

BRITISH AEROSPACE

CIVIL AIRCRAFT DIVISION

HATFIELD OPEN DAY '87

50p



DH88 Comet Racer



Welcome from Mr. Charles Masefield

It gives me great pleasure to welcome you to our 1987 Hatfield Open Day.

This year has already proved to be an exciting one of much progress for us here at Hatfield with the first flight of the new 146-300 and the opening of the New Assembly Hall, both events taking place on 1st May.

As you walk around the factory today you will, I hope, notice many other improvements made since our last Open Day and you will also, I feel sure, see clear evidence of the enthusiasm and expertise that exists within our people.

Since its beginnings over 50 years ago Hatfield has become famous throughout the world for its design, development and manufacture of world class aircraft, many of which you will see today including the world's first successful light aircraft – the Cirrus Moth, the world's first high performance strike aircraft – the Mosquito, the world's first jet airliner – the Comet and the world's first Trijet – the Trident. Pride of place amongst the "golden oldies" this year, however, must go to the Comet Racer of 1934 – the first new design to fly from Hatfield – and restored to flying condition after a 50 year grounding.

Proud though our heritage is – what matters most, of course, is the future and the on-going success of the Airbus, 125 and 146 programmes, all of which you will see being worked on here at Hatfield, with the latter two in the flying display. Much will depend upon their success in the years to come.

Thank you for coming today, I hope you have a very interesting and enjoyable day with us.

Charles Masefield

C.B.G. Masefield
Divisional Director and General Manager

Programme of Events

- 0930 Gates open.
- 1115 Flying display of aircraft from British Aerospace, the Ministry of Defence and private sources. This will also include the recently restored DH88 Comet Racer G-ACSS. (The flying programme is subject to weather and aircraft serviceability.)
- 1245 Air Weapons Division site opens for tours and many other activities.
- 1500 Civil Aircraft Division factory closes.
- 1700 Gates closed.

Display: and amenities

- A – Outside Exhibitions
- B – Bandstand
- C – Fire Brigade Exhibition
- D – Snacks, Beverages and Ices
- E – Refreshments
- F – First Aid
- G – Company Guests and aircrew lunches
- H – Restaurant
- J – Lost Child Centre and information
- K – Sports Club
- L – Static display area
- M – Rapide pleasure flights
- N – Coach service to Car Park





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The days activities will include.

- Aircraft assembly areas and machine shops open to inspection.
- BBC Radio Bedford will be broadcasting from various areas of the site throughout the day.
- Pleasure flights in a DH89 Rapide.
- A large display of vintage cars and motorcycles including the Rolls Royce Enthusiasts Club, the Bentley Owners Club, the Morgan Three Wheeler Owners Club and the Aerial Motorcycle Owners Club.
- Nigel Mansell's formula one racing car will be on display.
- There will be a full Sports Club Programme throughout the day.
- During the morning members of the de Havilland Moth Club will be arriving with their aircraft.
- Various stalls and exhibitions representing, among many others... British Aerospace Hatfield Design and 146 Project departments East Herts Microlight Club – Handley Page Association – R.A.F. Museum – Battle of Britain Museum – Hertfordshire Fire Brigade – de Havilland Moth Club.
- Light refreshments – ice cream and meals will be available at kiosks and in the works restaurant.



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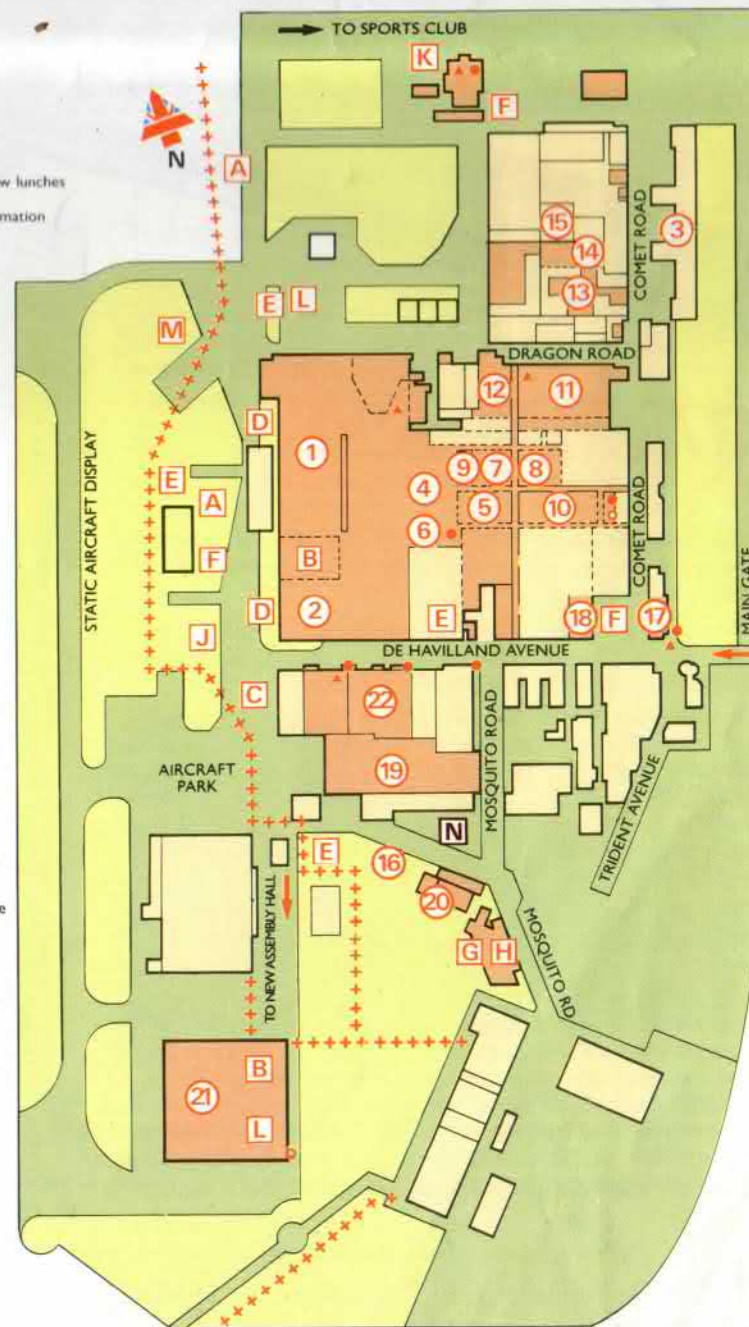
Buildings open to the public

- 1 – Aircraft assembly area
- 2 – New Machine shop
- 3 – Design Exhibition
- 4 – D.A.D.2
- 5 – E.S.A. Avionics
- 6 – Redux dept.
- 7 – D.A.D.1
- 8 – Upholstery
- 9 – Training module
- 10 – Production engineering and safety
- 11 – Press and foundry
- 12 – Metal form shop
- 13 – Systems test
- 14 – Tech. services
- 15 – Structural test
- 16 – de Havilland Museum
- 17 – Restaurant
- 18 – Surgery
- 19 – Machine Shop
- 20 – Aircraft Mock-up
- 21 – New Assembly Hall
- 22 – Aero Jig and Tools

IN EMERGENCY

Contact the Security Police Control, any uniformed Security Policeman or the First Aid Post shown on the map. First Aid coverage is kindly provided by the St. John Ambulance Brigade.

- ++ PUBLIC ENCLOSURE BOUNDARY
- ▲ TOILETS – LADIES
- TOILETS – GENTLEMEN
- TOILETS – DISABLED
- = OPEN



BAe 146-QT

British Aerospace, Hatfield, is the headquarters of the Company's Civil Aircraft Division, and is involved in the wide range of civil products produced by the division. However, the principal project at the Hatfield site is the design, development and production of the BAe 146, the world's quietest jetliner.

As you walk around the factory today, you will see the 146 in its various stages of production. Final assembly of the 146 takes place at Hatfield from components supplied by other British Aerospace sites throughout the country, as well as from suppliers abroad, two major partners being AVCO Textron in the U.S.A. and SAAB Scania of Sweden. As well as final assembly, Hatfield is responsible for the manufacture of the doors and nose section and you will see these under various stages of build in the D.A.D. II and Nose Build departments.

Walking along the assembly line from the South end to the North you will see the centre fuselage (built at BAe, Filton), the rear fuselage (built at BAe, Manchester), and Hatfield built nose being joined to form a complete fuselage assembly. Further along the line the AVCO built wings and the fin, made by our factory at Brough, are added and the familiar lines of the 146 take shape. The SAAB Scania built tailplane is added at the very end of the line.

At present final completion of the 146 takes place in the Flight Test hangar, although this is soon to change, with the commissioning of the New Assembly Hall, situated next to Flight Test. The use of this new facility will help us to reduce the production time and man hours spent building an aircraft. A second

final assembly line is also being established. This will be at our Woodford factory, near Manchester, and will allow us to increase the production rate of the 146's to 40 per year by 1990.

The 146 first flew in September 1981. There are three different sizes of the 146 in production the -100, -200, and -300 series' which can be operated in a variety of roles. As well as a passenger carrying airliner these include a freighter version, known as the 146-QT or Quiet Trader, and the 146 Statesman with specially designed interiors for the V.I.P. role. A longer version, the series 300, is now under development. The prototype of this series first flew on May 1st this year, following a nine month build programme which involved converting the prototype series 100. Already five series 300s have been sold to Air Wisconsin of the U.S.A. This airline was the first American operator of the 146 who currently have a fleet of eight 146-200s. The series -300 will enter service with the airline in 1988.

Credit for the very low noise levels of the 146 goes to its four quiet and economical Avco Lycoming ALF502 engines and its highly efficient Hatfield designed wing. Along with its low fuel burn, the low noise of the 146 has been one of the major factors of its success in selling to 15 customers across all six continents. To date 91 146s have been sold, the most prestigious order being two 146-100s for the Queen's Flight.

The success of the 146 has earned it the Queen's Award to Industry for three consecutive years, these being for Technology in 1985 and Export in 1986 and 1987.

146/300 During first flight





BAe 125-800

The 125 has been in production for well over 20 years, and is the world's best selling mid-sized business jet, with more than 660 sold to date.

Although this aircraft is not manufactured at Hatfield (this takes place at our Chester factory) the design, development, sales and support of this aircraft is undertaken here.

Since the first two 125s were built at Hatfield in the early 1960s, the aircraft has been developed through various stages, the latest being the highly successful series 800 that you see today. The series 800 first flew in 1983 and, to date, nearly 90 have been sold to operators worldwide. 80% of all 125s are exported, with 60% going to the highly competitive North American market.

The 125 brings to its operators a high degree of comfort, as well as flexibility of operation and privacy. It is the only business jet in the world built by a company which also builds civil airliners.

The versatility and ruggedness of this aircraft also allow it to operate from a variety of conditions such as unpaved strips and in roles other than business communications. These include airways calibration, air ambulance, crew training and Government and VIP transport. The 125-800 is as advanced as any modern jet, but retains the design integrity and in-service experience borne of two decades of operation.



During first flight



Airbus wings being loaded into a Supper Guppy for transportation to the final Assembly Line in Toulouse, France.

Airbus

British Aerospace is a 20% partner in Airbus Industry, the consortium of European aircraft manufacturers, who design and build the highly successful range of Airbus civil airliners of which well over 700 have been sold. Hatfield has been involved in the Airbus programme since the 1960s contributing to the aircraft's success with the design of the wings which is largely carried out here.

Three different versions of the Airbus are currently in production, two of which are in service, the A300 and A310 seating about 280 and 200 passengers respectively. The smaller 150 seat A320 first flew in February 1987 and is now under development before entering service next year. Even before first flight some 250 A320s had been sold, one of the largest "off the drawing board" orders achieved by a modern jet.

For the future, higher capacity and longer range variants, the A330 and A340 are now under initial development, with British Aerospace again developing the wings

Hatfield is one of a number of British Aerospace sites involved in the Airbus programme and in addition to design work Hatfield also undertakes some component machining for the wings. These components can be seen in the New Machine Shop today, where they are manufactured on some of the largest and most technologically advanced numerically controlled machines in Europe.

Jetstream 31

The Jetstream 31 is British Aerospace's smallest civil turbo-prop aircraft, manufactured at the Civil Aircraft Division's factory in Scotland.

The Jetstream, a twin engined transport aircraft, was developed from the earlier Handley Page Jetstream that was built at Radlett, not far from Hatfield.

The Jetstream is used in a variety of roles, which include an 18 seat commuter layout, a 12 seat layout for first class accommodation, or as a corporate aircraft with similar luxuries to the 125-800. The aircraft is also in service with the Royal Navy as a navigation trainer.

Since it first flew in 1982, the Jetstream 31 has sold worldwide, with some 179 orders to date, its export success earning the aircraft the Queen's Award for Export in 1985 and 1988.



ATP



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Introduced at the recent Paris Air Show is the new Jetstream Super 31 featuring uprated Garrett TPE 331-12 engines and a new even more comfortable interior.



ATP

The ATP (Advanced Turboprop), is built at the Division's two factories in Manchester, with final assembly of the type being alongside the new 146 assembly line being established at Woodford. The ATP flew for the first time on August 6th last year and will enter service this year with British Midland Airways.

The propellers of the ATP are designed, developed and produced jointly by British Aerospace Air Weapons Division at Hatfield, and Hamilton Standard of the U.S.A. Their advanced aerodynamic design allows them to turn at very low speeds which, combined with new technology in the design and build of the aircraft, results in low external noise and operating costs.

de Havilland Sports and Social Club

The de Havilland Sports and Social Club currently boasts more than 7000 members of which 4000 are full members, 2500 retired and 500 paying associates.

The club offers a wide range of sports and facilities to its members, as well as more than 20 sections which range from art to wine making.

During the past 12 months nearly £200,000 has been spent on refurbishment, improvements include three new bars and increasing the ballroom capacity to allow for nearly 300 people.

Throughout the year many functions are held at the club, including big band nights, Music Halls, Bingo Evenings and many others designed to cater for everyone.

The club is also very active on the sports field. This year the football team won promotion from division 2 in the Herts County Football League and the Bowls and Rugby sections are both celebrating their golden jubilee.

There is always something happening at the de Havilland Sports and Social Club. If you have any queries about the Club's activities do not hesitate to contact their office during the day.



- Spurs Road Show
- Motor cycle rides
- More than 100 stands and stalls many supporting local charities
- Plenty of refreshment stands, ice cream stalls, etc.
- Beer tent
- Children's large fun fair (for children)

* We are sorry but no guests, visitors or children are allowed in the Club bars during the day.



BRITISH AEROSPACE

AIR WEAPONS DIVISION

Hatfield Family Day '87

AFTERNOON EVENTS WITH THE AIR WEAPONS DIVISION

Events are in the main arena unless otherwise indicated.

- 1300 Air Weapons Division site and buildings open
- 1305 The Central Band of the Royal Air Force
- 1315 The Red Devils - the Parachute Regiment free fall team
- 1330 Silver fanfare by the Central Band of the Royal Air Force, followed by a display of daylight fireworks
- 1335 Central band of the Royal Air Force
- 1345 The Dancing Diggers - a team of five JCB excavators
- 1415 Zak Carlieno high wire act (Arena 2)
- 1440 Display by the Queen's Colour Squadron of the Royal Air Force
- 1455 Display of Medieval jousting by six knights on horseback
- 1535 Central Band of the Royal Air Force
- 1605 The Dancing Diggers - a team of five JCB excavators
- 1630 Zak Carlieno high wire act (Arena 2)
- 1650 The Whirlybirds Sky Divers. A display of parachuting from a helicopter
- 1700 Sunset Ceremony by the Queen's Colour Squadron of the Royal Air Force and the Central Band of the Royal Air Force
Air Weapons Division site and buildings close

Please note: Parachuting can be a hazardous activity. Although the Red Devils and the Whirlybirds take every precaution there is always the possibility of the unforeseen hazard. Spectators therefore watch at their own risk.

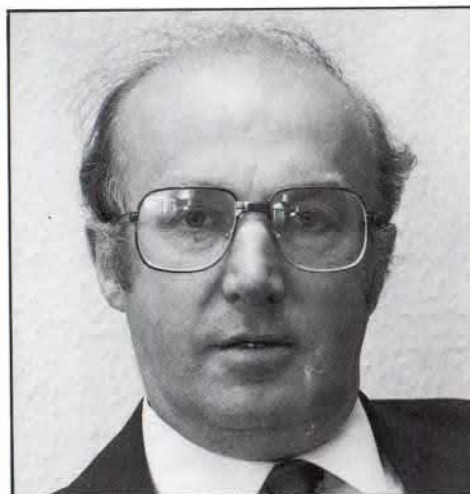
ATTRACTIONS DURING THE AFTERNOON INCLUDE

Many buildings open to visitors, showing a wide cross-section of the work carried on at Hatfield. See inside this souvenir programme for details.

The British Aerospace Wingates band, sponsored by the Air Weapons Division, will play in the bandstand during the afternoon.

Displays by many Dynamics Hatfield Club sections.

Pleasure flights in a helicopter and aircraft.



Bernard Rosser
Managing Director
Air Weapons Division

**Welcome to British Aerospace Air
Weapons Division's Hatfield
Family Day.**

I am very pleased to give you the opportunity to see something of the high technology projects on which we are very actively engaged. Technology does not stand still for long and you will see the new facilities and equipment in which we have invested to ensure that we remain at the forefront of our business. Many staff are on duty, so please ask them if you would like to find out more about anything.

We have gained quite a reputation for our programme of outside events and attractions and this year they are better than ever. Whether you are 7 or 70 there is something for you.

I hope you have an interesting and enjoyable day.



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Miniature steam train rides.

Fairground.

Many stalls and sideshows from local organisations.

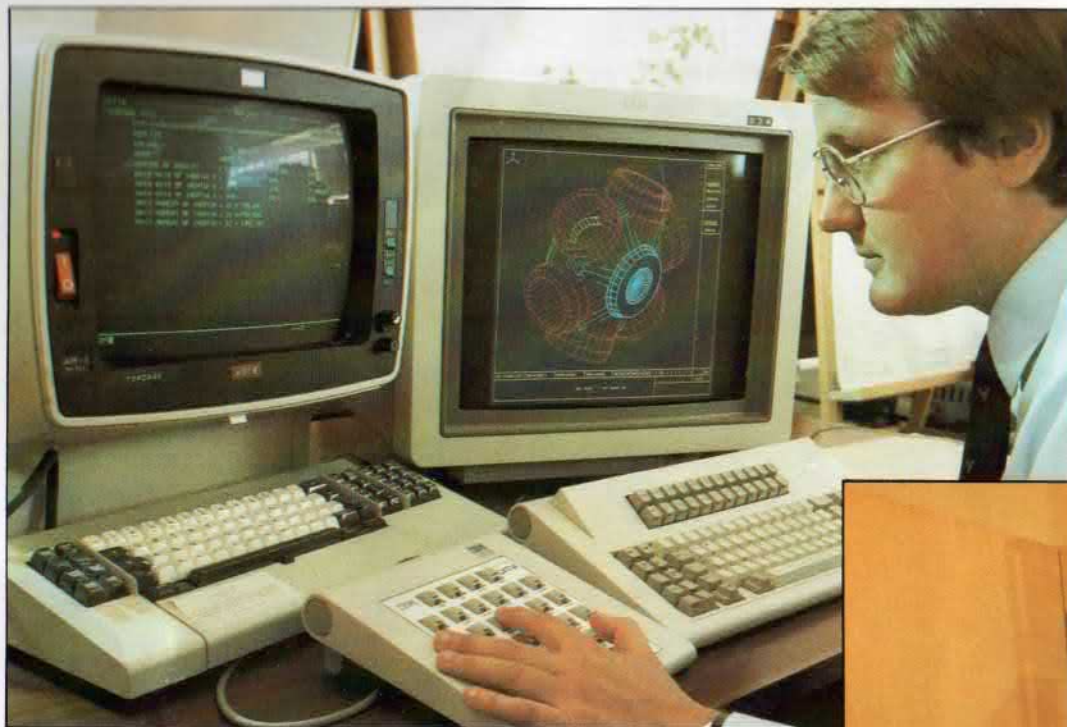
Refreshments.

Please note: No dogs are allowed on the site. We regret that we cannot allow photographs to be taken inside some of the buildings. It may be necessary to search bags etc. before entry into a building.
Thank you for your co-operation.



Air Weapons Division - Hatfield





Computer aided design



Testing a Sky Flash wing



A Building

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Microelectronics manufacture



Testing a Sky Flash wing



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A Building

A building is our main manufacturing area. Here you can see high technology manufacturing techniques in which computers control many kinds of machine and play an important part in the advanced production engineering methods which are used. Among the activities exhibited is the production of microelectronic devices many of which are used in our missiles. While you are there you can have the computer produce a name-plate for you. Also in this building you will be able to see the work of our apprentices and examples of the projects they have undertaken including those for Industry Year with handicapped children.

B Building

This is one of our two main design areas. There are exhibits on show which illustrate many of the activities involved in the development of a missile, from the design of electrical components to the testing of the finished weapons. Computers play a major part in the design process and there are demonstrations of how they help in producing the drawings, predicting the way in which a missile will behave and analysing the results of tests; they can also be used to read your horoscope. In B Building are located the machines and equipment on which the missiles are tested for their ability to withstand the heat and cold, vibration, shocks and other stresses they will experience before they are fired as well as during their flight to the target. In the same area you can see

Air Weapons Division

1. Main arena
2. Display vehicles
3. Funfair and steam railway
4. Beer tent
5. Static aircraft display
6. Helicopter and aircraft rides
7. Band stand
8. Sideshows and static displays
9. Security police control
10. Public car park
11. Airfield
12. Employment information
13. Information
14. Retired employees reception tent



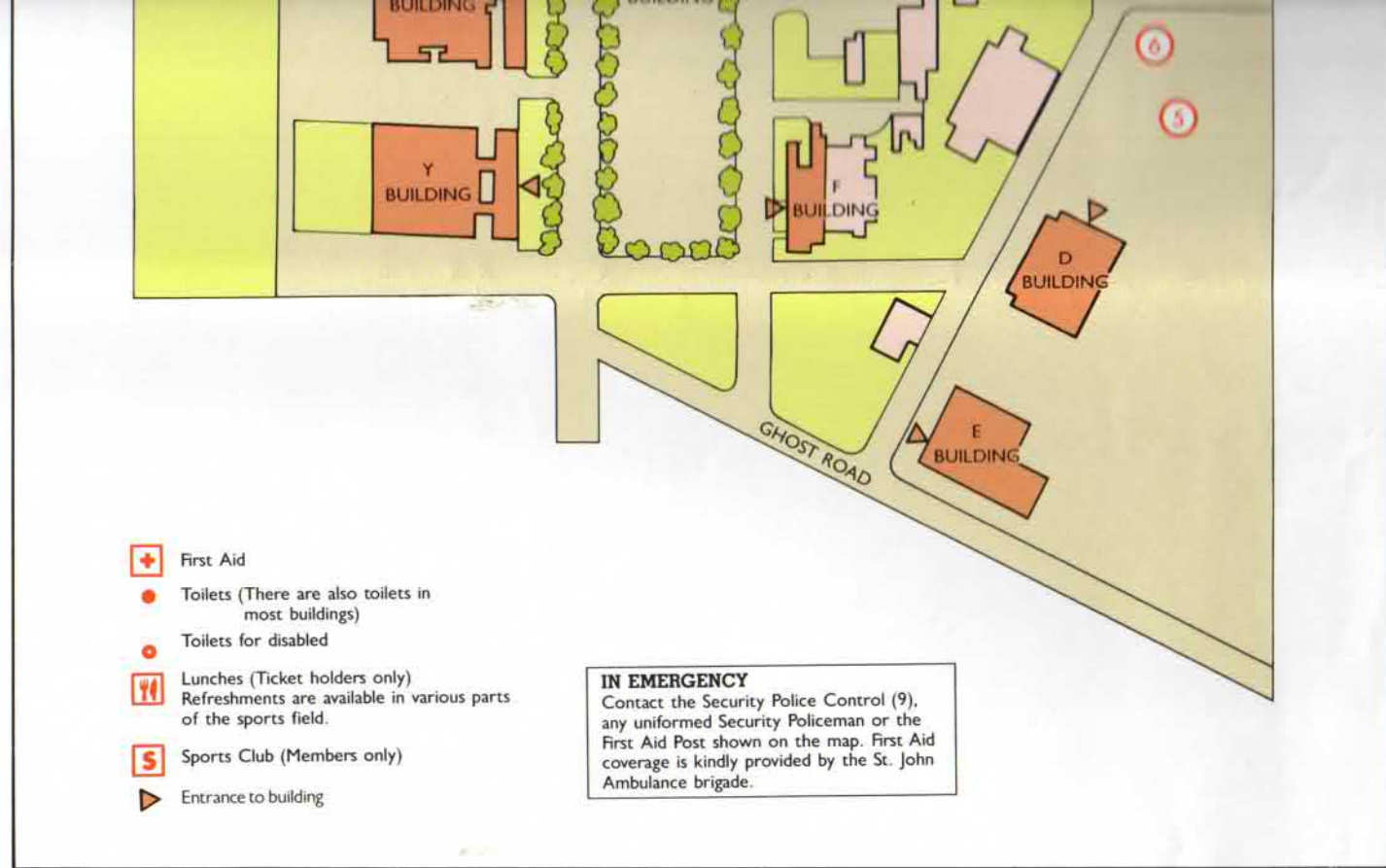
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Y Building

This is our other main design area. Here you can use computer techniques to participate in designing a missile and then examine what performance it would have against a target. There are also displays showing the complex testing which is necessary for every missile and various other aspects of the design and development process. Our design and systems teams have also set up a variety of computer games which we hope will entertain you – and you can get your personal certificate to record your visit.

S Building

S Building, which is the Training Department's location, will be open house for anyone interested in investigating the range of training and apprenticeships available in the Air Weapons Division of British Aerospace. You will be able to talk to members of the Training Department staff as well as our apprentices and graduates. Information videos will be shown throughout the afternoon and literature will be available to take away. Couriers will also be on hand to take you to the display of our apprentices' work in A Building.



F Building

This is our acoustic test facility. High speed aircraft and missiles are subject to pressure fluctuations over their surfaces which can induce severe vibration and consequent malfunctioning or structural failure. All missiles have to be tested to ensure their design can withstand this. The pressure fluctuations are simulated by generating intense sound fields using special sirens. The missiles are exposed to this sound and their response to it is carefully measured and analysed. Very thick concrete walls and doors are necessary to contain the noise within the test chambers. Demonstrations of the test facility operation will be given.

E Building

Here you can see examples of the target seekers and fuzes which are employed by heat-seeking missiles to detect and track their targets using the infra-red energy radiated from the engines or other heated surfaces of the target aircraft or other target vehicle. Another infra-red device on display is a thermal imager which allows you to see in the dark by forming an image from the infra-red energy which is emitted by all objects even in the absence of any visible light. The same principle is adopted in the linescan equipments which are also on display and are used to produce detailed aerial pictures of the ground for reconnaissance purposes by day or night.

D Building

We manufacture propellers for many types of aircraft and examples of our range of propeller products can be seen in this building. More spectacular are the huge propellers – more properly called turbines – which we are now assembling for use with electrical generators which derive their energy from the wind. These machines, some of which will have blades 60 metres in diameter, can provide a pollution-free source of electricity in remote areas to which it is difficult to bring power lines or in regions which lack other sources of power. They are now being set up both in the United Kingdom and overseas countries. Also in D building can be seen exhibits concerning our work on aircraft air conditioning equipments and landing gear.

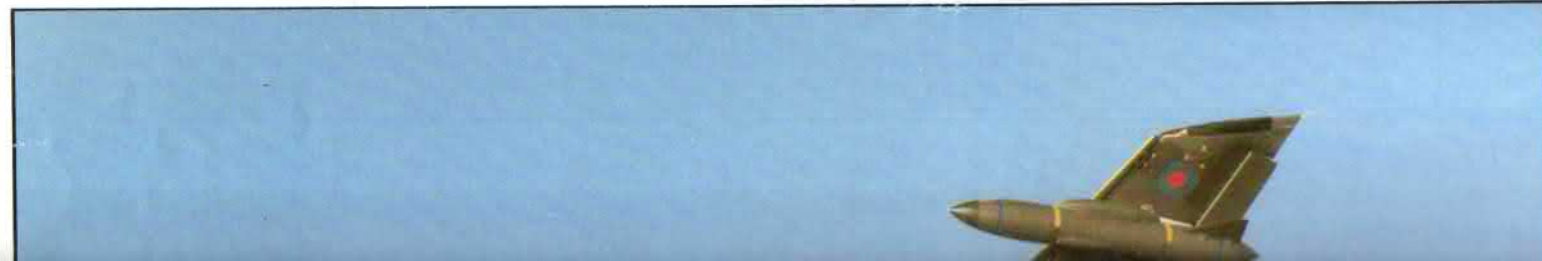
Flash wing

cooling engine



Sky Flash Air-to-Air Missile
Fired from Tornado

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ALARM Anti-Radar Missiles
on Tornado



ALARM Anti-Radar Missiles
on Tornado



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Air Weapons Division



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Air Weapons Division – Hatfield

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Club Group Assorted



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