

ERJ-135/-145 fleet summary

The ERJ-145 family is divided into three main types, of which there are over 1,050 in operation. This consists of 142 business jets and the remainder in commercial passenger operations.

There are currently over 900 ERJ-145 family aircraft in commercial airline operation. The business jet version, the ERJ-135-BJ Legacy, is not included in this fleet analysis.

Most ERJ-145 family aircraft are still flown by their original operator, or one of its subsidiaries. Three aircraft have been destroyed: two ERJ-145-ERs and one ERJ-135-LR, all on the American continent and more than five years ago.

The ERJ-145 was launched in 1989 by Embraer and, after many design changes, the first was delivered in late 1997. The aircraft entered service with Continental Express, now called ExpressJet, which remains the largest operator of the ERJ-145 family, and is the only operator for the longer-range ERJ-145XR variant.

The ERJ-135 entered service in mid-1999. The -ER flew with Continental Express (now ExpressJet) and the -LR with American Eagle.

Another derivative, the ERJ-140, was introduced in 1999, and entered service in 2001 with American Eagle.

All the ERJ-145 family are powered by variants of the Rolls-Royce (RR) AE3007A engine with take-off thrust ratings from 6,495lbs to 8,917lbs.

According to the Aircraft Fleet & Analytical System (ACAS), the 910 aircraft in commercial airline service comprise: 123 ERJ-135s; 75 ERJ-140s; and 712 ERJ-145s.

The ERJ-145 accounts for 78% of ERJ-145 family in operation. The ERJ-145LR and ERJ-145XR account for 45% and 12% of the family total respectively. The ERJ-135 accounts for 14% of the total in operation, while the ERJ-140 accounts for only 8%.

The breakdown of all the aircraft variants and their general global location

is shown (see table, page 10). This shows that the ERJ-145 family has been particularly popular with the North American market, which operates 68% of the fleet. This is as feeder aircraft linking up all the hubs of the major carriers. This is also shown by the major ERJ-145 family operators, most of which are the regional arms of the major carriers such as American Airlines and Continental.

All three main types of the ERJ-145 family have flightdeck commonality, so pilots are qualified to fly all three subtypes on one type-rating. This shows in the operator fleet mixes, which often have more than one main type. This enables them to swap about aircraft within the schedule and route network depending on passenger demand, and avoid the cost of maintaining two separate pilot pools.

Fleet forecast

In addition to the 900-plus aircraft currently being flown, there are 42 aircraft on order, 40 of which are to be delivered to Hainan Airlines over the next five years. These are ERJ-145LI variants

to be built in China, by an Embraer joint venture. The remaining two on order are one each for the Royal Thai Army and Navy, and should be delivered this year.

There are also order options for an additional 327 aircraft, with most going to North American feeder airlines. As some have been disposing of some of their ERJ-145 family aircraft, these options are unlikely to be fulfilled.

There seem to be no additional firm orders for America and Europe, possibly signifying that the market has reached its peak, since there are 54 aircraft currently parked. Potential customers, or those that want to add to their fleet, are now interested in the larger E-Jets. Other than the aircraft ordered by Hainan Airlines, most new ERJ-145s due for delivery until 2013 are ERJ-135BJ Legacy aircraft.

ERJ-135

There are two variants of the ERJ-135: the -ER and the -LR.

The standard model is the -ER, of which there are 34 in operation, split almost 50:50 between Europe and the US. The largest operator is ExpressJet, with 12, and the second largest is Regional in France, with nine.

There are 89 longer-range -LR aircraft, with 84% of these being in the US. The remaining 16% are split exactly 50:50 between Africa and Europe, with seven aircraft each. Of those that are based in the US, nearly one-third are parked, possibly showing a move away from the ERJ-135, towards cheaper turboprops or larger ERJ-145s. The largest fleet is obviously in the US, with American Eagle Airlines, which has 39. Over the past year the average daily utilisation for this variant has been nearly



The ERJ-135/-140/-145 fleet is concentrated in West Europe and North America. The fleet is now mature, with few firm orders outstanding. The ERJ-145LR is the most numerous of all variants.

ERJ-135/140/-145 FLEET SUMMARY

Aircraft model	Africa Active	Asia Active	Europe Active	Europe Parked	M.East Active	North America Active	North America Parked	Asia Pacific Active	South America Active	Total
ERJ-135BJ Legacy	1	5	55		15	41	1	7	17	142
ERJ-135ER			16			6	12			34
ERJ-135LR	7		5	2		52	23			89
ERJ-140ER									1	1
ERJ-140LR						74				74
ERJ-145EP	1		25	1		10			2	39
ERJ-145ER						26			15	41
ERJ-145EU			33			2	4			39
ERJ-145H			1	3						4
ERJ-145LI								26		26
ERJ-145LR	1		18	4		346	3	7	30	409
ERJ-145LU			6							6
ERJ-145MP	1		25	2				2	2	32
ERJ-145RS								5		5
ERJ-145SA								6		6
ERJ-145XR						104		1		105
TOTAL	11	5	184	12	15	661	43	42	79	1,052

six hours and 20 minutes, while the average flight cycle (FC) has been just over one hour.

ERJ-140

The ERJ-140 fleet consists of 75 aircraft and two variants.

There is only one example of the -ER model, which is operated by Embraer and is more than 13 years old.

The -LR model consists of 74 aircraft, all of which are in the US. The largest operator is American Eagle, with 59. The oldest aircraft is only seven years old. The average flight time over the past 12 months has been nearly 80 minutes, which is slightly more than all the other variants except for the -XR. The daily utilisation is a healthy seven hours and 45 minutes, with Chautauqua Airlines generally getting a bit more out of their aircraft than American Eagle.

ERJ-145

The ERJ-145 is the original aircraft of the family, and is also the most popular, with 712 in operation. It comprises 11 variants, three of which are military variants. The eight commercial passenger variants have 697 aircraft in service.

Standard -ER models are operated by 41 airlines. Two-thirds are in North America, the majority with ExpressJet, and one-third in South America.

Of the 39 -EPs in operation 25 are in Europe. More than half of these are in the United Kingdom, with bmi regional the largest operator (10 aircraft). The remainder are operated in Africa, North America and South America.

Originally, the -EU was designed specifically for the European market. It

differs from the -EP only in its slightly smaller maximum take-off weight (MTOW), which allows cheaper landing rates at many European airports. Of the 39 -EUs in operation, 33 are predictably in Europe. The rest are in the US, with two operated by Chautauqua Airlines and four parked up by their lessor. Regional in France is the largest operator, with 13 aircraft followed by Flybe, which operates 10, in addition to three -EPs, all of which it inherited when it bought BA Connect from British Airways.

Another European variant is the -LU, of which Luxair is the sole operator of six aircraft. The -EU and the -LU both have an FC time of 1.0 flight hour (FH) and the daily utilisation is nearly 5.0FH and just over 6.5FH respectively.

The -LI is also specific to a geographical area, this time China. It has been, and will continue to be, built in China for Chinese airlines. There are 26 -LIs in operation, with 40 on firm order, all for Hainan Airlines. China Eastern Airlines and Grand China Express Air currently have 10 each and China Southern Airlines has six.

-LR variants account for 45% of the ERJ 145 family (excluding the business jet). This longer-range variant is operated everywhere, except for Asia, which only operates the business-jet variant. North America operates the most by far, with 346 active and three parked. The average FC time over the past 12 months is very similar to some of the -ER derivatives, at just over 70 minutes. The average daily utilisation, however, is more than the -ER, at 7.17FH. Some airlines achieve more, such as Aeromexico Connect, which has at least three aircraft that have averaged more than 9.0FH per day over the past year. Conversely, SATANA,

Alitalia and Freedom Airlines often have aircraft that do only 4.5-6.0FH per day. ExpressJet, the largest operator of this variant, has daily utilisations ranging from 5.0FH to over 8.5FH.

A newer form of the -ER is the -MP variant. To date, 32 have been delivered, mostly to Europe. The largest operator, with 15, is Regional in France. There are also operators in Australia, South America and Africa. The average FC times across the fleet over the past 12 months have been 1.17FH and daily utilisation is 6.25FH. Again Aeromexico Connect manages to do more, and gets well over 8.0FH of utilisation per day.

The three variants that are used in military operations are the -H, -RS and -SA. Fifteen are flown by the Air Forces of Greece (which also operates the ERJ 135-ER), Brazil and Mexico. Brazil's Air Force also operate eight ERJ 145-ER, and their Federal Police operate one.

The final variant is the -XR, which has a faster maximum speed than all the other variants, and an even longer range than the ERJ 135-LR, and can still carry 50 passengers. ExpressJet in the US is the only commercial operator of this aircraft at the time of writing. It operates 104 aircraft, and has an additional 100 on order option. Embraer has also kept one, so there are 105 in total. The -XRs average FC times of nearly 2.0FH, due to their longer range, and their daily utilisation is longer at 8.0FH. They are a useful addition to an airline's fleet mix for those thinner routes that would otherwise go to a larger jet, with the bonus of no extra pilot type ratings needed. [AC](#)

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