

COMMERCIAL AIRCRAFT

first time. The aircraft is due to be completed by the end of this year, with the first flight due in early 1998. The first delivery to ValuJet will follow in June 1999.

With Boeing's management examining the future of the MDC commercial products, there has been some speculation that the MD-95 could escape the axe, and be developed as part of Boeing's niche 100-seat airliner programme, slotting in below the 737. A short-fuselage 80-seat MD-95-20, as well as a stretched model, have been talked about in the past.

Production Final assembly will be undertaken at the Long Beach plant.

Ordered 50

Delivered 0

MD-11

A stretched, re-engined derivative of the DC-10, the MD-11 had its first flight in January 1990, and Finnair introduced the type into revenue service in December the same year.

Although the programme gained several significant customers early on, in recent years sales have been slow. The 295-seater initially failed to meet its original performance targets, forcing MDC to introduce aerodynamic and structural changes. The latest MD-11ER version exceeds the original specification, being able to carry its specification payload of 298 passengers more than 13,340km.

MDC has developed a freighter version, which FedEx introduced in May 1991, and an after-market cargo conversion is offered. Combi and convertible passenger/freighter versions have also been delivered.

The MD-11 could continue under the Boeing regime if the new owners decide that it can survive in the long term in its niche role as a cargo aircraft.

Production MD-11 final assembly takes place in Long Beach, with 15 aircraft being delivered during 1996. Production is now running at around one aircraft a month.

Ordered 183

Delivered 166

CAMMACORP

Company no longer exists

Cammacorp was set up in 1979 to oversee the CFMI CFM56 retrofit programme for the MDC DC-8 Series 60, but the company no longer exists. Other partners in the programme were MDC, CFMI, and Grumman Aerospace, the latter being responsible for the manufacture of the engine pods, cowlings and pylons.

Between 1981 and 1986, 110 aircraft were retrofitted, with the modified aircraft dubbed the Series 70 (the variants were designated DC-8-71, -72, and -73). Most are now freighters.

The CFM56-2C5 engines provided the -70 with fuel-consumption improvements of up to 23%. Take-off, climb, cruise-altitude and range performance were also significantly improved.

See McDonnell Douglas entry for details.

Model Dimensions	Engines		Accommodation Seats	Max weights (kg)	Fuel (litres)	FAR field lengths		Speeds		Cruise performance		Payload details
	Landing gear	gear				take-off	landing	(kt)	(mach)	Max cruise speed (kt)	Long range speed (kt)	
Span (m)	Track (m)	Pitch	Take-off	Standard	Optional	ISA sea-level	ISA sea-level	Vno	Mno	Max alt (ft)	At alt (ft)	Range with max p1 (km)
Length (m)	Wheelbase (m)					ISA+20°c sea-level	ISA+20°c sea-level	Vmo	Mmo	Max cruise fuel cons (kg/h)	Long range fuel cons (kg/h)	Payload with max fuel (kg)
Height (m)	Turn radius (m)	Abreast	Zero fuel	ISA 5,000ft	ISA 5,000R	Vne	Mne	Max cruise fuel cons (kg/h)	Long range fuel cons (kg/h)	Payload with max fuel (kg)	range with max fuel	
wing area (m ²)	Cabin width	Operating empty	ISA +20°c 5,000ft	ISA +20°c 5,000R								
notes												
Boeing MD-81												
2 x 85.6kN Pratt & Whitney JT8D 209 turbofan												
32.8	5.1	172	63,503	22,106	2,210	1,478	340	0.76	499	439	17,953	
45.1	22	78	58,060	-	2,646	1,481	-	-	35,000	35,000	2,879	
9.05	22.8	5	53,524	-	2,804	1,664	395	0.95	4,077	2,560	10,252	
112.3	-	-	36,604	-	2,987	1,664	-	-	-	-	-	-
Range with a typical one-class load of 155 passengers is 2,895km.												
Boeing MD-82 & -88												
2 x 89kN Pratt & Whitney JT8D 217 turbofan												
32.8	5.1	172	67,813	22,106	2,271	1,500	340	0.76	499	439	18,802	
45.1	22	78	58,968	26,384	2,612	1,500	-	-	35,000	35,000	3,798	
9.05	22.8	5	55,339	-	2,804	1,682	395	0.95	4,077	2,560	14,620	
112.3	-	-	36,650	-	2,987	1,682	-	-	-	-	-	-
Range with a typical one-class load of 155 passengers is 3,793km.												
Boeing MD-83												
2 x 96.53kN Pratt & Whitney JT8D 219 turbofan												
32.8	5.1	172	72,576	26,495	2,553	1,585	340	0.76	499	439	18,721	
45.1	22	78	63,277	-	3,066	1,585	-	-	35,000	35,000	4,635	
9.05	22.8	5	55,339	-	2,084	1,783	395	0.95	4,027	2,518	14,887	
112.3	-	-	36,877	-	2,987	1,783	-	-	-	-	-	-
Range with a typical one-class load of 155 passengers is 4,632km.												
Boeing MD-87												
2 x 92.7kN Pratt & Whitney JT8D 217B/C turbofan												
32.8	5.1	139	63,503	22,106	1,859	1,430	340	0.76	499	439	17,619	
39.75	19.2	78	58,060	26,495	2,161	1,451	-	-	35,000	35,000	4,395	
9.3	20.6	5	53,524	-	2,643	1,614	395	0.95	3,924	2,458	12,728	
112	-	-	34,518	-	2,987	1,614	-	-	-	-	-	-
Range with a typical one-class load of 130 passengers is 4,384km.												
Boeing MD-90-30												
2 x 125kN IAE V2528 D5 turbofan												
32.8	5.09	172	70,760	22,104	2,165	1,600	438	0.76	-	-	-	-
46.5	23.53	78	64,410	-	-	-	-	-	35,000	-	-	3,860
9.4	-	5	58,967	-	-	-	-	-	-	-	-	-
112.3	-	-	39,916	-	-	-	-	-	-	-	-	-
Range with 153 passengers is 4,200km. Longer range, 78,315kg MTOW MD-90-50 equipped with the V2528-D5 and has a range of 5,598km.												
Boeing MD-95-30												
2 x 82kN BMW Rolls-Royce BR715 turbofan												
28.45	-	129	51,710	13,892	1,950	1,445	438	0.76	-	-	-	12,231
37.81	-	-	46,266	-	-	-	-	-	35,000	-	-	2,867
8.92	-	-	43,545	-	-	-	-	-	-	-	-	-
92.97	-	-	30,785	-	-	-	-	-	-	-	-	-
Range with typical two-class load of 106 passengers is 2,862km. -30ER version has 54,885kg MTOW and a range with 106 passengers of 3,700km.												
Boeing MD-11												
3 x 267kN Pratt & Whitney PW4460 turbofan or 3 x 251kN GE CF6 80C2 turbofan												
51.7	10.67	410	285,990	146,174	3,115	2,118	510	-	87	81	51,272	
61.2	24.6	81	195,045	161,226	3,115	2,118	510	0.87	42,000	31,000	11,100	
17.6	41	10	181,437	-	3,633	2,234	400	0.95	8,970	7,060	30,343	
339	-	-	129,683	-	4,031	2,234	-	-	-	-	-	-
Range with 293 passengers is 12,935km. MD-11ER has 286,247kg MTOW, and 167,256 fuel capacity. Typical range is 13,339km.												
Boeing MD-11 Combi												
3 x 251kN GE Aircraft Engines CF6 80C2 turbofan or 3 x 267kN Pratt & Whitney PW4460 turbofan												
51.7	10.67	214	285,990	146,174	2,926	2,027	510	-	87	81	64,009	
61.2	24.6	81	207,745	152,090	3,127	2,027	510	0.87	42,000	31,000	8,709	
17.6	41	10	195,045	-	3,633	2,365	400	0.95	8,970	7,060	29,629	
339	-	-	129,320	-	4,031	2,365	-	-	-	-	-	-
Boeing MD-11 Freighter												
3 x 267kN Pratt & Whitney PW4460 turbofan or 3 x 275kN PW4462 turbofan or 3 x 251kN GE Aircraft Engines CF6 80C2 turbofan												
51.7	10.67	-	285,990	146,174	3,115	2,323	510	-	87	81	90,787	
61.2	24.6	-	218,405	152,090	3,231	2,323	510	0.87	42,000	31,000	7,310	
17.6	41	-	204,706	-	3,633	2,400	400	0.95	8,970	7,060	44,810	
339	-	-	113,036	-	4,031	2,400	-	-	-	-	-	-