

# **BRITISH AIRCRAFT CORPORATION**

**the most powerful  
aerospace company  
in Europe**

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British Aircraft Corporation was formed in 1960 from the aviation and guided weapons interests of The Bristol Aeroplane Company (whose interests have since passed to Rolls-Royce), English Electric and Vickers Limited. It is today Europe's most powerful aerospace company. BAC is responsible, with Sud-Aviation of France, for the Western world's first supersonic airliner; builds long-, medium- and short-haul jets for airlines throughout the world; produces a wide range of supersonic and subsonic military aircraft; and is the European leader in space engineering. It is a pioneer in large-scale international collaboration and is engaged on joint projects with European and American companies.

BAC has four operating divisions, seven major factories, six airfields and more than 36,000 employees. Its products have been sold to, or are on order by, more than half the countries of the world.

### **FILTON DIVISION**

Situated just north of Bristol, this Division has prime responsibility with Sud-Aviation of France for design, development and production of the Concorde supersonic transport. The British final assembly line for Concorde is housed at Filton in the largest aircraft assembly hall in Europe.

### **PRESTON DIVISION**

With factories at Preston, Samlesbury and Warton, all in Lancashire, this Division specialises in military aircraft. It built the very successful Canberra, and current production includes the Lightning multi-role supersonic aircraft, the Jet Provost Mk. 5 basic trainer for the RAF, the BAC 167 Strikemaster basic trainer and ground attack aircraft, and the Jaguar supersonic strike and advanced training aircraft (produced jointly with Breguet Aviation, France). Advanced design work includes studies of the application of variable geometry to the proposed multi-national combat aircraft for the 1970s.

### **WEYBRIDGE DIVISION**

With factories at Weybridge in Surrey and Hurn, near Bournemouth, this is the subsonic transport aircraft division of BAC. Test flying is conducted from Wisley airfield, Surrey. Weybridge Division is also a major contributor both in design and manufacture on the Concorde programme. The Division produces Europe's best-selling BAC One-Eleven jetliner and the VC10 family of long-distance jets.

### **GUIDED WEAPONS DIVISION**

The Stevenage Works in Hertfordshire are responsible for BAC's range of anti-aircraft and anti-tank missile systems and include industrial plastic and precision product facilities. The Space and Instrumentation Group responsible for sounding rockets, target drones and satellites is at Bristol.



# CONCORDE

Concorde will bring the greatest advance in transportation ever seen when it enters service with the world's leading airlines in the 1970s. A cruising speed of more than twice the speed of sound will cut by half journey-times on long-distance intercontinental flights.

Concorde will be powered by four Rolls-Royce SNECMA Olympus 593 engines, producing 38,300 lb. static thrust each, with reheat. A Mach 2.2 cruise (1,400 mph) at 50–60,000 ft. will be combined with conventional subsonic approach speeds for landing. Concorde can, if necessary, cruise subsonically over land at virtually the same fuel consumption as in supersonic cruise.

The airliner will carry up to 144 passengers over stage lengths of 4,000 statute miles. In a given period the number of seat/miles flown will be as high as that of a 250–300 seat 'Jumbo' jet. The overseas earnings from a minimum market for 200 aircraft and spares will be as high as £3,000 million, shared between Britain and France.



*Concorde*

## **BASIC DATA**

**Dimensions:** Overall length, 193 ft.; wing span, 83 ft. 10 in.; overall height 38 ft.

**Design Weights:** Max. take-off, 376,000 lb.; max. landing, 240,000 lb.; max. zero fuel weight, 200,000 lb.

**Accommodation:** Number of seats: 128 in typical all-economy layout at 34 in. pitch.

**Powerplant:** Four Rolls-Royce/SNECMA Olympus 593 turbojets. Rated thrust 38,240 lb. static thrust each with reheat.

# BAC ONE-ELEVEN

Now operated worldwide, the BAC One-Eleven was designed as the jet replacement for the Viscount and was the first truly economic short-haul jet.

The type first flew in August 1963. It entered service in April 1965, with British United Airways, and Braniff International in the United States. The One-Eleven series 200, the initial production version, powered by two Rolls-Royce Spey 2 Mk. 506-14 turbofans (10,400 lb. static thrust each), seats 65-79 passengers.

In March 1966, the heavier and more powerful 400 series was brought into service with American Airlines. Powered by the Rolls-Royce Spey Mk. 510-14, with 1,000 lb. more thrust per engine, the 400 series became the standard production version. A stretched version of the aircraft—the One-Eleven 500—was flown on 30 June 1967, and entered service with BEA in September 1968. The One-Eleven 500, with two Spey 512s each developing 12,000/12,550 lb. thrust and a fuselage stretch of 13ft. 6 in., offers 25 per cent more seats than earlier versions, carrying 99 passengers or up to 109 for Inclusive Tour work.

Versions of the One-Eleven 500 operating over distances of up to 1,500 miles are in service with British independent airlines and foreign carriers.



*BAC One-Eleven*

## **BASIC DATA: (One-Eleven 500)**

**Duty:** *Short and middle distance airliner for routes of up to 1,500 miles.*

**Dimensions:** *Overall length, 107 ft.; wing span, 93 ft. 6 in.; overall height, 24 ft. 6 in.*

**Weights:** *Max. take-off weight, 98,000 lb.; max. landing weight, 86,000 lb.; max. zero fuel weight, 78,000 lb.*

**Accommodation:** *99 seats at 34 in. pitch.*

**Performance:** *Max. cruising speed, Mach 0.78 (550 mph).*

**Powerplant:** *Two Rolls-Royce Spey 25 Mk. 512-14 of 12,000 lb. static thrust each.*

# VC10 - VANGUARD - VISCOUNT

Since 1945 the Weybridge Division of BAC has produced over 1,000 commercial airliners—more than twice as many as any other Western aircraft builder outside the USA. Still in regular airline service are the VC10, Vanguard and Viscount.

## **VC10/SUPER VC10**

The first second-generation long-range jet airliner, the VC10 has been acclaimed by passengers all over the world for its quiet cabins, perfect air conditioning and high reliability.

VC10s entered service with BOAC in April 1964 and the larger, more powerful Super VC10s one year later. In typical mixed-class configuration, VC10s seat 109 passengers and Super VC10s 146. Combined passenger/freighter VC10s and Super VC10s (with a fuselage 13 ft. longer) operate with British United and East African Airways. Equipped with a large 140 in. x 84 in. side loading cargo door, the VC10 carries up to 60,000 lb. of passengers and freight.

VC10s operate worldwide, mainly on non-stop journeys of 1,500–3,500 miles. The military VC10, operating at higher weights and often over much greater distances, is the RAF's standard long-range jet transport.



VC 10

## **BASIC DATA (Super VC10)**

**Dimensions:** *Wing span, 140 ft. 2 in.; gross wing area, 932 sq. ft.; overall length, 171 ft. 8 in.; sweep back 32½°*

**Weights:** *Max. take-off weight, 335,000 lb.; max. landing weight, 237,000 lb.; max. zero fuel weight, 215,000 lb.*

**Performance:** *Max. cruising speed, 600 mph.*

**Powerplant:** *Four Rolls-Royce Conway 550 (RCo 42/3) turbofan engines each developing 22,500 lb.-st. thrust for take-off.*

## VANGUARD

The big Vanguard prop-jet used by BEA and Air Canada was the first true 'airbus'. A second-generation design, following the Viscount, the Vanguard incorporated advanced engineering concepts including the first extensive use of 'machined from the solid' structures. Entering full airline service in Britain and Canada in 1961, the Vanguards—carrying up to 139 passengers and with some 6 tons of freight in their 1,360 cu. ft. holds—were soon moving on each 350–450 miles flight as much as four to five Dakotas or Vikings.

## VISCOUNT

The Viscount, which in 1950 became the first turbine-powered airliner in the world to carry passengers on commercial flights, became an outstanding export earner. Some 450 were built. Sales exceeded £170 million—a record now bettered by the Viscount's jet successor, the One Eleven. First flown in July 1948, the little Viscount 630 represented Britain's first major bid to enter American-dominated air transport markets. After nearly five years' development flying, the Viscount went into regular service with BEA in April 1953. Sold in every continent, the Viscount brought in the era of smooth turbine flight.

### BASIC DATA (Vanguard 952)

**Dimensions:** *Wing span, 118 ft.; length, 122 ft. 10½ in.; height, 34 ft. 11 in.*

**Weights:** *Max. take-off weight, 146,500 lb.; landing weight, 130,500 lb.; max. zero fuel weight, 122,500 lb.*

**Performance:** *Max. cruising speed, 425 mph.*

**Powerplant:** *Four Rolls-Royce Tyne 512 (RTy 11) turboprop engines, each developing 5,545 ehp for take-off, with de Havilland 4-blade propellers, 14 ft. 6 in. dia. with reverse pitch.*



Vanguard



Viscount

### BASIC DATA (Viscount 810)

**Dimensions:** *Wing span, 93 ft. 8 in.; length, 85 ft. 8 in.; height, 26 ft. 9 in.*

**Weights:** *Max. take-off weight, 72,500 lb.; max. landing weight, 64,000 lb.; max. zero fuel weight, 57,500 lb.*

**Performance:** *Max. cruising speed, 365 mph.*

**Powerplant:** *Four Rolls-Royce Dart 525 (Rda 7/1) turboprop engines each developing 1,990 ehp for take-off. Rotol 4-blade propellers, 10 ft. dia.*

# LIGHTNING

The Lightning, which has been called the world's finest interceptor fighter, has recently been given an all-round ground attack, interception and reconnaissance capability. Its history dates from the P1A supersonic research aircraft and P1B fighter prototype of the 'fifties, respectively the first British aircraft to exceed the speed of sound on level flight and the first to fly at Mach 2.

The Lightning F. Mk. 1 entered service with No. 74 Squadron of the RAF on 29 June 1960. Armament was Aden 30 mm. cannon and two Firestreak heat-seeking missiles. The F. Mk. 2 and 3 followed with more powerful and more sophisticated interception equipment, including two Red Top missiles. The Mk. 2 entered service in November 1962 and the Mk. 3 in January 1964. Latest RAF variant is the F. Mk. 6 interceptor.

The F. Mk. 53 export version has a formidable ground attack capability, combined with reconnaissance potential. The F. Mk. 6 and 53 are powered by two Avon 302c engines, with a reheat thrust of some 16,000 lb. each.

Two training versions, the T. Mk. 4 and 5, provide full weapons-training capability and can fly fully operational two-man sorties. The T. Mk. 55 is the export version of the two-seater.



*Lightning*

## **BASIC DATA (F. Mk. 6)**

**Dimensions:** Overall length, 55 ft. 3 in.; wing span, 34 ft. 10 in.; overall height, 19 ft. 6 in.  
**Powerplant:** Two Rolls-Royce Avon 302c of 16,000 lb. static thrust each (with reheat).



# JAGUAR

Jaguar is a new Anglo-French aircraft intended to fill the needs of many of the world's air forces in the 1970s for a supersonic advanced trainer and tactical support aircraft.

Design and production are divided between BAC's Preston Division and Breguet Aviation at Villacoublay. Initial production orders for 400 aircraft—200 each for Britain and France—have been placed. Jaguar E-01, the first prototype, first flew on 8 September 1968.

Five variants of the basic strike and trainer versions will be available—Jaguar 'A', the French single-seat tactical aircraft; 'S', the British; 'E', the French two-seat advanced trainer; 'B', the British two-seat version; and 'M', the French single-seat naval strike aircraft. All versions are powered by two Rolls-Royce/Turbomeca Adour RB 172-T 260 turbofans, developing a maximum reheat thrust of over 6,000 lb. each.

Jaguar will provide a low-level, close-support capability in its strike role, carrying a range of external weapons, including Martel missiles, 1,000 lb. bombs and 68 mm. SNEB rockets. Two 30 mm. cannon will be fitted. The two-seat training variant will provide a much-needed aircraft for pilot transition from basic trainers to front-line high-performance operational aircraft such as supersonic interceptors.



Jaguar

## BASIC DATA

**Dimensions:** Length, 51 ft. (tactical); 54 ft. (trainer); span, 28 ft.; height, 15 ft.

**Weights:** Max. take-off, 30,000 lb.; normal take-off, 22,000 lb.

**Performance:** Max. speed (low-level), Mach 1.1; Max. speed (high-level), Mach 1.7; range (hi-lo-hi mission), 890 nautical miles (with external fuel).

**Powerplant:** Two Rolls-Royce/Turbomeca Adour turbofans each supplying more than 4,400 lb. dry thrust (more than 6,600 lb. with reheat).

# BAC 167 STRIKEMASTER

The BAC 167 Strikemaster is a second-generation jet trainer which also possesses formidable ground attack capability. Developed from the Jet Provost trainer used by the RAF and air forces throughout the world, the Strikemaster has a pressurised cabin, strongpoints on the wings for carrying ground attack stores, increased range and a Rolls-Royce/Bristol Siddeley Viper turbojet of 3,410 lb. thrust.

The Strikemaster's side-by-side seating is the proven layout for basic training, facilitates weapons training, and enables the most efficient use to be made of both crew members in ground attack sorties. The pressure cabin makes possible an extended high-altitude training syllabus.

Weapon loads of up to 3,000 lb. can be carried under the reinforced wing. Two FN 7.62 mm. machine guns are carried as standard and the choice of external stores includes 1,000 lb. bombs, 25 lb. bombs, and rockets. A multi-purpose camera pack can be carried.

The Strikemaster has a range of from 200 to 500 miles. Its ruggedness and strength of construction make it ideal for counter-insurgency operations, and it is able to operate into and out of 'hot and high' airstrips.



*BAC 167 Strikemaster*

## **BASIC DATA**

**Dimensions:** Overall length, 33 ft. 7½ in.; wing span, 36 ft. 11 in.; overall height, 10 ft. 2 in.

**Design weights:** Max. take-off, 11,500 lb.; empty weight, 5,850 lb.

**Powerplant:** Rolls-Royce/Bristol Siddeley Viper Mk. 535 turbojet of 3,410 lb. static thrust.

# CANBERRA

The Canberra prototype, built by English Electric, first flew on 13 May 1949. During ten years in production, more than 1,380 aircraft were built in Britain and overseas (including the USA), in 30 different marks. The Preston Division's Samlesbury works are currently refurbishing many different marks of Canberra for despatch as virtually new aircraft to overseas customers. During the 'fifties, the Canberra captured a number of long-distance records, and in October 1953 a PR 3 won the London–New Zealand Air Race, averaging 494.5 mph.

Variants of the Canberra include the B. Mk. 2, a fully equipped operational aircraft, carrying a maximum internal weapons load of 6,000 lb. and powered by two Rolls-Royce Avon 101 (RA 3) engines of 6,500 lb. static thrust each. The B. Mk. 6 light tactical bomber, of which 103 were built, is powered by the uprated Avon 109 of 7,500 lb. static thrust. Some of these variants were converted to B (I) 6 night interdictors. The PR Mk. 9 high-altitude photographic reconnaissance aircraft, designed as a replacement for the PR Mk. 7, has an offset fighter canopy, increased wing chord inboard of the engine nacelles, and Avon 206 turbojets.



Canberra

## **BASIC DATA (PR9)**

*Dimensions: Length, 66 ft. 8 in.; span, 67 ft. 10 in.; overall height, 15 ft. 7 in.*

*Powerplant: Two Rolls-Royce Avon 206 turbojets. Thrust rating, 10,050 lb.'st. thrust.*

# BAC GUIDED WEAPONS

## BLOODHOUND

The Mk. 1 Bloodhound anti-aircraft system entered service with the RAF in 1958. Bloodhound 2 was developed from it to take advantage of more advanced electronic, computer and radar techniques.

## THUNDERBIRD

Thunderbird 2 is a second-generation anti-aircraft missile with long and medium range high-altitude performance. It uses experience gained with Thunderbird 1, which first entered service with the British Army in 1960.

## RAPIER

Rapier is a third-generation surface-to-air guided weapons system. It can be operated by one man, to give protection against low-level supersonic air attacks.

## VIGILANT

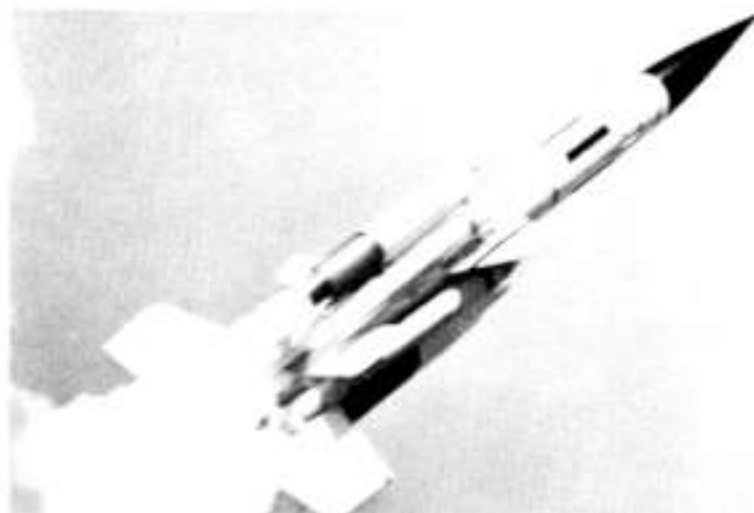
The Vigilant wire-guided missile is a lightweight one-man anti-tank weapon system. The complete system is contained in a launcher/carrying box carried like a suit-case.

## SWINGFIRE

Swingfire is a new and sophisticated wire-guided anti-tank weapon for firing from military vehicles. A built-in automatic programme facility brings the missile on to the aimer's line of sight after firing. Whereas Vigilant is controlled by aerodynamic fins, Swingfire has a swivelling jet-nozzle.

## SEA WOLF

Sea Wolf has been designed to incorporate the techniques of the Rapier missile in providing protection for warships against low-level air attack and missiles.



*Bloodhound*



*Rapier*



*Vigilant*



*Thunderbird*



*Swingfire*

# SOME BAC AIRCRAFT OF THE PAST

Backing every BAC aircraft is some sixty years' experience gained by the companies which merged to form the Corporation. Aircraft from the Bristol Aeroplane Company, English Electric and Vickers (which included Supermarine) set new speed, height and distance records; played major roles in war; blazed new air routes; and introduced new techniques. A few of these aircraft are listed below.

**Bristol Boxkite** (1910): First aircraft in the world to make a military flight. One 70 hp Gnome engine.  
Length: 38 ft. 6 in. Span: 47 ft. 8 in. Height: 11 ft. 10 in.  
Performance: 40 mph at 1,000 ft.

**Vickers FB 1 'Gunbus'** (1913): The first gun-carrying aircraft, it saw service early in the First World War.  
Length: 27 ft. 2 in. Span: 36 ft. 6 in. Height: 11 ft. 6 in.  
Performance: 70 mph at 5,000 ft. One 100 hp. Gnome Mono.

**Bristol F.2B Fighter** (1916): Mainstay of the RAF in its formative years, it first flew in 1916 and was in RAF service until 1931.  
Length: 25 ft. 10 in. Span: 39 ft. 3 in. Height: 9 ft. 6 in.  
Design weights: 1,930 lb. empty; 2,800 lb. loaded.  
Max. speed 125 mph.  
One Rolls-Royce Falcon III, developing 275 hp.

**Vickers Vimy (IV)** (1918): The standard heavy bomber of the RAF during early 1920s. Alcock and Brown made the first non-stop crossing of the Atlantic in a Vimy in 1919.  
Length: 43 ft. 6 in. Span: 68 ft. 1 in. Height: 15 ft. 7 in.  
Design weights: 7,104 lb. empty; 10,884 lb. loaded.  
Max. speed 100 mph. Range about 900 miles with military load. Engines: Two Rolls-Royce Eagle VIII of 360 hp.

**Supermarine Spitfire** (1936): Only Allied fighter in continuous production throughout whole war. (Particulars apply to Mk. 1 Spitfire (1938) with Mk. 24 of 1946 in brackets.)  
Length: 29 ft. 11 in. (32 ft. 11 in.).  
Span: 36 ft. 10 in. (36 ft. 10 in.).  
Height: 11 ft. 5 in. (13 ft. 6 in.).  
Normal loaded weight 5,280 lb. (9,900 lb.).  
Max. speed 362 mph (450 mph).  
Max. rate of climb 2,350 ft./min. (4,900 ft./min.).  
Engine: One Rolls-Royce Merlin of 1,030 hp (one R-R Griffon 61 of 2,375 hp).  
Built: 20,351 Spitfires; 2,408 Seafires.

**Bristol Blenheim (IV)** (1936): Principal pre-war light bomber of the RAF, it saw action in the opening years of the Second World War.  
Length: 43 ft. 11 in. Span: 56 ft. 1 in. Height: 12 ft. 10 in.  
Loaded weight, 17,000 lb. Max. speed 260 mph. Range about 1,600 miles.  
Engines: Two Bristol Mercury XV of 950 hp each.

**Vickers Valiant** (1951): Britain's first V-bomber.  
Length: 108 ft. 3 in. Span: 114 ft. 4 in.  
Engines: Four Rolls-Royce Avon RA 28 jets, developing 10,000 lb. static thrust.

**Bristol Britannia** (1958): First British airliner on trans-Atlantic routes.  
Length: 124 ft. 3 in. Span: 142 ft. 3 in. Height: 37 ft. 6 in.  
Design weight: 92,500 lb. empty. Cruising speed—405 mph.  
Accommodation: 84–133 passengers.  
Engines: Four Bristol Siddeley Proteus 755 turboprops.



*Vickers Gunbus*



*Bristol Fighter*



*Vickers Vimy*



*Supermarine S6B*



*Vickers Supermarine Spitfire*



*Vickers Wellesley*



*Bristol Blenheim*



*Vickers Wellington*



*Bristol Britannia*

**Supermarine S6B (1931):** A highly advanced high-speed racing seaplane which won outright the Schneider Trophy in 1931, and gained a world record speed of 407 mph. Length: 28 ft. 10 in. Span: 30 ft. Height: 12 ft. 3 in. Max. speed 407.5 mph. Engine: One Rolls-Royce 'R' of 2,300 hp.

**Vickers Wellesley (1935):** First production aircraft to use Sir Barnes Wallis' geodetic construction. In 1938 it set a world long-distance record of 7,159 miles. Length: 39 ft. 5 in. Span: 74 ft. 7 in. Height: 12 ft. 4 in. Design weights: 6,369 lb. empty; 11,100 lb. loaded. Max. speed 228 mph at 19,680 ft. Engine: One Bristol Pegasus XX, developing 925 hp.

**Bristol 138a (1936):** This single-seat high-altitude research aircraft twice set world height records—43,967 ft. in 1936 and 53,937 ft. in 1937. Length: 44 ft. Span: 66 ft. Height: 10 ft. 3 in. Design weights: 4,391 lb. empty; 5,310 lb. loaded. Max speed 177 mph at 45,000 ft. Engine: One Bristol Pegasus 500 hp PE 6 S.

**Vickers Wellington (1936):** Backbone of RAF Bomber Command in the opening phases of the Second World War and the only RAF bomber type to serve throughout. (Details apply to the Wellington Mk. IC.) Length: 64 ft. 7 in. Span: 86 ft. 2 in. Height: 17 ft. Design weights: 18,556 lb. empty; 28,500 lb. loaded. Max. speed 235 mph at 15,500 ft. Engines: Two Bristol Pegasus XVIII, developing 1,000 hp each.



## **Opportunities for school-leavers**

To provide technologists, scientists, technicians, craftsmen, and commercial and administrative staff, BAC recruits right across the range of school-leavers, from the secondary modern schoolboy to the scholarship level sixth-former. BAC's training schemes, combining further education and industrial training, are designed to give each trainee the opportunity to reach the limit of his ability. For details of training and apprenticeship schemes, write to :

**Manager, Group Education & Training Services,  
British Aircraft Corporation, Weybridge, Surrey.**