Competition between Airbus and Boeing

From Wikipedia, the free encyclopedia

Competition between Airbus and Boeing is a result of the two companies' domination of the large jet airliner market since the 1990s, which is itself a consequence of numerous corporate failures and mergers within the global aerospace industry over the years. Airbus began its life as a consortium, whereas Boeing took over its former arch-rival, McDonnell Douglas, in 1997. Other manufacturers, such as Lockheed, Convair in the US and Dornier and Fokker in Europe, have pulled out of the civil aviation market after disappointing sales figures and economical problems, while the collapse of the Eastern Bloc and their trade organization Comecon around 1990 has put the former Soviet aircraft industry in a disadvantaged position, although Antonov, Ilyushin, Sukhoi, Tupolev and Yakovlev still manufacture planes. All this has left Boeing and Airbus in a near-duopoly in the global market for large commercial jets comprising narrow-body aircraft, wide-body aircraft and jumbo jets. However, Embraer has gained market shares with their narrow-body aircraft in the Embraer E-jets series.

In the decade between 1999 and 2008 Airbus received 6,378 orders, while Boeing received 6,140, and they fight for the best commercial figures every year. The competition between the two companies is intense, and each company regularly accuses the other of receiving unfair state aid from their respective governments.

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Competition by product

Range overlap

Though both manufacturers have a broad product range in various segments from single-aisle to wide-body, both manufacturers' offerings do not always compete head-to-head; instead as listed below they respond with models a bit smaller or a bit bigger than the other in order to plug any holes in demand and achieve a better edge.

- The A380, for example, is substantially bigger than the B747.
- The A350 XWB competes with the high end of the B787 and the low end of the B777.
- The A320 is bigger than the 737-700 but smaller than the 737-800.
- The A321 is bigger than the B737-900 but smaller than the previous B757-200.
- The smaller A330-200 competes with the B767-300ER.

Airlines can use this as a benefit since they get a more complete product range from 100 seats to 500 seats than if both companies offered identical aircraft.

Passengers/range km (statute miles) for all models

	5,600 to 5,900 (3500 sm)	6,800 to 7,700 (4500 sm)	9,000 to 10,200 (5900 sm)	10,500 to 11,300 (6800 sm)	12,250 to 12,500 (7700 sm)	13,300 to 13,900 (8500 sm)	14,200 to 14,800 (9000 sm)	14,900 to 15,200 (9300 sm)	15,400 to 16,000 (9800 sm)	16,700 to 17,400 (10500 sm)
100-139	A318-100 B737-600									
140-156	B737-700	A319-100	B737-700ER							
148-189	B737-800 A320-200									
177-255	A321-200 B737-900	(B757-200)	(A310-200) (A310-300)	B767-300ER	B767-200ER			B787-8		
243-375		(B757-300)		B767-400ER B747SP						

253-300	(A300)	(A300-600)			A330-200		A340-200		A350-800 B787-9	
295-440	B787-3			A330-300		A340-300	B777-200ER	A350-900		B777-200LR
313-366									A340-500	A340-500HGW A350-900R
358-550		747-100SR B747-300SR	B747-100	B777-300	B747-200		B777-300ER A350-1000			
380-419							A340-600 A340-600HGW			
410-568						B747-400	B747-400ER			
<467								B747-8		
525-853								A380		

Airbus A320 vs Boeing 737

Airbus A320 family					**Boeing 737**						
A318	**A319**	**A320**	**A321**		**737-100**	**737-400**	**737-500**	**737-600**	**737-700**	**737-800**	**737-900ER**
Two				**Cockpit crew**	Two						
117 (1-class)	142 (1-class)	180 (1-class)	220 (1-class)	**Seating capacity**	118 (1-class)	168 (1-class)	132 (1-class)		149 (1-class)	189 (1-class)	204 (1-class)
31.45 m (103 ft 2 in)	33.84 m (111 ft)	37.57 m (123 ft)	44.51 m (146 ft)	**Length**	28.6 m (94 ft)	36.5 m (119 ft 6 in)	31.1 m (101 ft 8 in)	31.2 m (102 ft 6 in)	33.6 m (110 ft 4 in)	39.5 m (129 ft 6 in)	42.1 m (138 ft 2 in)
12.56 m (41 ft 2 in)	11.76 m (38 ft 7 in)			**Height**	11.3 m (37 ft)	11.1 m (36 ft 5 in)		12.6 m (41 ft 3 in)	12.5 m (41 ft 2 in)		
34.10 m (111 ft 10 in)				**Wingspan**	28.3 m (93 ft)	28.9 m (94 ft 8 in)		34.3 m (112 ft 7 in)			
25°				**Wing Sweepback**	25°			25.02°			
				Aspect Ratio	8.83	9.16		9.45			
3.70 m (12 ft 1 in)				**Cabin Width**	3.54 m (11 ft 7 in)						
				Cabin Height	2.20 m (7 ft 3 in)						
3.95 m (13 ft)				**Fuselage Width**	3.76 m (12 ft 4 in)						
				Fuselage Height	4.11 m (13' 6")						
39,300 kg	40,600 kg	42,400 kg	48,200 kg	**Typical empty weight**	28,120 kg (61,864 lb)	33,200 kg (73,040 lb)	31,300 kg (68,860 lb)	36,378 kg (80,031 lb)	38,147 kg (84,100lb)	41,413 kg (91,108 lb)	44,676 kg (98,495 lb)
68,000 kg (149,900 lb)	75,500 kg (166,500 lb)	77,000 kg (169,000 lb)	93,500 kg (206,100 lb)	**Maximum take-off weight**	49,190 kg (108,218 lb)	68,050 kg (149,710 lb)	60,550 kg (133,210 lb)	66,000 kg (145,500 lb)	70,080 kg (154,500 lb)	79,010 kg (174,200 lb)	85,130 kg (187,700 lb)
				Maximum landing weight	44,906 kg (99,000 lb)	56,246 kg (124,000 lb)	49,895 kg (110,000 lb)	55,112 kg (121,500 lb)	58,604 kg (128,928 lb)	66,361 kg (146,300 lb)	
				Maximum zero-fuel weight	40,824 kg (90,000 lb)	53,070 kg (117,000 lb)	46,720 kg (103,000 lb)	51,936 kg (114,500 lb)	55,202 kg (121,700 lb)	62,732 kg (138,300 lb)	
				Cargo Capacity	18.4 m^3 (650 ft^3)	38.9 m^3 (1,373 ft^3)	23.3 m^3 (822 ft^3)	21.4 m^3 (756 ft^3)	27.3 m^3 (966 ft^3)	45.1 m^3 (1,591 ft^3)	52.5 m^3 (1,852 ft^3)
1,355 m (4,446 ft)	1,950 m (6,398 ft)	2,090 m (6,857 ft)	2,180 m (7,152 ft)	**Takeoff run at MTOW**	1,990 m (6,646 ft)	2,540 m (8,483 ft)	2,470 m (8,249 ft)	2,400 m (8,016 ft)	2,480 m (8,283 ft)	2,450 m (8,181 ft)	
.79 Mach				**Cruising speed**	.77 Mach	.78 Mach		.785 Mach			.78 Mach
.82 Mach				**Max. speed**	.82 Mach						
5,950 km (3,200 nm)	6,800 km (3,700 nm)	5,700 km (3,000 nm)	5,600 km (3,050 nm)	**Range fully loaded**	3,440 km (1,860 nm)	4,005 km (2,165 nm)	4,444 km (2,402 nm)	5,648 km (3,050 nm)	6,230 km (3,365 nm) (5,510 nm on ER variants.)	5,665 km (3,060 nm)	4,996 km (2,700 nm) [5,925 km (3,200 nm) 2-class layout w/2

											aux. tanks]
23,860 L 6,300 US gal	29,840 L 7,885 US gal	29,680 L 7,842 US gal		**Max. fuel capacity**	17,860 L 4,725 US gal	23,170 L 6,130 US gal	23,800 L 6,296 US gal	26,020 L 6,875 US gal			29,660 L 7,837 US gal
39,000 ft				**Service Ceiling**	35,000 ft	37,000 ft		41,000 ft			
PW6022A, CFM56-5	IAE V2500, CFM56-5			**Engines (x2)**	PWJT8D-7	CFM56-3B-2	CFM56-3B-1	CFM56-7B20	CFM56-7B26	CFM56-7B27	CFM56-7
				Max Thrust	19,000 lbf	22,000 lbf	20,000 lbf	20,600 lbf	26,300 lbf	27,300 lbf	
				Engine Ground Clearance	51 cm (20 in)	46 cm (18 in)				48 cm (19 in)	

Airbus A330 and Airbus A340 vs Boeing 767 and Boeing 777

Measurement	**A340-200**	**A340-300**	**A340-500/-500HGW**	**A340-600/-600HGW**
Cockpit crew	Two			
Seating capacity	261 (3-class)	295 (3-class)	313 (3-class)	380 (3-class)
Length	59.39 m 194 ft 10 in	63.60 m 208 ft 8 in	67.90 m 222 ft 9 in	75.30 m 247 ft 0 in
Wingspan	60.30 m 197 ft 10 in		63.45 m 208 ft 2 in	
Wing area	361.6 m² 3,892 ft²		439 m² 4,725 ft²	
Wing sweepback	30°		31.1°	
Height	16.70 m 54 ft 9 in	16.85 m 55 ft 3 in	17.10 m 56 ft 1 in	17.30 m 56 ft 9 in
Cabin width	5.28 m (17.3 ft)			
Fuselage width	5.64 m (18.5 ft)			
Wheelbase	23.24 m 76 ft 3 in	25.60 m 84 ft 0 in	27.59 m 90 ft 6 in	32.89 m 107 ft 11 in
Typical empty weight	129,000 kg 284,396 lb	129,275 kg 295,503 lb	170,400 kg 375,668 lb	177,000 kg 390,218 lb
Maximum take-off weight	275,000 kg 606,300 lb	276,500 kg 609,600 lb	372,000/380,000 kg 820,100 /837,800 lb	368,000/380,000 kg 811,300/837,800 lb
Cruising speed	Mach 0.82 (896 km/h, 484 knots, 557 mph)		Mach 0.84 (905 km/h, 490 knots, 560 mph)	
Take off run at MTOW	2,990 m 9,810 ft	3,000 m 9,840 ft	3,050 m 10,000 ft	3,100 m 10,170 ft
Range fully loaded	14,800 km 8,000 NM	13,700 km 7,400 NM	16,020/16,700 km 8,650/9,000 NM	14,360/14,630 km 7,750/7,900 NM
Max. fuel capacity	155,040 L 40,957 gal	140,640 L 37,153 gal	214,810/222,000 L 56,750/58,646 gal	195,881/204,500 L 51,746/54,023 gal
Cargo capacity	18 LD3s/6 pallets	30 LD3s/10 pallets	32 LD3s/11 pallets	42 LD3s/14 pallets
Service ceiling	11,887 m 39,000 ft			
Engines (4x)	CFM56-5C2 (138.78kN) CFM56-5C3 (144.57kN) CFM56-5C4 (151.25kN)	CFM56-5C2 (138.78kN) CFM56-5C3 (144.57kN) CFM56-5C4 (151.25kN) CFM56-5C4P (149.9kN)	Rolls-Royce Trent 553/556 (236/249kN)	Trent 556/560 (249/260kN)

Airbus A330 Series				**Boeing 767 Series**				**Boeing 777 Series**
A330-200	**A330-300**	**A330-F**		**767-200ER**	**767-300ER**	**767-300-F**	**767-400ER**	**777-200LR**
Two			**Cockpit crew**	Two				
253 (3 cl.) 293 (2 cl.) 405 (1-cl.)[1]	295 (3 cl.) 335 (2 cl.) 440 (1 cl.)	-	**Seating capacity**	181-255	218-351	-	245-375	301-440
58,8 m (192 ft 11 in)	63,6 m (208 ft 8 in)	58.8 m (192 ft 11 in)	**Length**	48.5m	54.9m		61.4m	63.7m
17.40 m	16.9 m (55 ft 5 in)		**Height**	15.8m		15.9m	16.8m	18.8m

60.3 m (197 ft 10 in)			**Wingspan**	47.6m			51.9m	64.8m
5.28 m (17 ft 4 in)			**Cabin Width**					
5.64 m (18 ft 6 in)			**Hull Width**	5.03 m [2]				
233,000 kg (513,700 lb)			**Maximum take-off weight**	179,170 kg (395,000 lb)	186,880 kg (412,000 lb)		204,110 kg (450,000 lb)	347,450 kg (766,000 lb)
182,000 kg (401,200 lb)	187,000 kg (412,300 lb)		**Maximum landing weight**					
2,200 m	2,500 m		**Takeoff run**					
0.82 Mach (896 km/h)			**Cruising speed**	0.785 Mach				0.84 Mach
0.86 Mach (913 km/h or 493 knots at 35,000 ft.)			**Max Speed**	0.81 Mach				
12,500 km	10,500 km	7,400 km (4,000 nm)	**Range fully loaded**	12,250 km (6,600 nm)	11,300 km (6,100 nm)	6,100 km (3,270 nm)	10,500 km (5,645 nm)	17,450 km (9,420 nm)
139,100 L (36,750 US gal)	97,170 L (25,670 US gal)	139,100 L	**Max. fuel capacity**	90,770 L (23,980 US gal)				181,280 L (47,890 US gal)
136 m³ 26 LD3s	162 m³ 32 LD3s	475 m³	**Cargo (volume) / ULDs**	81.4 m³	106.8 m³	454 m³	129 m³	150 m³ 6 LD3s
PW PW4000 GE CF6-80E1 RR Trent 700			**Engines (x2)**	PW PW4062 GE CF6-80C2B7F	PW PW4062 GE CF6-80C2B8F	PW PW4062 GE CF6-80C2B7F RR RB211-524H	PW PW4062 GE CF6-80C2B7F RR RB211-524H	GE 90-110B1
303-320 kN 68,000-72,000 lbf			**Max Thrust (x2)**					
			Engine Ground Clearance	0.56 m (1 ft 10 in)			0.81 m (2 ft 8 in)	

Airbus A350 XWB vs Boeing 787 and 777

A350 XWB						**Boeing 777 and 787**				
A350-800 [3]	**A350-900** [4]	**A350-1000**	**A350-900R** [5]	**A350-900F**		**777-200LR**	**777-200F**	**777-300ER** [6]	**787-9**	**787-10** [7]
Two					**Cockpit crew**	Two				
270	314	350	310	90t cargo	**Passengers (3cl)**	301	103t cargo	365	263	310[8]
60.7 m	67.0 m	74.0 m	67.0 m		**Length**	63.7 m		73.9 m	63.0 m	68.9 m
17.2 m					**Height**	18.8 m	18.6 m	18.7 m	16.5 m	17.0 m
64.8 m					**Wingspan**	64.8 m			60.0 m	60.1 m
19 ft 6 in (5.96 m)[9]					**Fuselage Width**	20 ft 4 in (6.19 m)			18 ft 11 in (5.75 m)	
18 ft 5 in (5.61 m)					**Cabin Width**	19 ft 3 in (5.86 m)			18 ft (5.49 m)	
35° [10]					**Wing sweep**	31.64°			32.2°	
26	36	44			**LD3 containers**	6[11]	37 pallets	20[12]	36	44
248	268	298			**MTOW (t)**	347.452	347.450	351.534	244.940	272.150
185	205	228.5			**Max landing (t)**				183.7	197.3
					Empty weight (t)	145.2		167.8	115.3	125
129,000	138,000	156,000			**Max fuel (l)**	202,287	181,280	181,280	138,700	145,000
0.85					**Cruise speed (M)**	0.84			0.85	
0.89					**Max speed (M)**	0.89				
74,000	83,000	92,000			**Thrust (lb) (× 2)**	115,300			68,000	88,200
RR Trent XWB					**Engines**	GE90-110B		GE90-115B	RR Trent 1000 or GE GEnx	
8,300 nm 15,400 km	8,100 nm 15,000 km	8,000 nm 14,800 km	9,500 nm 17,600 km	5,000 nm 9,250 km	**Range**	9,420 nm 17,445 km	4,990 nm 9,065 km	7,900 nm 14,630 km	8,500 nm 15,750 km	7,500 nm[8] 13,890 km
$189M	$215M	$242M	TBA	TBA	**Price**	$237M	$232.5M	$219M	$178.5M	TBA

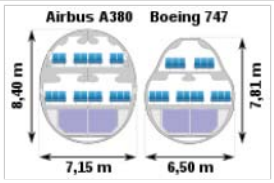
Airbus A380 vs Boeing 747

Airbus A380		**Boeing 747**		
A380-800 [13]		**747-400** [14]	**747-400ER** [15]	**747-8I** [16] [17]
Two	**Cockpit crew**	Two		
525 / 644 / 853 (3/2/1-class)	**Passengers**	416 / 524 (3/2-class)		467 (3-class)
73 m	**Length**	70.6 m (231 ft 10 in)		76.4 m (250 ft 8 in)
24.1 m	**Height**	19.4 m (63 ft 8 in)		19.5 m (64 ft 2 in)
79.8 m	**Wingspan**	64.4 m (211 ft 5 in)		68.5 m (224 ft 7 in)

Main deck: 6.58 m (21 ft 7 in) Upper Deck: 5.92 m (19 ft 5 in)	**Cabin width**	6.1 m (20.1 ft)		
633 m² (333 + 300)	**Useful cabin-area**			
38	**LD3 containers**	30	28	36
276,800 kg (608,400 lb)	**Empty weight**	178,756 kg (393,263 lb)	164,382 kg (361,640 lb)	211,700 kg (466,700 lb)
361,000 kg (796,000 lb)	**Max zero-fuel weight**	246,074 kg	251,744 kg	288,031 kg (635,000 lb)
560,000 kg (1,235,000 lb)	**MTOW**	396,890 kg (875,000 lb)	412,775 kg (910,000 lb)	439,985 kg (970,000 lb)
310,000 L (81,890 US gal)	**Max fuel**	216,840 L (57,285 US gal)	241,140 L (63,705 US gal)	241,619 L (64,221 US gal)
Mach 0.89 (955 km/h)	**Cruise speed**	Mach 0.85 (567 mph, 912 km/h at altitude)	Mach 0.855, (567 mph, 913 km/h at altitude)	
Mach 0.96 (1030 km/h)[18]	**Max cruise speed**	Mach 0.92 (987 km/h)		
311 kN (70,000 lbf)	**Thrust (× 4)**	63,300 lbf PW 62,100 lbf GE 59,500 lbf RR	63,300 lbf PW 62,100 lbf GE	66,500 lbf
GP7270, Trent 970	**Engines**	PW 4062 GE CF6-80C2B5F RR RB211-524H	PW 4062 GE CF6-80C2B5F	GEnx-2B67
2,750 m (9,020 ft)	**Takeoff run at MTOW**	3,018 m (9,902 ft)		N/A
15,200 km (8,200 nmi)	**Range (3 class)**	13,450 km (7,260 nm)	14,205 km (7,670 nm)	14,815 km (8,000 nm)

The widebody 747-8, as the current new development of Boeing's largest airliner, is notably in direct competition on long-haul routes with the A380, a full-length double-deck aircraft now in service. For airlines seeking very large passenger airliners, the two have been pitched as competitors on various occasions. Following another delay to the A380 program in October 2006, FedEx and UPS canceled their orders for the A380-800 freighter. Some A380 launch customers deferred delivery or considered switching to the 747-8 and 777F aircraft.[19][20]

So far (April 2009) no airline has canceled an order for the passenger version of the A380. A380 performed far better than 747-8I in the actual market. Boeing is considering cancelling the 747-8I as Lufthansa is the sole commercial airline that ordered it (20). [21]



Cross-section comparison of Airbus A380 versus Boeing 747-400

A330 MRTT - KC-45A

In March 2008 the announcement that Boeing had lost a $40bn contract to Airbus to build parts for the new in-flight refuelling aircraft KC-45A for the USAF drew angry protests in the US Congress.[22] Later, the entire competition was first rescheduled, then canceled, with a new competition expected to be decided by March 2010.[23]

EADS A330 MRTT - Northrop Grumman KC 45 A versus Boeing KC-767

Data is preliminary and partially copied from A330-200 and 767-200ER.

	A330 MRTT - KC-45	**KC-767 Advanced Tanker**
Length	59.69 m	48.5 m
Height	16.9 m	15.8 m
Fuselage Width	5.64 m	5.03 m
Wingspan	60.3 m	47.57 m
Surface area	361.6 m²	
Engines	2x RR Trent 700 or GE CF6-80 turbofans	2x Pratt & Whitney PW4062
Thrust (× 2)	316 kN	282 kN
Passengers	226 - 280[24]	190
Range	12,500 km	12,200 km
Cruise speed	860 km/h	Mach 0.80 (851 km/h)
Max speed	Mach 0.86 (915 km/h)	Mach 0.86 (915 km/h)
Max takeoff weight	230 t	181 t
Max landing weight	180 t	136 t
Normal fuel load	250,000 lb (113,500 kg)	161,000 lb (73,100 kg)
Maximum fuel load	250,000 lb (113,500 kg) plus 95,800 lb (43,500 kg) of additional cargo or fuel load	over 202,000 lb (91,600 kg)
Cargo (standard pallets)	32 (463L) pallets	19 (463L) pallets

Competition by outsourcing

Because many of the world's airlines are either wholly or partly government owned, aircraft procurement decisions are often taken according to political as well as commercial criteria. Boeing and Airbus seek to exploit this by subcontracting production of aircraft components or assemblies to manufacturers in countries they deem to be strategically important in order to gain competitive advantage.

For example, Boeing has offered longstanding relationships with Japanese suppliers including Mitsubishi Heavy Industries and Kawasaki Heavy Industries by which these companies have had increasing involvement on successive Boeing jet programs, a process which has helped Boeing achieve almost total dominance of the Japanese market for commercial jets. Outsourcing was extended on the 787 to the extent that Boeing's own involvement was reduced to little more than an assembly and test operation.

Partly because of its origins as a consortium of European companies, Airbus has had fewer opportunities to outsource significant parts of its production beyond its own European plants. However, in 2009 Airbus will open an assembly plant in Tianjin, China for production of its A320 series airliners.[25]

Competition through use of technology

One of the ways Airbus sought to compete with the well-established Boeing in the 1970s was through the introduction of advanced technology into its products. For example, the A300 made the most extensive use of composite materials yet seen in an aircraft of that era, and by automating the flight engineer's functions, was the first large commercial jet to have a two-man flight crew. In the 1980s Airbus was the first to introduce digital fly-by-wire controls into an airliner (the A320).

Now that Airbus has established itself as a viable competitor to Boeing, both companies use advanced technology to seek performance advantages in their products. For example, the Boeing 787 will be the first large airliner to use composites for most of its construction, followed soon by the Airbus A350.

Competition through provision of engine choices

The competitive strength in the market of any airliner is considerably influenced by the choice(s) of engine available. In general, airlines prefer to have a choice of at least two engines from the major manufacturers General Electric, Rolls-Royce and Pratt & Whitney. However the engine manufacturers clearly prefer to be single source, and sometimes succeed in striking commercial deals with Boeing and Airbus to achieve their objective. Hence several notable aircraft have only provided a single engine offering: the Boeing 737-300 series onwards (CFM56), the Airbus A340-500 & 600 (Rolls-Royce Trent 500), the Airbus A350 (Rolls-Royce Trent XWB - so far) and the Boeing 747-8 (GEnx-2B67).[26]

Orders and deliveries

Orders

	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989
Airbus	*11*	**777**	1341	824	**1111**	**370**	**284**	**300**	**375**	520	**476**	556	460	326	106	125	38	136	101	404	421
Boeing	*7*	662	**1413**	**1044**	1002	272	239	251	314	**588**	355	**606**	**543**	**708**	**441**	125	**236**	**266**	**273**	**533**	**716**

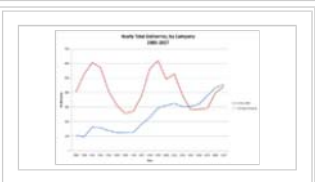
Sources 2009: Airbus net orders until May 31: http://www.airbus.com/en/corporate/orders_and_deliveries/
Boeing net orders until June 9. http://active.boeing.com/commercial/orders/index.cfm

Deliveries

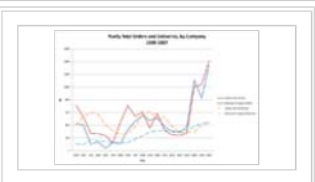
	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989
Airbus	*205*	**483**	**453**	**434**	**378**	**320**	**305**	303	325	311	294	229	182	126	124	123	138	157	163	95	105
Boeing	*201*	375	441	398	290	285	281	**381**	**527**	**491**	**620**	**563**	**375**	**271**	**256**	**312**	**409**	**572**	**606**	**527**	**402**

Sources 2009: Airbus deliveries until May 31: http://www.airbus.com/en/corporate/orders_and_deliveries/
Boeing deliveries until May 31. http://active.boeing.com/commercial/orders/index.cfm?content=displaystandardreport.cfm&optReportType=CurYrDelv

Yearly orders.



Yearly deliveries.



Orders/Deliveries overlay.

Boeing's Product Plan

Since the 1970s Boeing has faced increasing competition from Airbus which has expanded its family of aircraft to the point where it now markets aircraft to rival most Boeing products. Indeed, Airbus is now competing in markets that Boeing once dominated, and in 2003 delivered more planes than Boeing for the first time - and has done so every year since. Boeing won more orders in 2006 and 2007, while Airbus won a greater share of orders in 2001 - 2005 and 2008. In 2005 Airbus won more orders by number but Boeing won 55% by value. In summary of the last 10 years 1999-2008 Airbus won 6378 orders while delivering 3606, Boeing won 6140 orders while delivering 4089.

The A320 has been selected by 222 operators (Dec. 2008), among these several low-cost operators, gaining ground against the previously well established 737 in this sector; many full-service airlines also have selected it as a replacement for 727's and aging 737's, such as United Airlines and Lufthansa; and after 40 years the A380 now challenges the Boeing 747's dominance of the very large aircraft market. The 747-8 is a stretched and

updated version of the venerable 747-400 and will offer greater capacity, fuel efficiency and longer range. Frequent delays to the Airbus A380 program caused several customers to consider cancelling their orders in favour of the refreshed 747-8[27], although none has done so and some have even placed repeat orders for the A380. However, all A380F orders have been canceled. To date, Boeing has secured orders for 78 747-8F and 28 747-8I with first deliveries scheduled for 2010 and 2011 respectively, while Airbus has orders for 202 A380s, the first of which entered service in 2007.

Several Boeing projects were pursued and then canceled, like the Sonic Cruiser, launched in 2001. Boeing is now focused on the 787 Dreamliner as a platform of total fleet rejuvenation, which uses technology from the Sonic Cruiser concept. Despite having been delayed by about two years, the 787 is the fastest selling wide body airliner in history. The 787's rapid sales success and pressure from potential customers forced Airbus to revise the design of its competing A350, so it still lags behind in development and orders.

In 2004, Boeing ended production of the 757 after 1055 were produced. More advanced, stretched versions of the 737 were beginning to compete against the 757, and the proposed 787-3 will fill some of the top end of the 757 market. Also that year, Boeing announced that the 717, the last civil aircraft to be designed by McDonnell Douglas, would cease production in 2006. The 767 was in danger of cancellation as well, with the 787 replacing it, but recent orders for the freighter version have extended the program and the uncertainty of the deliveries of the 787 also prolongs the deliverance. Last but not least, the passenger version of the Boeing 747-400 ceased production on March 17, 2008. However, the freighter version will remain in production until the first delivery of the 747-8F.

Recently, Boeing launched five new variants of existing designs: the ultra-long-range 777-200LR, 737-900ER, 737-700ER, 777 Freighter and the 747-8. The 777-200LR has the longest range of any commercial aircraft and was designed to compete with the Airbus A340-500. It was first delivered in 2006. The 737-900ER and 737-700ER are the extended range variants of the -900 and -700 models. Due to rising fuel costs, the more efficient twinjet 777 has been winning orders at the expense of the four-engined Airbus A340.

There are around 5,417 (April 30, 2009) Airbus aircraft in service, with Airbus managing to win over 50 per cent of aircraft orders in recent years. Airbus products are still outnumbered by in-service Boeings (there are about 4,495 Boeing 737s alone in service[28], about 13,000 total[29]). This however is indicative of historical success - Airbus made a late entry into the modern jet airliner market (1972 vs. 1958 for Boeing).

Safety

Both aircraft manufacturers have enjoyed very good safety records on their late-model aircraft. By convention, both companies tend to avoid safety comparisons when selling their aircraft to airlines. That being said, aircraft such as the Airbus A340 and Boeing 777, both introduced during the 1990s and 2000s, have never had any fatal accidents. Most of the other aircraft which dominate the companies' aircraft sales, such as the Boeing 737-NG and Airbus A320 families (as well as both companies' wide-body offerings) have very good safety records as well. Older model aircraft such as the Boeing 737 Original, Airbus A300 and Airbus A310, which were respectively first flown during the 1960s, 1970s, and 1980s, have had higher rates of fatal accidents.[30]

Controversies

Subsidies

The Boeing 787 (above) will compete with the Airbus A330 and the Airbus A350 on the medium to long range market.

Boeing has continually protested over launch aid in form of credits to Airbus, while Airbus has argued that Boeing receives illegal subsidies through military and research contracts and tax breaks.

In July 2004 Harry Stonecipher (then-Boeing CEO) accused Airbus of abusing a 1992 bilateral EU-US agreement providing for disciplines for large civil aircraft support from governments. Airbus is given reimbursable launch investment (RLI, called "launch aid" by the US) from European governments with the money being paid back with interest, plus indefinite royalties if the aircraft is a commercial success[31]. Airbus contends that this system is fully compliant with the 1992 agreement and WTO rules. The agreement allows up to 33 per cent of the programme cost to be met through government loans which are to be fully repaid within 17 years with interest and royalties. These loans are held at a minimum interest rate equal to the cost of government borrowing plus 0.25%, which would be below market rates available to Airbus without government support[32]. Airbus claims that since the signing of the EU-U.S. agreement in 1992, it has repaid European governments more than U.S.$6.7 billion and that this is 40% more than it has received.

Airbus argues that the pork barrel military contracts awarded to Boeing (the second largest U.S. defense contractor) are in effect a form of subsidy (see the Boeing KC-767/EADS KC-45 military contracting controversy). The significant U.S. government support of technology development via NASA also provides significant support to Boeing, as does the large tax breaks offered to Boeing which some claim are in violation of the 1992 agreement and WTO rules. In its recent products such as the 787, Boeing has also been offered substantial support from local and state governments[33].

In January 2005, the European Union and United States trade representatives, Peter Mandelson and Robert Zoellick (since replaced by Rob Portman) respectively, agreed to talks aimed at resolving the increasing tensions. These talks were not successful with the dispute becoming more acrimonious rather than approaching a settlement.

World Trade Organization litigation

Portman (from the USA) and Mandelson (from the EU) issued a joint statement stating: *"We remain united in our determination that this dispute shall not affect our cooperation on wider bilateral and multilateral trade issues. We have worked together well so far, and intend to continue to do so."*

Tensions increased by the support for the Airbus A380 have erupted into a potential trade war due to the upcoming launch of the Airbus A350. Airbus would ideally like the A350 programme to be launched with the help of state loans covering a third of the development costs although it has stated it will launch without these loans if required. The A350 will compete with Boeing's most successful project in recent years, the 787 Dreamliner.

EU trade officials are questioning the funding provided by NASA, the Department of Defense (in particular in the form of R&D contracts that benefited Boeing) as well as funding from US states (in particular the State of Washington, the State of Kansas and the State of Illinois) for the launch of Boeing aircraft, in particular the 787.

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The Airbus A380 (525 seats in 3 class, 863 all economy) and the Boeing 747-8 (467 seats in a 3 class configuration,550+ in all economy) are generally considered the equivalent long range high capacity aircraft from the two corporations. (B747-400 pictured)

See also

- Boeing
  - Boeing Commercial Airplanes
- EADS
  - Airbus
- Comparison of commercial aircraft

External links

- Official Airbus Website
- Official Airbus Military website
- Complete production lists of all Airbus models
- Official Boeing Website
- Seatguru: Airplane seating chart for many Airlines and Boeings, Airbusses and others
- BBC Q&A: Boeing and Airbus

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