



Douglas DC-8-30 of
UAT (P & W JT4A-3
turbojets)



Commercial
Aircraft
of the World

Explanatory Notes Page 781
Index by Aircraft Page 827

length, max take-off weight, SL, ISA, 6,350ft; at 5,000ft, ISA, 7,650ft at 122,600lb; landing distance from 50ft, 5,950ft; range A (max payload), 2,850 n.m. (3,280 st.m.); range B (max fuel), 4,275 n.m. (4,910 st.m.); corres payload, 11,600lb; corres cruise speed, 248kt (285 m.p.h.).

DC-7C The DC-7 and DC-7B were criticized in service for their relatively high interior noise and vibration levels, which resulted from the 3,250 h.p. Wright compound engines in an airframe designed originally (as the DC-4) for units of 1,450 h.p. This led Pan American to discuss with Douglas ways of improving the design while stretching it still further to provide non-stop North Atlantic range. Ability to fly the North Atlantic routes non-stop on a high percentage of occasions in the critical westbound direction against the strong prevailing winds had long been a major objective of all the competing Atlantic carriers, so that the DC-7C marked an important step forward both operationally and commercially. Douglas developed the DC-7C from the DC-7B in the short space of about a year, extending the wing by the insertion of an additional 10ft of centre section. Altogether 121 DC-7Cs were sold. This was the last stretch of the famous DC-4/7 series. The DC-7C finally went out of production late in 1958 at the same time as the DC-6B. The DC-7C cost about £800,000 in 1956 and increased to about £930,000 by 1958. The price today is very much lower. *Flight* description: July 6, 1956.

Powerplant: Four Wright R-3350-988 TC-18 EA-4 Turbo-Compounds of 3,400 b.h.p. driving four-bladed Hamilton Standard 14ft propellers.

Dimensions: Span, 127ft 6in; length, 112ft 3in; height empty, 31ft 10in; wing area, 1,637 sq ft.

Weights: Max take-off, 143,000lb; landing, 110,000lb; zero fuel, 101,500lb; capacity payload, 23,350lb; weight less fuel and payload, 82,000lb.

Payload accommodation: Cabin volume, 4,863 cu ft; baggage and freight volume, 1,149 cu ft; cabin length, 87ft 4in; max width, 9ft 10in; max height, 7ft 3in; max usable floor area, 654 sq ft; dimensions of largest door, 3ft x 6ft; max seats, 99.

Fuel capacity: 6,515 Imp gal (7,810 US gal).

Performance: Typical cruising speed, 308kt (354 m.p.h.) at 23,500ft and 110,000lb; corres consumption, 420 Imp gal/hr; balanced field length, max take-off weight, SL, ISA, 6,400ft; at 5,000ft, ISA, 7,690ft at 136,800lb; landing distance from 50ft, 5,450ft at 109,000lb; range A (max payload), 4,000 n.m. (4,600 st.m.); range B (max fuel), 4,900 n.m. (5,630 st.m.); corres payload, 15,300lb; corres cruise speed, 238kt.

DC-7F Douglas are converting to special order on a production line at Santa Monica 33 DC-7 series aircraft for all-cargo use, designation becoming DC-7F ("Speedfreighter") after fitting enlarged fore and aft cargo doors, heavier floor and floor beam structure, lining inside fuselage walls with glass-fibre laminate, and removing all windows. Cost of conversion averages about £115,000 per aircraft. The first DC-7F went into service with American Airlines in September 1959.

Conversion orders have been placed by American Airlines, fifteen DC-7B; United, six DC-7B; Panagra, one DC-7B; KLM, two DC-7C; Alitalia, two DC-7C; BOAC, two DC-7C; JAL, two DC-7C; and Riddle, three DC-7C (plus seven more on option).

A special version with pallets-and-rollers cargo loading is available. Typical data for a DC-7B conversion are as follows:—

Weights: Max take-off, 126,000lb; max landing, 106,800lb; max zero fuel, 100,800lb; capacity payload, 34,600lb (38,000lb for the DC-7C conversion).

Payload accommodation: Max internal width, 9ft 10in; volume, 5,000-plus cu ft; dimensions of largest door, 6ft 6in x 10ft 4in.

DC-8 Latest addition to the world's most respected family of airliners was announced in 1955, first flown on May 30, 1958, certificated (JT3 domestic model) on August 31, 1959, and introduced into service simultaneously by United Air Lines and Delta on September 18, 1959. A total of 145 have been ordered by 20 airlines.

Like its rival the Boeing 707, the DC-8 is offered a variety of versions; there are two domestic (series 10 and 20) and three international models (series 30, 40, 50), with different tankages and engines—all versions (unlike the 707) being dimensionally identical.

The domestic DC-8s are powered either by Pratt & Whitney JT3C or JT4A engines; the international versions have JT4A or Rolls-Royce Conways. Two operators (KLM and Iberia) have specified P & W JT3D turbofans. The order book and delivery dates as this issue went to press accounted for 156 aircraft, of which about 100 had been delivered:—

Aeronaes, one (delivered October 1960); Alitalia, eight -40 (from April 1960); CPAL, four -40; Delta, six—two -10, four -20 (from July 1959); Eastern, sixteen -20 (from January 1960); Iberia, three -50; JAL, five -30 (from July 1960); KLM, twelve—seven -30, five -50 (from March 1960); National, three -20 (from February 1960); Northwest, five -30; Pan American, seventeen -30 (from February 1960); Panagra, four -30 (April 1960); Panair do Brasil, two -30; Philippine, two; SAS, seven -30 (from March 1960); Swissair, three -30 (from April 1960); TCA, eleven -40 (from February 1960); TAI, three -30 (from July 1960); United, forty (from June 1959)—twenty-two -10, eighteen -20; UAT, two -30 (from June 1960).

Cutaway drawing, pages 800 and 801. *Flight* references: July 25, 1958; November 1, 1957; July 6, 1956. Basic price (JT4 domestic): £1,950,000.

To improve range, speed and payload, Douglas have a modification programme for a sharper leading-edge glove to be fitted to the full span of the wing (already increased by 2ft 8in early in the production programme, together with the addition of fixed valve-slots to reduce stalling speed and take-off run). The leading-edge glove will extend chord by about four per cent and wing area will go up to 2,868 sq ft.

The modification will be incorporated from DC-8 No 148. Douglas claims it will improve specific range by eight per cent, Mach number by 0.02, and that it will reduce cost per ton-mile by more than two per cent. It will, it is said, increase payload on long flights by 7,000lb. No account is taken of these improvements in the data below.

DC-8-10 This is the domestic JT3C-6 model:—

Powerplant: Four Pratt & Whitney JT3C-6 turbojets of 13,500lb static thrust each with water injection.

Dimensions: Span, 142ft 5in; length, 150ft 6in; height empty, 42ft 4in; wing area, 2,773 sq ft.

Weights: Max. take-off, 273,000lb; landing, 193,000lb; zero fuel, 162,400lb; capacity payload, 34,000lb; weight less fuel and payload, 121,000lb.

Payload accommodation: Cabin volume, 7,945 cu ft; baggage and freight volume, 1,390 cu ft; cabin length, 103ft; max width, 11ft 8in; max height, 6ft 8in; max usable floor area, 1,100 sq ft; dimensions of largest door, 32in x 72in; max seats, 173.

Fuel capacity: 14,600 Imp gal (17,600 US gal).

Performance: Max cruising speed cruise thrust at 220,000lb weight, 482kt (555 m.p.h.); FAA take-off field length at max weight, 9,330ft; FAA landing field length at max landing weight, 6,400ft at 129kt (148 m.p.h.); max still-air range, 3,580 n.m. (4,120 st.m.).

DC-8-20 This is the domestic JT4A-3 model:—

Powerplant: Four Pratt & Whitney JT4A-3 turbojets of 15,800lb static thrust. No water injection.

Dimensions: As above.

Weights: Max take-off, 276,000lb; landing, 193,000lb; zero fuel, 162,500lb; capacity payload, 34,000lb; weight less fuel and payload, 123,750lb.

Payload accommodation: As above.

Fuel capacity: As above.

Performance: Max cruise thrust cruising speed at 220,000lb weight, 511kt (588 m.p.h.); FAA take-off field length at max weight, 8,200ft; FAA landing field length at max landing weight, 6,400ft at 129kt (148 m.p.h.); max still-air range, 3,820 n.m. (4,280 st.m.).

DC-8-30 This is the intercontinental JT4A-3 model:—

Powerplant: Four Pratt & Whitney JT4A-3 turbojets of 15,800lb s.t.

Dimensions: As above.

Weights: Max take-off 310,000lb landing, 199,500lb; zero fuel, 174,600lb; capacity payload, 36,500lb; weight less fuel and payload, 126,072lb.

Payload accommodation: As above.

Fuel capacity: 19,150 Imp gal (23,080 US gal).

Performance: Max cruise thrust cruising speed at 220,000lb weight, 511kt (588 m.p.h.); FAA take-off field length at max weight, 10,800ft; FAA landing field length at max landing weight, 6,590ft at 130kt (150 m.p.h.); max still-air range, 4,610 n.m. (5,300 st.m.).

DC-8-40 This is the intercontinental Rolls-Royce Conway model:—

Powerplant: Four Rolls-Royce Conway RCo.12 turbojets of 17,800lb static thrust. No water injection.

Dimensions: As above.

Weights: Max take-off, 310,000lb; landing, 199,500lb; zero fuel, 174,600lb; capacity payload, 36,500lb; weight less fuel and payload, 124,370lb.

Payload accommodation: As above.

Fuel capacity: As for DC-8-30.

Performance: Max cruise thrust cruising speed at 220,000lb weight, 515kt (593 m.p.h.); FAA take-off field length at max weight, 9,750ft; FAA landing field length at max landing weight, 6,590ft, at 130kt (150 m.p.h.); max still-air range, 4,720 n.m. (5,430 st.m.).

DC-8-50 This is the intercontinental turbofan JT3D model:—