

DOWTY ROTOL

Issue 5
November 1986

NEWSLETTER



BAe EAP over Farnborough showing Dowty Rotol landing gear

Farnborough '86

At Farnborough '86 Dowty had its biggest stand (290 square metres) and Dowty Rotol its best range of exhibits (six landing gear together with a comprehensive range of propeller, gearbox, hydraulic, ram air turbine and high lift system units). Our display of each unit was backed up by technical illustrations in colour and new brochures produced specially for the exhibition.

This latest show was noteworthy for new aircraft

flying and projects underway. Out of the 60 aircraft displayed the Dowty Group had equipment on 30 of them. Of particular interest was the British Aerospace Experimental Aircraft Programme (EAP) demonstrator which made its maiden flight on 8 August only three weeks before Farnborough. The equipment we have produced for this experimental fighter will help us in our bid for work on the EFA (European Fighter Aircraft).

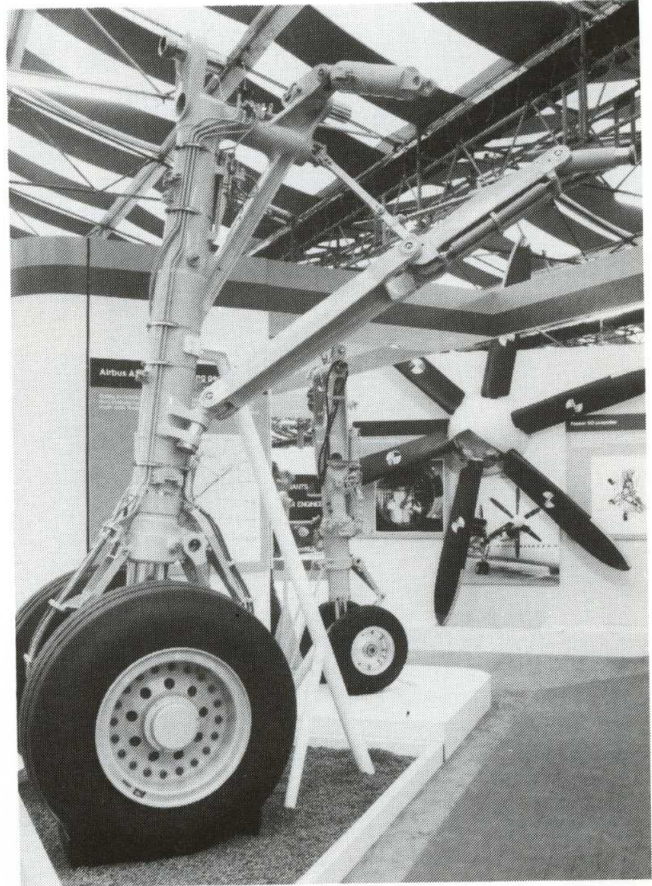
Apart from the spectacular flying displays and superb static exhibition, Farnborough has a more serious and down-to-earth purpose. It acts as an immense shop window displaying to potential buyers the products available from Britain's aerospace industry. A few statistics will serve to illustrate the size of the affair.

- Sixty miles of canvas go into making 22 000 square metres of exhibition halls.
- Parking is provided for 27 000 cars and more space is always needed.
- Invited guests, including heads of state and aviation policy makers amount to 50 000. In total some 300 000 people visit Farnborough.

In order to allow business discussions to proceed without disturbance no flying is allowed in the morning. The air display begins shortly after lunch and is timed to the second, lasting around 2½ hours on trade days and up to 3½ hours on public days. Fighters are usually allowed to show their paces for five minutes and larger aircraft for six. Nothing is left to chance in the planning of flight displays. The Society of British Aerospace Companies, which puts on the show, demands that all pilots taking part conform to the strict safety regulations.

Judging from our involvement in Farnborough '86 we are well placed, through our inclusion in major aircraft programmes, to ensure work into the 1990s and beyond.

Dowty Rotol side of Farnborough stand showing Airbus A320 main landing gear in foreground and Fokker 50 propeller



Office Trainees join Dowty Rotol



We are pleased to welcome to Dowty Rotol eight trainees undergoing a two year Youth Training Scheme in office skills which has been approved by the Manpower Services Commission. The scheme, which started in September, aims to provide the trainees with a broad experience of office skills in the first year. During this time they will gain experience in four different areas of the company. In the second year training will be more specialised and is designed to

meet the needs of the individual trainee.

Throughout the two years the trainees will spend one day a week at Technical College studying for an RSA Diploma in Office Studies.

The picture above shows a fine blend of youth and experience with the eight trainees sandwiched between Tony Wilkes — Site Training Executive (right) and Dennis Neale — APEX Chairman (left).

Current Performance

Sales turnover

Detailed below is the regular update on our sales turnover.

Month	Target	Achieved
June 1986	£ 9,105,000	£ 9,143,000
July 1986	£ 9,247,000	£ 9,190,000
August 1986	£ 8,995,000	£ 8,711,000
September 1986	£ 9,385,000	£ 9,497,000
4 months total	£36,732,000	£36,541,000
6 months total (April to September 1986)	£53,268,000	£53,141,000

As can be seen from the above figures we are only slightly behind our turnover target at the halfway stage of the current financial year.

Order book

Month	Orders received	Total outstanding
June 1986	£ 6,067,000	£137,526,000
July 1986	£10,523,000	£138,859,000
August 1986	£27,502,000	£157,650,000
September 1986	£ 6,541,000	£154,694,000

The order book at the end of September 1986 is nearly £15 million higher than at the end of September 1985.

The major orders that have been received during the last few months are as follows:-

Aircraft	Equipment	Value of order received
McDonnell Douglas AV-8B Harrier II	Landing gear and hydraulics	£11,470,000
Panavia Tornado	Landing gear	£ 7,210,000
British Aerospace 146	Landing gear, flap system and hydraulics	£ 4,800,000
British Aerospace Harrier	Landing gear and hydraulics	£ 3,400,000
Airbus A310	Main landing gear	£ 2,470,000
British Aerospace Jetstream 31	Propellers	£ 953,000

The orders for the AV-8B, Tornado and BAe 146 equipment were received in August and this accounts for the high order intake in that month.



Tornado in the camouflage markings of the Royal Saudi Air Force

Backing a Winner



BAe Jetstream 31

British Aerospace Prestwick has announced the latest order for seven Jetstream aircraft with options on 14 more to an airline subsidiary of Piedmont Aviation. This order is a significant one because it confirms the acceptance by Piedmont of the BAe Jetstream 31 as the best aircraft for its commuter links.

The Jetstream 31 is powered by two Garrett TPE 331-10 engines fitted with Dowty Rotol new technology propellers. It is an aircraft/engine configuration that this company has closely supported, believing the 300 mph Jetstream 31 to be a winner.

Jetstream 31 sales to date total 124 aircraft acquired by 19 operators throughout the world. Market

penetration within the United States has resulted in the sales of 88 aircraft to six operators. Of these US sales, a large number have been repeat orders, thereby underlining operator confidence.

The Jetstream 31 is built by BAe's Civil Aviation Division at Prestwick Airport, Scotland. Its design concept has proved ideally suited to the numerous low density routes of the commuter market. The Jetstream 31 is the only 19 seat pressurised passenger airliner providing six feet stand-up head room in a wide and spacious cabin. The Dowty Rotol propellers, in particular, are noted for their quiet, reliable and efficient operation.

A slight Problem

We are all familiar with the day to day problems which occur in industrial life but occasionally a problem arises which is novel enough to deserve mention in this NEWSLETTER.

John M. Hind, who manages Services and Repair Sales for the Product Support Division, has to spend much time in the Middle East. So, in addition to the usual business cards in English, he also ordered cards in Arabic.

From the outset, John expressed reservations about possible errors in the Arabic version, particularly as his surname, Hind, is an Egyptian first name given to girls. (Hind Rustum is a famous Egyptian actress.) John has



PRODUCT SUPPORT

داوتي روتول ليمنتد
 قسم دعم المنتجات
 شلنتهم رويد
 جلوستر جي ال ٩٢ كيوايج، انجلترا
 هاتف: ٧١١٤٧٤ (٠٤٥٢)
 فاكس: ٧١٣٨٢١ (٠٤٥٢)
 تليكس: ٤٣٢٤٧/٤٣٢٤٦

جيه. ام. هايند
 مدير مبيعات الخدمات والتصليح

now penned the following memo about his Arabic version business cards:-

'On my last trip to Egypt, I asked a number of Egyptians for their comments on the card. They confirmed that my surname is correctly recorded in the Arabic script. However, all responded with the same remark — that my whole name, John M. Hind, as printed, reads Gay Em Hind. As the Arabic custom is to address and refer to other men by their first names, then I would become known as "Mr. Gay".'

'Whilst I am prepared to go to inordinate lengths in the pursuit of our company's interests, I believe that the combined label of Mr Gay followed by the Egyptian girl's name, Hind, is surely too much to ask. I would be grateful, therefore, if you would have a new batch of Arabic version business cards prepared with my name shown as John M. Hind.'



Fokker 50



Fokker 50 taxiing at Farnborough with Dowty Rotol propellers and landing gear

Production Engineering

In the last issue of the NEWSLETTER we explained the part played by the Technical and Commercial Departments in the Fokker 50 contract.

In this article we focus on the work carried out by Production Engineering. This Department's first involvement in the contract was in 1983 when Work Study had to compile an estimate of the total anticipated tooling expenditure. This task is always a difficult one. It has to be carried out before the designs are fully detailed but it is important that the estimates are accurate since tooling costs can influence the company's chances of winning contracts.

Early in 1984 Value Engineering and Manufacturing Development began their involvement in this project. The job of Value Engineering is to ensure that the component designs allow the easiest and most cost effective method of manufacture. One example of their success in the F50 was the pipe clamp blocks on the undercarriage. These are normally made of aluminium and machined from solid. This entails an extensive production process which normally involves several milling, drilling and deburring operations and provision of the necessary tooling. Value Engineering decided to investigate the possibility of using a plastic moulding for the clamp blocks and found that significant savings could be made with very little change to the original

designs. The Laboratory specified a material capable of coping with the environmental conditions and the clamp blocks are now being made from cast reinforced plastic material at one tenth of the original cost.

Manufacturing Development checked the early designs to see whether any new machines were required. In the case of the F50 this was not necessary but use was made of recent acquisitions such as the Moduline five axis machining centre and the Rambdaudi multi spindle milling machine. One problem that did present itself was the machining of the hub for the company's first six-bladed propeller. The F50 hub was too large to be accommodated in the special indexing lathe chuck used on other recent propeller contracts and was produced on the Burkhardt and Weber machining centre. The blade root bores of the hub are machined using an NC controlled facing and boring head. This enables the component to be manufactured economically without the need to purchase complicated and very expensive new machine equipment.

The other Production Engineering sections, Methods, NC, Jig and Tool and Toolroom were all fully involved in the F50 project by January 1985. Between them they produced 488 manufacturing and assembly layouts, 2 456 stage drawings and designed and made 3 278 items of tooling. By the end of 1985 virtually all the work had been completed to programme.



500 hour Blade

The blade illustrated above was one of four from the first Dowty Rotol propeller that has completed 500 hours operation on the Textron Marine (formerly Bell) Landing Craft Air Cushion (LCAC) vehicle. The LCAC is a US Navy hovercraft that has been undergoing acceptance trials over sea and land. At sea the LCAC moved on and off its mother ship, while land trials included travelling over beaches, sand dunes, scrub and rocks.

Dave Soley, Project Engineer (left) and Pat Hatswell, Programme Manager (right) with Bill Schuch, LCAC Maintenance Manager inspecting the 500 hour blade

Our propellers, particularly the blades, had to stand up to everything which passed through them. The assortment of objects ranged from sand and pebbles to the steel helmets of those personnel who had not fastened their chin straps. Not only did our composite blades stand up to this rough treatment, but wear on the leading edge was reported as minimal.



Congratulations to Don

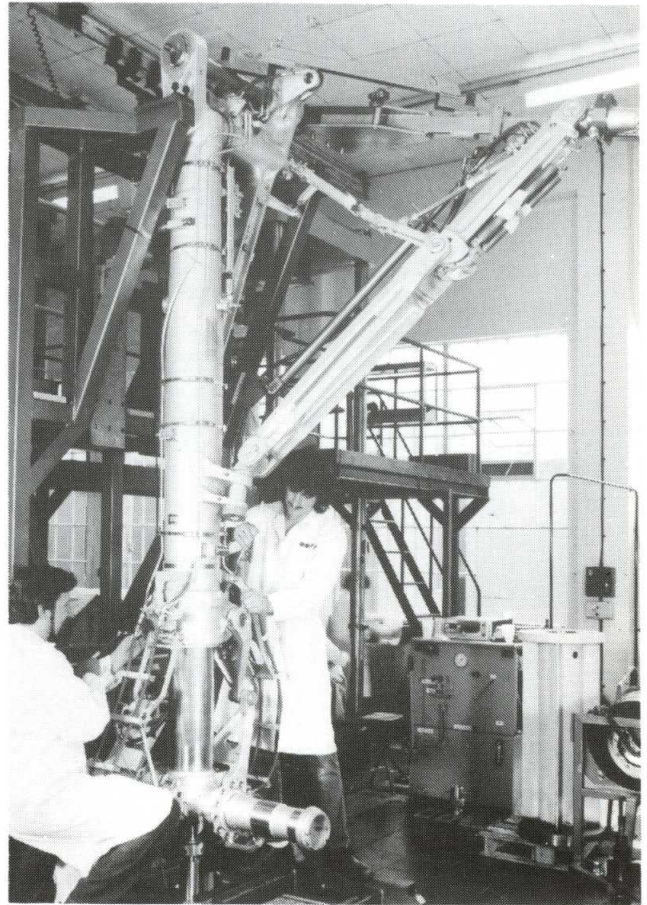
In the last issue of the NEWSLETTER we announced that Don Wakefield had been awarded the British Empire Medal. The picture shows Don being congratulated by the Lord Lieutenant of Gloucestershire after being presented with his medal on 30 September.

Dowty Rotal flies out first Airbus A320 main landing gears

The first aircraft set of Dowty Rotal landing gear equipment destined for the new Airbus A320 airliner currently being assembled at Aerospatiale Toulouse, was flown out of Staverton Airport early on Friday, 8 August — the agreed delivery date. Each complete main landing gear leg, designed and manufactured in collaboration with Messier-Hispano-Bugatti, weighs 667 kg and stands 3,5 metres high. Delivery was expedited by air freighting direct from Staverton to Aerospatiale at Toulouse. Dowty Rotal technicians accompanied the equipment to superintend unloading and ensure personal delivery to the customer.

Machining the first aircraft set of these large high strength steel landing gear units was accomplished in the scheduled eight months, including prove-out of numerical control programmes and commissioning of a special seven axis milling centre to handle the complex work involved. Both landing gears were assembled and tested — including the fitment of hydraulic piping and electrical harnesses, brakes, tachometers and instrumentation — within six weeks to meet the A320 build schedule.

This event marks the latest development in the long association between Dowty and Messier, which includes the A310 main landing gear as an on-going production programme. 'We designed, developed and manufactured the A320 main landing gear to a very tight timescale' said Jim Lightfoot, Managing Director. 'The overall project represents a major achievement for the company. To meet the challenge of these Airbus programmes, we have made considerable investments to extend, re-equip and re-organise our large landing gear manufacturing facilities. Dowty Rotal is in a strong position to support Airbus Industrie in their build of wide-bodied airliners.'

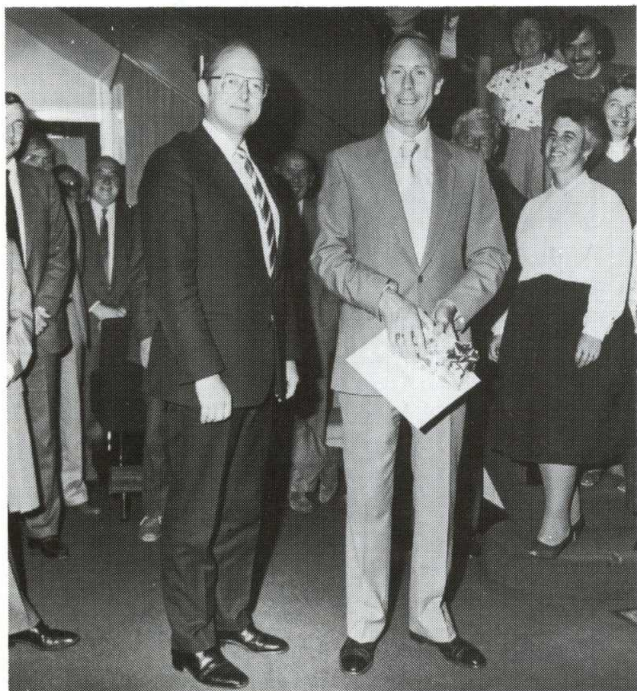


A320 main gear with side stay and lock links fitted



Transport aircraft with A320 legs on board takes off from Staverton for Toulouse

Retirements



During September we had to say farewell to Derek Dudfield (Financial Director) and Alf Cherry (Executive Director — Production) who both decided to take early retirement. The picture above shows Derek (centre right), who completed 44 years service with the Dowty Group, at his retirement presentation with Jim Lightfoot, Managing Director.



Another recent early retirement was Bill Oke who left on 15 August after 25 years service in the Inspection Department. The picture above shows Bill with his guide dog Flint who is also due to retire in the near future.

Appointments



Graham Lockyer — Production Director

As a result of the forthcoming retirement of Mr. D. C. Hitchens, Graham Lockyer joined the company on 15 September as Production Director. He is an engineering honours graduate and held a variety of senior positions in the GEC Group before taking up this appointment.



Tim Davis — Executive Director — Production

Tim Davis succeeded Alf Cherry as Executive Director — Production on 1 October. He joined Dowty Rotol in 1962 and following several positions in the Sales and Commercial Departments, was appointed Supplies Manager in 1974. Since 1982 he has been Chief Production Controller.