elliott Brothers, way back in August 1968 after 33 years in the Army joining IND then moving to ACD as Divisional Administration Officer in December 1968.



Jim Ferguson with Tony Baker.

On the formation of MASD in 1973 he joined the Division as Divisional Administration Officer the post he has held till his retirement.

After a holiday in Scotland and Spain he intends to take up voluntary social work in the Medway Area.

The Division wishes him every happiness for the future.

25 YEARS' SERVICE

Another CMS stalwart has qualified for the Long Service Award in the person of Bill Lawson. He came to the company on 13th January 1958, joining the Aviation Division as a Progress Chaser. In 1960 he became the Machine Loader in the Dye Shop, then in 1965 was in CMS as a Shop Loader, and in 1967 became the Production Controller of CMS.

In 1979 he was appointed Tool Store Controller, in which capacity he still operates.

Mr. P. J. Burrows made the presentation of the Silver Tea Service to mark the milestone of service.



Bill Lawson with his chosen gift (A).

John Chaplin of Sub-Contracts Department, CMS, has completed his 25 years service with the company, and received a Clock to mark the occasion.

He was educated at Chatham Technical School, and began his industrial career with Hobourn Aero Components in Stroud, as an apprentice. Two years were spent with REME on National Service, and on return to civilian life, went back to Hobourns for a while.



John Chaplin (right) receives his clock from Mr. A. Teers (D).

Coming to Elliott Bros. in 1958 he was an Inspector in FISHERS then went on loan to Servo Components, which lasted for 10 years, and included a 10 month period at Dartford, where he was a Planner/Ratefixer. Returned to Rochester in 1968 into the Central Machine Shop as Planning Engineer. During this period he served as a member of the committee of TASS. In 1978 however, he joined the Sub-Contract Office as Sub-Contract Engineer, where he still operates.

A married man, with two daughters, and of many interests. He enjoys Cricket, as a spectator and is a keen supporter of KCCC an instructor in dog training, and is currently the Chairman of Medway Dog Training Club, as well as being a committee member of the local RSPCA branch when time allows, his other passion is Brewing Beer.

Mr. A. Teers made the presentation on behalf of the Company, amid a large gathering of friends and colleagues.

The ever growing band of ladies who completed 25 years unbroken service has been added to by the fulfilment of the period by Nancy Bullock of MASD.

Nancy began her career in June 1957, in Radio and Radar as a Female Assembler, becoming an Inspector in September 1959.

In 1961 she joined Common Services as an Accounts Clerk, and in 1966 moved to EACV as a Bought Ledger Clerk.

Returning to Flight Group in 1969 as a Stores Clerk in Airborne Computers, then as an Inspection Technical Clerk, later becoming a Clerk/Typist.

1973 saw another move, to IND as a Clerk Typist while in 1974 she became a Clerk Typist within the production facility of MASD, where she still operates.

Her chosen gift was a Clock, which was presented to her to mark the occasion.



Nancy Bullock

Obituary

It is with great regret that we announce the death of George Horace Fullagar, which occurred somewhat suddenly on 14th January 1983.

George, who was 58 years old, had been with the Company since 2nd June 1947, and in 1974 was transferred to MASD as Production Controller. His Engineering career began with Short Bros. as a fitter and sheet metal worker.

He will be greatly missed for the many qualities of his character had made an impact on all who knew him.



Patron: Jimmy Saville, OBE, KSGE
 Quadrathon Office, Civic Centre,
 Windmill Street, Gravesend, Kent.

2 mile swim
 50km walk
 100 mile cycle
 26.2 mile marathon

Q THE WORLD'S TOUGHEST RACE
QUADRATHON
 AUGUST 20th-21st



THE WORLD'S TOUGHEST RACE

THE RACE

The Quadrathon is being run on the weekend of August 20/21.
 It starts from Brighton beach on the Saturday afternoon, when the competitors start with a two mile swim in the sea on a course between the two piers.
 They leave the water, shower off the salt, and set off on a 50 kilometre walk.
 The end of the walk is at a sports centre at Tunbridge Wells, where the entrants switch to racing cycles.
 They then cycle on a course to Brands Hatch and around the racing circuit until 100 miles have been completed.
 After the cycling there will be a medical for each entrant before he or she goes onto the final stage.
 The athletes then run a full marathon from Brands Hatch to Gravesend town centre, finishing sometime on the Sunday morning.
 The prize presentation will be held on Sunday afternoon.



THE HISTORY OF THE QUADRATHON

The story of the Quadrathon really started in America some six years ago. It was then that a dozen sporting 'freaks' decided to create a totally new mode of endurance event — the Triathlon.
 That was the Hawaii Triathlon which has now grown into a major world event, attracting press coverage from every corner of the globe.
 It received its first television coverage in Britain in February last year, and sparked off a burning flame of interest that turned into the development of the Quadrathon — the toughest race in the world.
 The Quadrathon organisers discussed the Hawaii Triathlon and realised it was humanly possible for an even tougher challenge to be set. The Triathlon was attracting around 500 competitors, so something more difficult to achieve was needed.
 Immediately the organising committee of experts was set up, and since then months of hard work have gone into sorting out the route and complex details of formulating a world beater.
 The first concern was to find a possible route for the four disciplines of swimming, walking, cycling and running.
 Brands Hatch racing circuit was chosen as an important part of the event because of its superb medical facilities — an important consideration in

an endurance event that takes athletes to their limits.
 From Brands Hatch it seemed natural to have the finish in Gravesend — a marathon's distance from the world famous circuit. The next step was to choose Brighton as the ideal start with its perfect location for the two mile swim. There is already a 'between the piers' event held there each year.
 It was then obvious that the Olympic distance walk of 50 kilometres should take the entrants from Brighton to Tunbridge Wells, where they could pick up their bikes for the cycle to Brands Hatch where the 100 mile cycle is completed. The marathon starts from the circuit and finishes in Gravesend.
 So the event was formulated, and since then the organisation has grown into several hundred with special help from Gravesend and Brighton Councils as well as the marketing company of West Nally which already handles the Gillette London Marathon. A number of clubs are involved in the marshalling and other arrangements, providing the detailed local knowledge and expertise necessary for such a complex event.

For further information contact
 Paul Nihill, MBE, ATE Contracts Int. 2985

More information next month

Nailsea Nippits

The Annual General Meeting of Nailsea Sports and Social Club was held in January 1983, and the election resulted in the following officers.

- | | |
|-----------------------------|----------------------|
| Chairman | Barry Lane |
| Vice-Chairman and Treasurer | Tim Summerton |
| Secretary | Kelly Wright |
| Membership Secretary | Jean Hunter |
| Committee (7) | |
| Alan Chinn | Keith Carter |
| Bob Attwood | Keith Johnson |
| John Andrews | John Buss |
| Janet Fynn | |

A review of 1982 activities revealed the members participated in Five-a-side football knockout tournament, Squash tournament, Snooker competition, and a Skittles play off with 'Raychem of Swindon'.
 Special items planned for 1983, include a Sponsored Canal Event, on the River Wye for the Bristol Association for Spina Bilida. Subsidised entrance for the Great Western Beer Festival, and the World Wine Fair.

The officers have been asked to arrange joint activities with Marconi Avionics—BP Kent Club and request that Section Secretaries get in touch with Nailsea so as to explore the potential.

Groups currently supported by Nailsea Sports & Social Club include:-

- Amateur Radio
- Angling
- Bridge
- Christian Fellowship
- Football, Squash, Snooker and Skittles

besides

Any section interested please note the address
 2 High Street
 NAILSEA
 Bristol BS19 1BS
 and communicate direct.

Brain Teaser -

for amusement

1. Three women each have two daughters; and they all go into a Restaurant for a meal. There are only seven vacant seats in the Restaurant, but each lady had a seat to herself. How did they manage that?
2. A doctor in London has a brother in Manchester, who is a Lawyer, but the Lawyer in Manchester does not have a brother in London who is a Doctor. Why?
3. A farmer had twelve sheep and decided to put each of them into a separate pound, but to make the pound he had only twelve long hurdles and six-half-length hurdles. How did he succeed?
4. Which is heavier - a pound of gold or a pound of potatoes?

Answers on page 8

Sports and social club round up

65 Club

The January 1983 meeting of the Club took the form of the Annual General Meeting, when satisfactory reports of the activities throughout the year were presented. The accounts showed a healthy state, and a very satisfying use of the available funds.

The election of officers confirmed the existing Chairman, Secretary and Treasurer in their respective offices. Mrs. Steers felt compelled to retire from the committee, and Mrs. Belsom was elected in her stead. The remaining members being re-elected and one additional member, in the person of Alan Walker.

The entertainment was provided by Rainham Majorettes, who performed solo as well as group items, to the delight of the audience. Oh to be young again!

Birthday greetings were extended to 9 ladies and 10 males, with Mr. Sullivan celebrating his birthday on the Club day 15th January.

Wedding Anniversaries being celebrated in January are

George and Hilda Ord	23 years
George and Win, Taylor	40 years (Ruby)
Gordon and Hazel Hollis	41 years
William and Susannah Lincoln	41 years
Bob and Emily Fordham	44 years
Ron and Ellen Cook	44 years

Congratulations and best wishes were given to these couples.

Diary Dates

At the Clubhouse, Four Wents, Hoo

Friday 4th March 1983
Social Evening with "Ivan Jay Trio"
7.45pm — 11.45pm Admission Free.

Friday 11th March 1983
Cricket Discotheque with "Vapourisation"
Tickets £1

Saturday 12th March 1983
Attraction Night. 7.45pm — 11.45pm
Music by "Whisker" and Martin Jackson Comedian
Tickets 25p each

Friday 18th March 1983
Disco for under 16's. 7 — 10pm with "Phantom"
Coke bar in Hall. Tickets 50p at door

Saturday 19th March 1983
Country & Western Evening with "Obsons Choice"
7.45pm — 11.45pm. Tickets £1

Friday 25th March 1983
Pub Night. 8 — 11pm in Bar Lounge

Saturday 26th March 1983
C.A.C.D. Football Dance with "Reverberation"
7.45pm — 11.45pm
Tickets £2.50 each

Saturday 2nd April 1983
Easter Dance with "Hush" 7.45pm — 11.45pm
Admission £1 (includes 50p of Raffle tickets)

Monday 4th April 1983
Childrens Fancy Dress Parade
6pm followed by Disco. 6.30pm — 9.30pm
For under 16's. Free Coke and Crisps

Friday 15th April 1983
Yachting Section "Fitting Out Supper"
8pm to Midnight, with "David Leale Disco"

Saturday 30th July 1983
Social Evening with "Arthur Brown Trio"
8.00pm — 11.00pm

Photographic Section

Marconi Group

The programme for the immediate future, to members of the Photographic Sections—

MARCH

9th Widescreen Demonstration by Tony Shapps of the Widescreen Association

16th Slide Evening with KCOCC at Springfield, Maidstone at 7.30pm with Alan Rose

23rd Discussion on Night Photography (Slide selection for April 14th)

30th MTPA Slide League at Elliotts, Judge Mr. Charles Taylor

APRIL

6th Practical Fashion Photography

13th "How and Why" with members Paul Nash and Mick Wilson

14th MTPA Slide League at BSL

20th Night Photography Outing Venue and transport to be decided—early start

27th Internal Competition Round 4 Subject: Open 5 Print Portfolio

MAY

4th Auction. Bring your redundant Hasselblads!

11th The Royal Photograph Society by Brian Tremain, FRPS

18th Open Air Modelling Session Venue to be decided—Early start

25th AGM Annual Revelations

Except where otherwise stated, meetings are held in Marconi Avionics Conference Room, Tower 1 at 8.00pm.

Popmobility

The section held its Annual Dance at Featherby Road Social Club, in December 1982, and during the evening the awards for the year were presented.

The instructor had a particularly difficult task as the classes, held a Tuesdays and Sundays, are always very well attended. However, the awards made were.

Miss Karen Moss } Joint 3rd

Mrs. Pearl Albrook } Second

Mrs. Joan Ogden (ADD) } 'Miss' (Mrs) Popmobility 1982

Mrs. Julie France (ISD) } 'Miss' (Mrs) Popmobility 1982

The club is now looking forward to a successful and fitter 1983.



"The prizewinners of Popmobility for 1982" (A)

Notices

Billiard/Snooker

Please note that the Management Committee has abolished the present booking system. The Committee feels it is fairer to all members to use the table on a first come - first served basis.

Guests

At its meeting on 18th January 1983 the Management Committee ruled that members will be charged 25p per visitor, with effect from 1st February.

Discipline

Members are asked to note that misuse of Club membership cards on discotheque evenings is being experienced. Members are advised that the Management Committee will take disciplinary action against persons caught violating the Club Rules, and urgently seeks members co-operation to ensure the Club is for their own use and their bona fide guests.

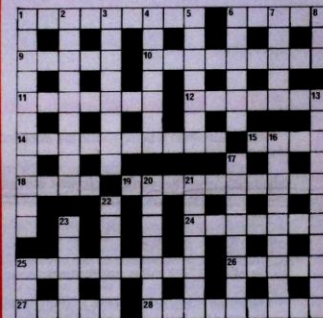
Suitability of Dress

Complaints have been expressed at semi-nudity in the bar. Offenders will in future be asked to leave the bar area.

Pool

Closed for major maintenance from 14th February until 4th March, inclusive.

CROSSWORD No. 49



ACROSS

- Old selling place for horse training (9)
- Eastern religion (5)
- Success or Virtue (5)
- Snowed under plenty (9)
- A small part of (7)
- Health and Cleanliness (7)
- Not always an afterthought (4-6)
- Naughty child (4)
- As well as (4)
- Very useful in the kitchen (7-3)
- A new world after morning (7)
- Spooky, not foul fiend (9)
- Hobo (5)
- Inland waterways boat (5)
- Target at shoot, crest of hill (9)

DOWN

- Identification carrier (6-5)
- Mass of mud left on ground (4-5)
- Mark of reference (8)
- Doing what comes naturally, with wool? (7)
- What the motorist does to a scratch (5-2)
- Between blue and violet (6)
- A turning machine (5)
- In adverts goes with 'cons' (3)
- Delicious if pippen (6-5)
- Told off, censured (9)
- Bearing your name in bygone days (8)
- Could be a cover up (7)
- Student, pupil assistant (7)
- Refuse to take notice of (6)
- Remains of fire (5)
- On which the wheel turns (3)

For amusement only

Solution to Crossword No. 48

ACROSS

- Upholster; 6. Dated; 9. Dwarf; 10. Immovable; 11. Relabel; 12. Network; 14. Contact man; 15. Span; 18. Oast; 19. First class; 23. Diamond; 25. Airmail; 26. Waistcoat; 27. Opium; 28. Basic; 29. Son of a gun.

DOWN

- Under a cloud; 2. Headlines; 3. Life boat; 4. Triglot; 5. Rumania; 6. Divot; 7. Taboo; 8. Doe; 13. King Solomon; 16. Placating; 17. Score off; 20. Indoors; 21. Spartan; 22. Bostic(k); 24. Amiss; 26. Web.

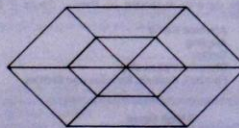
Photographs taken by the Staff Photographers will be acknowledged in the following way: (A) Art Photos; (C) Nancy Burton; (D) Alan Newton

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Answers to Brain Teaser

- One lady is a Grandmother and her two daughters are the mother of the other 4, making seven in all.
- The Doctor in London is a Female, so she was the sister of the Lawyer in Manchester.
- Thus



- Potatoes are weighed in avoirdupois, which is heavier than the troy weight for Gold.