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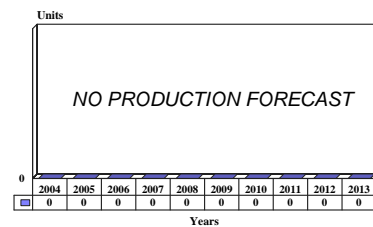
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Airbus Industrie A310 - Archived 4/2004

Outlook

- None sold in last five years, no further production forecast
- Five-unit Iraqi Airways order still on books but suspect
- Some demand for used A310s for MRTT and cargo conversions

10 Year Unit Production Forecast
2004 - 2013



Orientation

Description. Twin-engine, medium/long-range, wide-body commercial transport.

Sponsors. The governments of France, Great Britain, Germany, and Spain.

Contractors. GIE Airbus Industrie, Blagnac (Toulouse), France. This is a consortium consisting of Aerospatiale (37.9 percent), Deutsche Airbus (37.9 percent), British Aerospace (20 percent), and CASA (4.2 percent). Fokker of the Netherlands and Belairbus of Belgium are associate members of the consortium.

Status. None produced since 2000.

Total Produced. Deliveries totaled 255. Total orders stated at 260 but includes five for Iraqi Airways which may well have lapsed.

Application. Medium/long-range, medium- and high-density routes, scheduled passenger transportation.

Price Range. Approximately \$88 million in 2004 U.S. dollars.

Contractors

Technical Data

(A310-200/300)

Design Features. Low-swept-wing design derived from A300 but incorporates several advanced systems for improved reliability and cost/weight reductions. A

Forward-Facing Crew Cockpit (FFCC) utilizing digital avionics and cathode ray tube displays gives the flight crew operational and systems performance parameters.

| | <u>Metric</u> | <u>US</u> |
|---------------------------------|----------------------|---|
| Dimensions | | |
| Length overall | 46.66 m | 153.09 ft |
| Height overall | 15.80 m | 51.84 ft |
| Wingspan | 43.90 m | 144.03 ft |
| Cabin width | 5.28 m | 17.33 ft |
| Cabin length | 33.24 m | 109.06 ft |
| Weight | | |
| Max operating, empty | 76,803/80,451 kg | 169,320/177,362 lb |
| Max payload | 34,210/34,014 kg | 75,420/74,987 lb |
| Max take-off weight | 142,318/164,000 kg | 313,100/361,554 lb |
| Capacities | | |
| Max fuel ^(a) | 62,200/68,300 liters | 16,432/18,043 gal |
| Cargo volume | 102.1 cu m | 3,606 cu ft |
| Performance | | |
| Range, 218 passengers | 7,172/9,933 km | 3,870/5,360 nm |
| L/R cruise speed ^(b) | 828 km/h | 447 kt |
| Propulsion | | |
| A310-200 | (2) | GE Aircraft Engines CF6-80A two-spool, high-bypass turbofan engines. Ratings: CF6-80A1, 209.01 kN (46,990 lbst); -80A3, 217.81 kN (48,970 lbst) each. |
| | (2) | Pratt & Whitney JT9D-7R4 two-spool, high-bypass turbofan engines. Ratings: JT9D-7R4D1, 213.50 kN (48,000 lbst); -7R4E1, 222.4 kN (50,000 lbst) each. |
| A310-300 | (2) | GE CF6-80C2 turbofans, rated 249.08-275.77 kN (56,000-62,000 lbst) each. |
| | (2) | Pratt & Whitney PW4152/4156 turbofans, rated 231.3-249.11 kN (52,000-56,000 lbst) each. |

Seating

Standard arrangement is 210-265 seats at six-, seven-, or eight-abreast. Nine-abreast seating accommodates 280 passengers (76 cm/30 in). A310-300ER is also configured for 179 passengers when flying maximum range.

^(a)With tail section fuel.

^(b)At 11,275 m (36,994 ft).



AIRBUS A310

Source: Airbus

Variants/Upgrades

A310-200. Initial variant also offered in convertible and freighter versions. Max TOW and range increased to 313,055 pounds and 3,870 nautical miles, respectively.

A310-300. Extended-range variant with strengthened wing areas, landing gear, and drag reducing wing-tip fences. Range with 218 passengers is 9,933 kilometers (5,360 nm) with Pratt & Whitney PW4156 turbofans. MTOW is 164,000 kilograms (361,560 lb). First

deliveries in late 1985. More than 3,090 pounds trimmed from basic airframe to permit higher take-off weight, longer range. The use of carbon brakes yielded a savings of 1,100 pounds; 660 pounds cut by use of improved aluminum alloys in upper wing skins and stringers; 330 pounds saved by use of carbon fiber-reinforced plastic tail fin.

Program Review

Background. The A310 is a direct spin-off from the A300. The proposal was shelved in 1976, a time when the A300 was not selling well. However, expanding the range of the Airbus family continued to generate interest, stimulated to a large extent by the desire of A300 operators to have a longer-range aircraft.

In 1978 Airbus began taking provisional A310 orders prior to a launch decision. Lufthansa led with orders and options for 25 (later expanded to 50), Swissair came in initially for six, and Air France promised to buy at least four. Airbus launched the A310 that same year.

The A310 represents a scaling down of its A300 stablemate. The fuselage was shortened by 13 frames and typically seats about 210 in a mixed class. The major design challenge involved an all-new wing, constructed at the BAE Systems Hatfield facility.

The first two prototypes flew in 1982, powered by JT9D-7R4 engines. The third was powered by the GE CF6-80A3. French and German certification was awarded in March 1983, with UK certification in January 1984. The first aircraft were delivered in March 1983. French and German authorities awarded JAR Category IIIA certification in September 1983.

Funding

The A310 was funded by Airbus members' governments through direct subsidy and/or repayable loans equal to 100 percent of total development cost. Development cost in 1993 dollars was an estimated \$2 billion.

Timetable

| <u>Month</u> | <u>Year</u> | <u>Major Development</u> |
|--------------|-------------|--|
| Early | 1970s | A310 originally proposed as A300B10 |
| Sep | 1976 | Project shelved |
| Oct | 1976 | Project restarted |
| Jul | 1978 | German and French governments authorize program go-ahead |
| Jan | 1979 | UK rejoins Airbus Industrie |
| Early | 1979 | Formal contracts, official launch decision |
| Apr | 1982 | Prototype first flight |
| Mar | 1983 | A310 certificated |
| Apr | 1983 | Service entry |
| Apr | 1983 | Formal A310-300 launch order |
| Dec | 1985 | A310-300 certification, initial deliveries |
| Late | 1986 | PW4000-powered A310-300 flies |
| Mid | 1987 | Certification of PW4000-powered A310-300 |
| | 2000 | Final deliveries |

Worldwide Distribution

See Airline Inventories appendix.

Forecast Rationale

The A310 logged its last sale six years ago and none has been delivered in nearly four years. Airbus still carries a five-unit Iraqi Airways order on its books but the status of that sale is suspect, to say the least. We are not forecasting additional production for that or any other customer.

Used A310s are enjoying some demand for conversion to all-cargo configurations and for use as military Multi-Role Tanker/Transport (MRTT) platforms, but these projects will not result in a production re-start.

Consequently, no additional A310s are forecast.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR PRODUCTION

| Aircraft | (Engine) | thru 03 | High Confidence Level | | | | Good Confidence Level | | | Speculative | | | Total 04-13 |
|---------------------|-------------|---------|-----------------------|----|----|----|-----------------------|----|----|-------------|----|----|-------------|
| | | | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | |
| AIRBUS (Consortium) | | | | | | | | | | | | | |
| A310-200 | CF6-80A1 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| A310-200 | JT9D-7R4 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| A310-300 | CF6-80C2 | 95 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| A310-300 | JT9D-7R4 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| A310-300 | PW4152/4156 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Production | | 256 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |