

# A330 fleet summary

**There are 516 A330s in operation, with the oldest aircraft now 15 years old. The majority are powered by the Trent 700 and CF6-80E1.**

**T**here are 516 A330-200s and -300s in operation. The oldest are 14 years old and most are still flown by their original operators. There is a firm order backlog of about 370 aircraft.

The A330 and closely related A340 were launched in 1987. The A330-300 entered service with Air France Europe (Air Inter) in January 1994, powered by General Electric (GE) CF6-80E1 engines. The First Pratt & Whitney (PW) PW4000-100-powered A330-300 entered service with Thai International Airways in December 1994. This was followed by the Rolls-Royce (RR) Trent 700-powered A330-300, which entered service with Cathay Pacific in February 1995.

Airbus confirmed the go-ahead for the shorter-fuselage, longer-range A330-200 in November 1995. Powered by a 96.2-inch fan diameter GE CF6-80E1 series engines, the first delivery was made to Canada 3000 in April 1998. The first delivery of a 100-inch fan diameter PW4000-powered A330-200 was to Austrian Airlines in August 1998, and the first delivery of a 97.4-inch fan diameter Trent 700-powered A330-200 was to Emirates Airlines in March 1999.

There are 270 A330-200s in service compared with 246 A330-300s. This shows the popularity of the longer-range A330-200 compared with the -300; despite the fact that the -200 entered service four years after the -300.

According to the Aircraft Fleet & Analytical System (ACAS) database, there are 155 CF6-powered A330s, 146 PW4100 powered A330s, and 215 Trent 700-powered A330s in service (see table, page 12). This gives RR the highest market share of 42%, followed by GE with 30% and PW with 28%.

The basic engine families mentioned above are split into several sub-variants (see *A330 specifications, page 8*). For common fleets powered by a particular engine sub-variant, the largest is the A330-243 model which is powered by the Trent 772B-60 engine, of which there are 106 in operation.

The other popular airframe/engine sub-fleets of the smaller and longer range A330-200 model are: 63 A330-223s with PW4168As; 49 A330-203s with CF6-

80E1A3s; 21 A330-202s with CF6-80E1A4Bs; and 18 A330-202s with CF6-80E1A4s (see table, page 12).

The most popular airframe/engine sub-fleets of the larger and shorter range A330-300 model are: 64 A330-343s with Trent 772B-60s; 49 A330-323s with PW4168As; 26 A330-322s with PW4168s; 24 A330-342s with Trent 772-60s; 16 A330-302s with CF6-80E1A4s; 19 A330-301/302s with CF6-80E1A2s; 14 A330-343s with Trent 772C-60s; and 12 A330-302s with CF6-80E1A4Bs (see table, page 12).

## Fleet forecast

At the time of writing, the firm order backlog for all A330s stood at 369 aircraft, comprising 196 A330-200s, 96 A330-300s, and 77 A330-200Fs. David Stewart, principal at AeroStrategy management consultants, predicts that the A330 fleet will grow to 1,100 through to 2017. "This means about another 600 will be delivered from 2008, until the A330 falls off in 2013 as the A350 comes online."

"From an annual delivery profile of 80 to 90 from 2008 to 2010, we forecast a drop in 2014 to 36," adds Stewart. "Obviously there will not be many A330 retirements and there are very few parked A330s because of the A350 delay."

## RR-powered A330-200s

The 106 A330-243s with the 71,100lbs thrust RR Trent 772B-60s (or 120 aircraft if Air China's 14 Trent 772C-60-powered aircraft are included) form by far the largest sub-fleet of all the A330s. These are operated by 25 carriers. Emirates is the largest operator with 29 in service, followed by Etihad (14). Other notable operators include EgyptAir (seven), Gulf Air (six), and China Eastern/Southern which together operate 10. Other smaller fleets include MyTravel Airways (four), SriLankan (four), Middle East Airlines (three), Air Transat (three), bmi British Midland (three), and Thomas Cook Airlines (three).

Compared with the four-engined A340, most A330s are still flying with their original operators. The lowest flight

hour (FH) to flight cycle (FC) ratio for this fleet is 3FH, while the highest is 8FH. The two largest A330-243 operators, Etihad and Emirates, together average an FC time of 4FH.

Operators which make the most of the A330-243's long range generally include European holiday-oriented carriers such as bmi British Midland, Thomas Cook Airlines, MyTravel Airways, Monarch Airlines, Corsairfly, and Air Transat. These all fly sectors of 5-8FH. British Midland (bmi) and Thomas Cook are the highest, whose aircraft average more than 7FH per FC.

In contrast, Asia Pacific and Middle Eastern operators fly the shortest sectors with this aircraft. These include EgyptAir, SriLankan, and China Southern, all of which average only 3FH.

Air China operates a very new fleet of 14 A330-243s which are powered by the latest Trent 772C-60 variant. These are all less than three years old, all with fewer than 6,000FH, and average FCs of 3FH.

The Trent 772B-60-powered fleet entered service in 1999 and the aircraft are therefore younger than 10 years. Consequently, most will not have undergone their first major heavy maintenance visit. The highest-time Trent-powered A330-200, operated by MyTravel, has accumulated 43,600FH, while the sub-fleet mean average is 22,000FH. About 30 of these have clocked fewer than 10,000FH.

## GE-powered A330-200s

Of the 101 GE-powered A330-200s, 58 are powered by the 68,530lbs thrust CF6-80E1A3 variant. These tend to be operated by major flag carriers including: Air France (16); EVA Air (11); KLM (9); Qatar Airways (9); THY Turkish (5); TAM Linhas Aereas (5); and Qantas (2).

The next largest grouping of GE-powered A330-200s includes 39 aircraft which are powered by the 66,870lbs thrust CF6-80E1A4 or the 68,530lbs thrust CF6-80E1A4B engines. Operators include: Qatar Airways (10); Jet Airways (5); Air Algerie (5); Air Europa (4); and Aer Lingus (3).

Only four 64,530lbs thrust CF6-80E1A2s are in operation, with Jetstar Airways.

Since the first CF6-80E1-powered A330-200 entered service in 1998, most are younger than 10 years old, so most will have yet to undergo their first heavy check. The highest-time GE-powered A330-200 is operated by Air Comet and has accumulated 41,000FH, while the subfleet mean average is only 14,300FH.

## PW4000-powered A330-200s

There are 63 Pratt & Whitney powered A330-200s, all of which use the

## A330-200/-300 FLEET SUMMARY

	CF6 -80E1A2	CF6 -80E1A4	CF6 -80E1A4B	CF6 -80E1A3	PW4164	PW4168	PW4168A	Trent 768-80	Trent 772-60	Trent 772B-60	Trent 772C-60	Total
A330-202	4	18	21	9								52
A330-203				49								49
A330-223							63					63
A330-243										106		106
A330-301	16											16
A330-302		16	12									28
A330-303	3			7								10
A330-321					8							8
A330-322						26						26
A330-323							49					49
A330-341								6				6
A330-342									24			24
A330-343									1	64	14	79
<b>Sub-totals</b>	<b>23</b>	<b>34</b>	<b>33</b>	<b>65</b>	<b>8</b>	<b>26</b>	<b>112</b>	<b>6</b>	<b>25</b>	<b>170</b>	<b>14</b>	<b>516</b>

same engine variant: the 68,600lbs thrust PW4168A. 'A330-223' is the airframe/engine designation applied to this aircraft. Swiss and Northwest are the largest operators with 11 aircraft each. Other significant operators are: LTU (nine); TAM Linhas Aereas (seven); TAP Portugal (seven); Eurofly (four); and Korean (three).

Of this fleet, Northwest, LTU and TAP Air Portugal all average flight sectors of 7-8FH, while Swiss averages 6FH. At the bottom end, Asian carriers, including Korean, Malaysia, and Vietnam Airlines all average no more than 4FH.

The first PW4168A-powered A330-200 entered service in August 1998. Like the other A330-200s, the oldest of these aircraft are only just reaching 10 years old, so most will have yet to undergo their first major heavy maintenance visit. The highest-time P&W-powered A330-200 is operated by Swiss and has accumulated 46,000FH, while the subfleet mean average is 27,200FH.

### Trent 700-powered A330-300s

Of the 95 RR Trent 700-powered A330-300s, 31 are powered by the original 67,500lbs thrust Trent 772-60. Most of these are in operation with Cathay Pacific Airways, which has a fleet of 19. In addition, Garuda operates six, and Dragonair five. Apart from four recent additions to Cathay Pacific's fleet, these aircraft were delivered during the mid- to late 1990s. Although the four recent Cathay Pacific aircraft are no more than three years old, they still use the original Trent 772-60 engine.

The other 63 RR-powered A330-300s use the more powerful 71,100lbs thrust Trent 772B-60. Thirty-six of these are operated in Asia-Pacific: China Eastern (12); Cathay Pacific (11); Dragonair (11);

and China Southern (two). Air Canada has eight, while in Europe Lufthansa has 11, SAS four, and MyTravel Airways three.

Of this fleet, the average flight duration is just under 4FH. At the top end are Lufthansa, Cathay Pacific (its newer aircraft), SAS and Air Canada, which all average sectors of more than 5FH. In contrast, Cathay Pacific's older aircraft fly shorter sectors of 2-3FH. The other Asia Pacific carriers fly high-density intra-regional sectors of no more than 3FH.

About 23 Trent-powered A330-300s are now older than 10 years, and so will have undergone their first heavy check, leaving about 70 which have not. The highest-time Trent-powered A330-300 is operated by Air Transat and has accumulated more than 40,200FH. The next five oldest examples are all Garuda A330-300s, with more than 37,000FH each. The sub-fleet average is 20,500FH.

### CF6-A330-300s

Of the 54 GE-powered A330-300s, China Airlines operates the largest fleet with 16 CF6-80E1A4-powered A330-302s. Qatar Airways has 11 CF6-80E1A4B-powered A330-302s and Qantas has 10 -A2 and -A3-powered A330-303s. Philippine Airlines operates eight CF6-80E1A2-powered A330-301s and Aer Lingus has four 13-14-year-old A330-301s powered by the same engine type, plus one A330-302 delivered in 2007 powered by CF6-80E1A4Bs.

The average FC time is just under 4FH. At the top end, sectors flown by Qantas average 6-7FH. Qatar Airways averages 5FH. In contrast, China Airlines and Philippine Airlines fly shorter intra-Asian sectors of 2-3FH.

About 23 GE-powered A330-300s are

now older than 10 years, and so will have undergone their first heavy check, leaving about 38, which are still in their 'first life'. The latter include the fleets of China Airlines, Qantas and Qatar Airways. The highest-time aircraft, with Aer Lingus, have accumulated over 55,600FH while the sub-fleet average is 17,670FH.

### PW-powered A330-300s

Of the 83 PW-powered A330-300s, Northwest operates the largest fleet with 21 PW4168A-powered A330-323s. Korean has 11 A330-323s powered by PW4168As and five A330-322s with PW4168s. Malaysia Airlines operates 11 PW4168-powered A330-322s and LTU has three. Thai Airways has 12 A330-300s with a mixture of PW4164s, PW4168s, and PW4168As. USAirways has nine A330-323s with PW4168As and Asiana Airlines has six.

All of the aircraft flown by Northwest and USAirways fly long sectors averaging 6-8FH. This compares with the sub-fleet average of 4.3FH.

As before, Asia Pacific operators (in this case Asiana, Korean, Malaysia, and Thai) operate their aircraft with sector times of 2-3FH.

About 28 PW-powered A330-300s are now older than 10 years, and so will have undergone their first heavy check, leaving about 55 which have still to go through their first C8 check. The latter include the fleets of Northwest, US Airways, and Asiana. Malaysia Airline's A330-300s all exceed 40,000FH, with its highest time aircraft having accumulated over 46,000FH. The sub-fleet mean average is 25,450FH. **AC**

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