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Introducing The BAe 146

The BAe 146 is a short haul jet offering quiet, efficient operations on sectors up to 1500 Nautical miles (2750Km).

The aircraft first flew in 1981 entering service with Dan Air in 1983. 221 aircraft were manufactured up to 1992 when production shifted to the Avro RJ.

The BAe146 family of regional jets is available in three fuselage sizes spanning 70 to 112 seats.

- **BAe146-100** - 70-80 Seats
- **BAe146-200** 85-100 Seats
- **BAe146-300** 100-112 Seats

With 100% commonality of engines, flight deck and systems across the family, the BAe146 offers the ultimate in flexible fleet solutions.
The BAe146 together with its successor, the Avro RJ, is currently in service worldwide.

Many of the operators are regional affiliates of mainline carriers such as Lufthansa and British Airways.

Among the others are corporate and VIP operators such as Formula One and the Queen’s flight.

Seven airlines operate a total of 28 dedicated Freighter and Quick Change variants.

Source: Ascend Online Database June 2009, *italics indicate airline have acquired aircraft but not yet in service*
Dimensions
### Basic BAe 146 Dimensions

<table>
<thead>
<tr>
<th></th>
<th>BAe 146-100</th>
<th>BAe 146-200</th>
<th>BAe 146-300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wing span</strong></td>
<td>26.34 m (86ft 5 in)</td>
<td>26.34 m (86ft 5 in)</td>
<td>26.34 m (86ft 5 in)</td>
</tr>
<tr>
<td><strong>Gross wing area</strong></td>
<td>77.3 m² (832 ft²)</td>
<td>77.3 m² (832 ft²)</td>
<td>77.3 m² (832 ft²)</td>
</tr>
<tr>
<td><strong>Overall length</strong></td>
<td>26.16 m (85ft 10 in)</td>
<td>28.55 m (93ft 8 in)</td>
<td>30.99 m (101ft 8 in)</td>
</tr>
<tr>
<td><strong>Overall height</strong></td>
<td>8.61 m (28ft 3 in)</td>
<td>8.61 m (28ft 3 in)</td>
<td>8.59 m (28ft 2 in)</td>
</tr>
<tr>
<td><strong>Main gear track</strong></td>
<td>4.72 m (15ft 6 in)</td>
<td>4.72 m (15ft 6 in)</td>
<td>4.72 m (15ft 6 in)</td>
</tr>
<tr>
<td><strong>Wheel base</strong></td>
<td>10.09 m (33ft 1.5 in)</td>
<td>11.20 m (36ft 9 in)</td>
<td>12.52 m (41ft 1 in)</td>
</tr>
<tr>
<td><strong>Passenger cabin</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Length</strong></td>
<td>15.42 m (50ft 7 in)</td>
<td>17.81 m (58ft 5 in)</td>
<td>20.20 m (66ft 3 in)</td>
</tr>
<tr>
<td><strong>Headroom</strong></td>
<td>2.03 m (6ft 8 in)</td>
<td>2.03 m (6ft 8 in)</td>
<td>2.03 m (6ft 8 in)</td>
</tr>
<tr>
<td><strong>Internal diameter</strong></td>
<td>3.42 m (11ft 3 in)</td>
<td>3.42 m (11ft 3 in)</td>
<td>3.42 m (11ft 3 in)</td>
</tr>
<tr>
<td><strong>Floor width</strong></td>
<td>3.24 m (10ft 8 in)</td>
<td>3.24 m (10ft 8 in)</td>
<td>3.24 m (10ft 8 in)</td>
</tr>
</tbody>
</table>
Passenger Cabin Features
Uniquely in its class, the BAe146 features four Type 1 exit doors.

Forward and aft service doors on the right hand side and passenger doors on the left hand side, ensure speedy turnrounds and offer the distinct benefit of multiple emergency exit possibilities for passengers.

Whilst integral airstairs can be fitted to provide independence at remote airfields, jetway compatibility facilitates efficient passenger handling at mainline destinations.
The BAe146 offers an outstanding interior standard for regional operations.

- Front and rear passenger doors
- Galley location options.
- Wide variety of seating capacities.
- 4, 5 or 6 abreast layout options.
- Front and rear under floor baggage holds.
- Large overhead bins
Cabin Versatility

The wide BAe146 cabin permits numerous seat combinations providing excellent flexibility to match specific service levels in segregated markets.

The basic economy class 6-abreast passenger seating matches 737 standards whilst 4-abreast and 5-abreast introduce premium class options.

Large underfloor holds, forward and aft of the wing, provide excellent volume for checked bags and additional cargo.
Typical 5 - Abreast Configurations

- 73 seats five-abreast at 31" pitch
- 88 seats five-abreast at 31" pitch
- 103 seats five-abreast at 31" pitch

BAe 146 - 100

BAe 146 - 200

BAe 146 - 300
Typical 6 - Abreast Configurations

- 84 seats six-abreast at 31" pitch
  - BAe 146 - 100

- 100 seats six-abreast at 31" pitch
  - BAe 146 - 200

- 110 seats six-abreast at 34" pitch
  - BAe 146 - 300
Underfloor Holds

• The BAe146 has two underfloor holds, each 41” high. The access doors open inwards.
  • Forward hold door
    1.09 m x 1.35 m
    (43 in x 53 in)
    Sill height 0.85 m (33 in)
  • Rear hold door
    1.04 m x 0.91m
    (41 in x 36 in)
    Sill height 0.88 m (35 in)

Hold capacities

- 146-100   13.56 m³ (479 ft³)
- 146-200   18.25 m³ (645 ft³)
- 146-300   22.98 m³ (812 ft³)
Freighter Variants
Nearly 30 BAe146 Quiet Trader (QT) and Quick change (QC) freighters have been built. These aircraft are currently in service in Europe and Australia providing extremely quiet jet operations and offering an ideal payload capacity between the regional turboprop feeder aircraft and the larger jets.

**Freighter versions of the BAe146 feature**

- Large freight door
- 9G forward bulkhead.
- Ancra cargo floor
- Palletised seats (QC version)
The Large Freight Door

The Large Freight Door which features in freighter versions of the BAe146 was developed and installed by Pemco Aerospace in a joint programme with BAE Systems.

With evidence of growing demand, BAE SYSTEMS and Pemco are proposing to reactivate the large freight door programme to enable passenger to freighter conversions of pre-owned BAe146-200 and BAe146-300 aircraft.

The Large Freight Door

- 76” (3.33 m) Wide
- 131” (1.93 m) High

Vertical (crane) access - 36” (89cm) when door fully open
The BAe 146 Quiet Trader

BAe 146 - 200 QT
- Typical gross payload - 11,500 Kg (25,353 lb)
- Six 108” X 88” pallets plus one half pallet
- Four 125” X 96” pallets
- Nine LD3 containers

BAe 146 - 300 QT
- Typical gross payload - 12,600 Kg (27,778 lb)
- Seven 108” X 88” pallets plus one half pallet
- Five 125” X 96” pallets
- Ten LD3 containers
Corporate Jet
The BAe 146 Corporate Jet

- Cabin volume over three times that of current largest business jets.
- Interior flexibility
- Excellent airfield performance
- Compliant with current and predicted noise and emission regulations.
- Independent from ground equipment - APU, integral airstairs and low level baggage holds.
- Low stall speeds, steep approach option and four engines offer enhanced levels of safety.
- Airline levels of customer support from global suppliers.

The BAe 146 is already in service with a number of civil and military operators around the world as a VIP transport and corporate shuttle aircraft.

The aircraft performance and cabin size offers the potential buyer many advantages over the traditional small business jet.
**Superior Cabin Cross-Section**

- **ABJ**
- **Challenger 604**
- **Learjet45**
- **Gulfstream IV**
The outstanding performance, low environmental impact and optional steep approach capability of the BAe146 allows unique access both to sensitive city centre airports and to remote, poorly equipped airfields with short strips.

This flexibility together with the enhanced safety features of the four engine layout is particularly attractive for operations in the VIP and corporate jet role.

* Subject to approval by local airworthiness authorities
The spacious, adaptable cabin of the BAe146 offers unique accommodation for a wide range of potential customised interiors which can be designed and installed by 3rd party specialist centres.
Quick Change Interiors

A more economic alternative to a custom interior is the Quick Change interior which converts a passenger configuration to a mixed layout with a forward VIP configuration.

79 passenger seats @ 30/31” pitch

Quick change conversion

8 Seat VIP compartment
Plus
46 passenger seats @ 30/31” pitch
Technical Overview
Structural simplicity of the BAe146 airframe has been achieved using one piece components wherever possible. Integral machining of components such as wing spars and frames leads to enhanced structural efficiency.

The structures and systems, initially cleared for 40,000 cycles/hours, are currently being extended to 80,000 cycles/hours, further underscoring the quality of the original design.
The BAE146 features a spacious 2-crew flight deck. Early aircraft flight deck instruments are electromechanical but four tube EFIS PFD’s & LCD engine displays were introduced to aircraft produced after 1987.

Fleet aircraft vary but typically, the flight deck comprises:

**Operational**
- Smiths SEP10 autopilot
- Thrust management system
- CAT2 ILS

**Communications**
- Dual VHF Comms (8.33 Khz)

**Navigation**
- Honeywell GNS-XLS
- Dual VHF NAV (FM immune)
- Dual ADF
- Honeywell EGPWS

**Surveillance**
- Dual Mode ‘S’ transponders
- TCAS2 (Change 7)
The design philosophy behind the BAe146 flying control system takes into consideration the need for simple, yet effective, system layout.

Aileron and elevator control is fully manual, although hydraulically powered controls are used where appropriate.

The very efficient high lift wing renders leading edge devices unnecessary.

**Primary flying controls**
- Fully manual aileron and elevator control
- Hydraulically powered roll spoilers and rudder

**Secondary flying controls**
- Hydraulic screw jack flap extension/retraction
- Hydraulic, automatic lift spoiler deployment
- Electrically controlled and monitored airbrake
The BAe146 is powered by four Honeywell ALF502R-5 high bypass engines of modular design.

The engines feature low fuel burns, low noise levels and low emissions.

Ease of on-wing inspection is complemented by simplicity and speed of engine removal.

**Engine data**
- Sea level static thrust: 6970 lb (31.1 kN)
- Flat rated to: ISA
- Bypass ratio: 5.6:1

**ALF502R-5**
BAe146 certificated noise levels are among the quietest in their class.

Compared to ICAO Annexe 16/FAR Pt 36 Stage 3 limits the aircraft’s combined noise levels are 15.2 EPNdB lower.

This is underscored by unique access to noise sensitive airports such as Bromma (Sweden), London City (UK), Salzburg & Innsbruk (Austria) and Berlin Tempelhof (Germany)
BAe146 aircraft are fitted with Honeywell GTCP36 or Sundstrand APS1000 units.

The units supply bleed air for air conditioning up to 15,000 ft and electrical power for engine start, ground services and emergency power up to 25,000 ft.

In flight start is possible up to 20,000 ft altitude.
The Messier Dowty trailing link main landing gear provides smooth landings, minimum tyre wear and long overhaul intervals.

- Twin wheel nose gear and main landing gear
- Trailing link main gear
- Multi-disc carbon brakes with hydraulic back-up
- Electronic anti-skid
- Typical TBO - 15,000 landings
- Wheel change - 10 minutes
- Heat pack change - 20 minutes
Maintenance & Customer Support
The BAe 146 worldwide fleet maintains an average dispatch reliability of 98.6% in the demanding regional airline operating environment.

**Mean: 98.60**

Note: Results reflect missing data from Air Dolomiti & CAT for May 09 – awaiting loading
Routine inspection and maintenance of systems whose Line Replaceable Units are located in purpose-built equipment bays can be carried out via numerous access ports provided.

1. Service access
2. Fuel tank inspection
3. Engine covers
4. Avionics/electrics bay
5. Baggage holds
6. Hydraulics bay
7. Air conditioning packs bay
8. APU bay
9. Rudder control access
As part of the BAE Systems’ commitment to continual product improvement, maintenance check intervals have recently undergone a 25% escalation. This means that A checks due at 500 Cycles are now delayed to 625 Cycles and C checks originally due at 4000 Cycles are now delayed to 5000 Cycles.

Maintenance plans have been developed for the BAe146 based on MSG-3 logic. The plans can be tailored to suit individual operator’s needs.

Nominal check intervals are currently:

<table>
<thead>
<tr>
<th></th>
<th>Interval</th>
<th>Typical Elapsed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily check</td>
<td>Within 24hrs of 1st flight</td>
<td>-</td>
</tr>
<tr>
<td>Line check</td>
<td>70 Cycles</td>
<td>-</td>
</tr>
<tr>
<td>‘A’ Check</td>
<td>625 Cycles</td>
<td>1 day</td>
</tr>
<tr>
<td>‘C’ Check</td>
<td>5000 Cycles or 2.5 Yrs</td>
<td>21 days on block maintenance basis</td>
</tr>
<tr>
<td>Repeat S.I</td>
<td>Mainly 4 years</td>
<td></td>
</tr>
</tbody>
</table>

The most common maintenance programmes are the B3, B4 & B5

<table>
<thead>
<tr>
<th></th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24 event equalised ‘C’ Check programme with Intervals of 1250 flights Or 6 months.</td>
<td>12 event equalised ‘C’ Check programme with Intervals of 2500 flights Or 1 year.</td>
<td>6 event equalised ‘C’ Check programme with Intervals of 5000 flights Or 2 years.</td>
</tr>
</tbody>
</table>
OPTION B3
(24 'C' Check events with intervals of 1250 Cycles)
OPTION B4
(12 'C' Check events with intervals of 2500 Cycles)
OPTION B5

(6 'C' Check events with intervals of 5000 Cycles)
Airframe rotable spares provisioning and repair and overhaul programmes for the BAe 146 can be tailored to the needs and capabilities of individual operators through fixed cost pay by the hour packages.

**JetSpares Programme**

The recommended programme, JetSpares, is backed by BAE SYSTEMS. This offers an airframe rotable component by the hour service with a minimum initial spares investment.

The programme covers three distinct areas:

- Recommendation of on-site Stock.
- Repair and overhaul of airframe rotable components.
- An exchange service for all airframe rotable components.

**BAE SYSTEMS Overhaul**
Honeywell’s Engine Maintenance Cost Protection Programme provides engine overhaul for a fixed hourly cost which is typically based upon the following operational elements:

- Average sector length
- Engine thrust management techniques
- Operational environment
- Annual utilisation

The plan covers parts and repair labour for scheduled and unscheduled maintenance and Category 1 and 2 Service Bulletins released after engine enrollment.

BAE SYSTEMS will assist BAe146 operators in obtaining quotes from Honeywell.

For a fixed hourly payment, Honeywell, the engine manufacturer, will undertake all engine maintenance on behalf of an operator over an agreed period (excluding line labour). The criteria for acceptance of an engine into the program includes the operator’s on-wing maintenance capability, a pre-enrolment inspection and the engine modification status.
Regional Aircraft Locations

BAE Systems’ Regional Aircraft division headquarters at Prestwick is home to Customer Support and Engineering.

BAe146 training facilities are available via BAe Systems preferred supplier based at Woodford with spares stocks at Weybridge, close to London’s international airports.

Additional support is provided from facilities in Washington DC.

Prestwick
Headquarters, Operations (Engineering and Support), Admin

Weybridge
European Logistics Centre (ELC) primary spares distribution centre

Hatfield
Asset Management

Washington
Asset Management

Kuala Lumpur
BAE Systems Aircraft Asset Management

- Aircraft re-marketing
- Lease management and asset administration
- Technical services
- Advisory and consultancy

BAE Systems Asset Management has successfully built upon the world class re-marketing and leasing skills developed over 15 years, in the successful BAE Systems Asset Management operation. Those years of experience in the commercial aircraft leasing sector are being very effectively provided to third party organisations requiring such leasing and re-marketing skills for all commercial aircraft types – from Turbo Props to Widebodies.

An established global presence with offices in Europe, USA and Asia enables us to stay in contact with our customers on a daily basis.

We believe our extensive experience built through the development of our highly successful asset management business over 15 years puts us in a unique position to see the world through our client’s eyes and understand what is important when faced with the many complex issues which can arise – from managing all aspects of aircraft leases, to scheduled or unscheduled returns and achieving the most effective aircraft re-marketing.

WWW.BAEAM.COM
Spares Logistics

- **Spares operations for the world-wide fleet of BAe 146 aircraft is provided by:**
  - Maintenance help desk manned 24 hours a day.
  - Spares Logistics Centre at Weybridge close to London Heathrow.
  - Additional spares store in Washington DC, USA.

- **Direct access to the inventory through the SPEC 2000 computer system and the internet.**
Included in the portfolio of services provided by Regional Aircraft’s Customer Support organisation is a Structural Repair Agreement.

This is an optional arrangement whereby, for a fixed annual subscription, BAE Systems will provide a range of services in the event of in-service damage to a BAe146.

- On-site structural damage assessment of customer aircraft
- Temporary repair scheme or service concession prior to provision of final repair solution
- Customer repair drawings, repair instructions and on-site structural assessments on demand from the customer.
- Provision of responses to airframe structural technical queries
- Assistance in use of the airframe structural documentation
- Provision of CAA approved repair schemes by way of a repair drawing or repair instruction
Field Service Representation

To assist with the entry into service of the BAe146, experienced Field Service Representatives are available to assist new operators.

These personnel become resident with the airline assisting the technical staff as they familiarise themselves with the aircraft and guiding them as they interface with various parts of the BAE Systems Regional Aircraft Customer Support organisation.

- Participation in daily meetings with airline
- Troubleshooting
- Reviewing and progressing outstanding issues.
- Liaising with BAE SYSTEMS customer support.
- Setting up lines of communication.
- Building relationships with key vendors.
- Ensuring BAE Systems is aware of any AOG.
Customer Training

Typical customer training programmes

- **Pilots**  
  - 10 days ground school,  
  - 9 off 4 hour simulator sessions

- **Cabin crew**  
  - 3 days

- **B1 Maintenance**  
  - 30 days (Airframe, engine, 
  electrical power, avionics, LRU’s)

- **B2 Maintenance**  
  - 23 days (Electrical power, 
  avionics)

* Course prices available on application
Operations Support

• **BAE SYSTEMS TOGETHER WITH ITS PARTNER EAG CAN PROVIDE**

  • Weight and balance material including loading aids
  
  • Analysis of specific operational issues
  
  • Airfield performance data and software

In addition to pilot training, BAE SYSTEMS can provide ongoing support to customer’s operations, advising and assisting with the introduction of new destinations, challenging airfields and operational issues.

BAE SYSTEMS has also partnered with the European Aeronautical Group for the provision of BAe146 software services, in particular Airfield Performance data. EAG provide a range of navigational and flight planning services from their base in Stockholm, Sweden.
Vendor Support

The approach to vendor issues by BAE Systems' Regional Aircraft division is encapsulated in its RACAP programme (Regional Aircraft Cost Advantage Programme).

The RACAP team is a multidisciplinary group representing a broad range of specialities across the business. The team is tasked with continuous review of cost drivers and aircraft delay causes and the identifying of solutions which will improve these indicators. Vendor liaison forms a key part of this initiative.

- **Cost reduction team based at Prestwick (RACAP team)**
- **Data feedback from operators continuously analysed and published.**
- **Regular liaison with major vendors.**
- **Continuous maintenance planning development to drive up service intervals**
A wide range of other Technical Support services is available from BAE Systems covering simple technical queries to assistance with Maintenance Planning.

An extensive library of customised Technical Manuals can be provided in various hard copy and electronic formats.

- Maintenance planning
- Continued Airworthiness Support
- Technical queries
  - Repair Design Office
  - AOG technical support
- Modifications and Service Bulletins
- Maintenance and Operators manuals
- Illustrated parts catalogues
- Publishing & graphic design
- CD-ROM and On-line publications (via ISDN, Intranet and Internet)
BAe 146 Performance
The BAe146 design yields unique qualities of handling, manoeuvrability and airfield access. The high wing and four engine configuration is complemented by tail mounted air brakes and optional steep approach mods, to extend the aircraft’s potential into airfields formerly accessible to turboprop aircraft alone.

- 31000 ft Cruise ceiling *
- M0.72 Max operating speed (JAR)
- Low approach speeds
- Steep approach capability
- Three engine ferry

* Except where RVSM restrictions apply
**Basic Data - Series 100**

<table>
<thead>
<tr>
<th>Typical design weights*</th>
<th>Kg</th>
<th>Ib</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Take-off Weight</td>
<td>38,102</td>
<td>84,000</td>
</tr>
<tr>
<td>Maximum Landing Weight</td>
<td>35,153</td>
<td>77,500</td>
</tr>
<tr>
<td>Maximum Zero Fuel Weight</td>
<td>31,071</td>
<td>68,500</td>
</tr>
<tr>
<td>Typical Operating Weight Empty</td>
<td>23,300</td>
<td>51,368</td>
</tr>
</tbody>
</table>

**Payloads**

| Maximum structural payload | 7,771 | 17,132 |
| 80 Passengers @ 95 Kg      | 7,600 | 16,755 |

* Some early aircraft may have lower design weights than those shown
**BAe 146-100 Take-off field length**

**Assumptions:**

**Payload:**
Max pax (6-abreast)

**En Route:**
ISA + 10°C
Intermediate cruise speed
Still air

**JAR Reserves:**
5% Contingency fuel
30 Mn hold @ 1500 Ft
150Nm Diversion
Assumptions:

En Route:
ISA + 10°C
Long range cruise speed
Still air

JAR Reserves:
5% Contingency fuel
30 Mn hold @ 1500 Ft
150Nm Diversion
**Basic Data - Series 200**

Typical design weights*

<table>
<thead>
<tr>
<th>Weight Category</th>
<th>Kg</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Take-off Weight</td>
<td>42,184</td>
<td>93,000</td>
</tr>
<tr>
<td>Maximum Landing Weight</td>
<td>36,741</td>
<td>81,000</td>
</tr>
<tr>
<td>Maximum Zero Fuel Weight</td>
<td>34,020</td>
<td>75,000</td>
</tr>
<tr>
<td>Typical Operating Weight Empty</td>
<td>23,800</td>
<td>52,470</td>
</tr>
</tbody>
</table>

**Payloads**

<table>
<thead>
<tr>
<th>Payload Description</th>
<th>Kg</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum structural payload</td>
<td>11,220</td>
<td>22,530</td>
</tr>
<tr>
<td>100 Passengers @ 95 Kg</td>
<td>9,500</td>
<td>20,944</td>
</tr>
</tbody>
</table>

* Some early aircraft may have lower design weights than those shown
BAe 146-200 Take-off field length

Assumptions:
Payload:
Max pax (6-abreast)

En Route:
ISA + 10°C
Intermediate cruise speed
Still air

JAR Reserves:
5% Contingency fuel
30 Mn hold @ 1500 Ft
150Nm Diversion
BAe 146 - 200 Payload Range

Assumptions:

En Route:
ISA + 10°C
Intermediate cruise speed
Still air

JAR Reserves:
5% Contingency fuel
30 Mn hold @ 1500 Ft
150Nm Diversion

100 Pax & baggage
@ 95 Kg
## Basic Data - Series 300

### Typical design weights*

<table>
<thead>
<tr>
<th>Weight Description</th>
<th>Kg</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Take-off Weight</td>
<td>44,225</td>
<td>97,500</td>
</tr>
<tr>
<td>Maximum Landing Weight</td>
<td>38,329</td>
<td>84,500</td>
</tr>
<tr>
<td>Maximum Zero Fuel Weight</td>
<td>36,515</td>
<td>80,500</td>
</tr>
<tr>
<td>Typical Operating Weight Empty</td>
<td>24,800</td>
<td>54,675</td>
</tr>
</tbody>
</table>

### Payloads

- Maximum structural payload: 11,715 Kg, 25,825 lb
- 112 Passengers @ 95 Kg: 10,640 Kg, 23,457 lb

*Some early aircraft may have lower design weights than those shown*
**BAe 146-300 Take-off field length**

**Assumptions:**

**Payload:**
Max pax (6-abreast)

**En Route:**
ISA + 10°C
Intermediate cruise speed
Still air

**JAR Reserves:**
5% Contingency fuel
30 Mn hold @ 1500 Ft
150Nm Diversion

---

**Graph:**

- **ISA + 15°C, 2000 ft**
- **ISA, Sea level**

**Y-axis:** Field length required (m)

**X-axis:** Range Nm

Values for take-off field length (m):
- 2000 ft: 800, 1000, 1200, 1400, 1600, 1800, 2000, 2200, 2400, 2600
Assumptions:

En Route:
ISA + 10°C
Long range cruise speed
Still air

JAR Reserves:
5% Contingency fuel
30 Mn hold @ 1500 Ft
150Nm Diversion

BAe 146 - 300 Payload Range

Payload - Kg

Range Nm

112 Pax & baggage
@ 95 Kg
BAe146 Economics
The BAe 146 costs presented in this section are based on standard industry assumptions and cover the major direct cost elements. The purchase prices, aircraft lease rates and hull values quoted are for budgetary purposes only.

The maintenance costs represent a reasonable budgetary provision for a typical airline fleet operation. However, the size of the fleet, average sector length, operating environment, level of in-house expertise, subcontract and internal labour rates will all have an impact on the actual costs experienced.
## Aircraft Ownership

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
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<td>A/C Lease rate</td>
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### BAe146-100 Cost matrix

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## Cost assumptions BAe146-200

### Aircraft ownership
- **A/C Lease rate**: $65,000/Month
- **Spares**: 15% of aircraft value
- **Insurance**: 0.9% of hull value

### Variable costs
- **Fuel price**: $2.50/USg
- **Aircraft utilisation**: 2500 BH/Annum

### FLIGHT CREW
- **Captain’s salary**: $85,000/Annum
- **1st Officer’s salary**: $45,000/Annum
- **Flight crew hours**: 600/Annum

### CABIN CREW
- **Salary**: $27,000/Annum
- **Cabin crew hours**: 1000/Annum
- **Cabin crew on board**: 2

### MAINTENANCE
- **Airframe**: $148/FH + $261/FC
- **Engine**: $380/FH + $116/FC
- **APU**: $24/APUH
- **Landing fees**: $10/Tonne of MTOW
- **Eurocontrol**: $50 National unit rate
### Aircraft type - BAe146-200

#### BAe146-200 Cost matrix

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**Note:** Costs are in thousands of dollars.
# Cost assumptions BAe146-300

## Aircraft ownership
- **A/C Lease rate**: $75,000/Month
- **Spares**: 15% of aircraft value
- **Insurance**: 0.9% of hull value

## Variable costs
- **Fuel price**: $2.50/USg
- **Aircraft utilisation**: 2500 BH/Annum

## FLIGHT CREW
- **Captain’s salary**: $85,000/Annum
- **1st Officer’s salary**: $45,000/Annum
- **Flight crew hours**: 600/Annum

## CABIN CREW
- **Salary**: $27,000/Annum
- **Cabin crew hours**: 1000/Annum
- **Cabin crew on board**: 3

## MAINTENANCE
- **Airframe**: $148/FH + $261/FC
- **Engine**: $380/FH + $116/FC
- **APU**: $24/APUH
- **Landing fees**: $10/Tonne of MTOW
- **Eurocontrol**: $50 National unit rate
### BAe146-300 Cost matrix

**Aircraft type - BAe146-300**

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**Variable costs**

- Flight: $941, $126, $47, $630, $451, $55, $2537, $4349, $1153
- Crew: $1216, $159, $59, $712, $451, $65, $3043, $4150, $322
- Maint: $1457, $209, $70, $798, $451, $75, $3507, $4647, $757
- Nav: $1637, $217, $75, $666, $451, $89, $2955, $3995, $716
- Chge: $1911, $243, $93, $941, $451, $102, $4418, $3840, $658
- DOC: $2126, $278, $104, $1036, $451, $123, $4948, $3778, $630
- DOC Total: $2573, $330, $150, $1094, $451, $167, $5720, $3606, $773
- DOC Contd/ASK: $2800, $350, $150, $1246, $451, $190, $6239, $3221, $514
BAe146QT Economics
### Cost assumptions BAe146-200QT

#### Aircraft ownership
- **A/C Lease rate**: $75,000/Month
- **Spares**: 15% of aircraft value
- **Insurance**: 0.9% of hull value

#### Variable costs
- **Fuel price**: $2.50/USg
- **Aircraft utilisation**: 1000 BH/Annum

#### FLIGHT CREW
- **Captain’s salary**: $85,000/Annum
- **1st Officer’s salary**: $45,000/Annum
- **Flight crew hours**: 600/Annum

#### MAINTENANCE
- **Airframe**: $148/FH + $335/FC
- **Engine**: $380/FH + $116/FC
- **APU**: $24/APUH
- **Landing fees**: $10/Tonne of MTOW
- **Eurocontrol**: $50 National unit rate
### BAe146-200QT Cost matrix

**Aircraft type:** BAe146-200QT

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<td>15% of aircraft value</td>
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### Maintenance

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## BAe146-300QT Cost matrix

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