

ERJ-145 family technical support providers

The ERJ-145 family fleet is concentrated in North America and West Europe. Consequently the bulk of technical support providers are in these two continents.

This survey summarises the major aftermarket and technical support providers for the ERJ-145 family of aircraft. It is grouped into seven sections covering the categories of technical support offered by each provider.

1. Engineering Management and Technical Support (*see table, page 24*);
2. Line maintenance and in-service operational support (*see first table, page 25*);
3. Base Maintenance (*see second table, page 25*);
4. Engine Maintenance (*see first table, page 26*);
5. Spare Engine Support (*see second table, page 26*);
6. Rotables and Logistics (*see third table, page 26*); and
7. Heavy Component Maintenance (*see third table, page 26*).

Some of the technical support providers are listed in most, if not all, of the seven sections and could be termed as 'one-stop-shop' service providers for the ERJ-145 family. This means that they provide most of the technical support services that a third-party customer would require. The following tables show the range of services that these facilities offer.

As the tables show, the maintenance, repair and overhaul (MRO) and other

technical support facilities are able to offer a complete range of line and base maintenance services, as well as engine and heavy component maintenance for the ERJ-145 family.

The major maintenance providers include: AAR Aircraft Services; Embraer Service Centre; ExelTech Aerospace Inc; Gameco; OGMA; and FlyBe Aviation Services. The major engine maintenance providers are Rolls-Royce and StandardAero. Due to the financial, personnel, time and tooling costs of certain specialist jobs, none of the facilities are able to offer every single listed capability, but some do come close to doing so.

By 2014, there are likely to be more than 950 ERJ-145s in operation, with potentially another 300 aircraft that are currently placed on order options. The

maintenance market will need to continue at current levels and then grow by up to 25% over the next five years if this fleet expansion occurs. This figure does not even take into account the additional maintenance that will be required when the aircraft start to go beyond maintenance maturity. Many ERJ-145s will have increasing maintenance requirements over the coming years as they reach their second heavy check, and start to get beyond their second base-maintenance cycles.

The backlog of ERJ 145 family deliveries amounts to just over 50 aircraft that are destined mostly for existing operators. These therefore already have maintenance contracts in place or, if they are large operators, will have their own maintenance facilities.

There are only two new customers with confirmed orders for the ERJ-145 family: the Royal Thai Army & Navy, and Hainan Airlines in China. There are no new customers on the horizon with firm order options.

Those that were potential new customers have either ceased to operate, or have been bought out by larger airlines. An example of this is British Regional, which was purchased by FlyBe. It subsequently felt that the ERJ-145 family that it inherited from British Regional did not mix with the remainder of its fleet.

Many of the third-party facilities available around the world were once part of an airline, or are connected to, or provide support to one.

The Executive Jet model within the



The main providers of ERJ-145 maintenance and technical support are: AAR Aircraft Services, Embraer Service Center, ExelTech Aerospace Inc, OGMA, Flybe Aviation Services, and Gameco.

ERJ-135/-140/-145 ENGINEERING MANAGEMENT & TECHNICAL SUPPORT

	Outsourced engineering service	Maint records service	DOC & manuals manage	Maint prog manage	Reliability stats	AD/SB orders manage	Check planning	Config & IPC manage	Total tech support
AAR Aircraft Services	Y	Y	Y	Y	Y	Y	Y	Y	Y
Air France Industries / KLM E&M	Y	Y	Y	Y	Y	Y	Y	Y	Y
Alitalia Servizi / Atitech						Y			
Aviation Technical Services (ATS)						Y			
Embraer Service Center				Y	Y				
ExelTech Aerospace	Y	Y	Y	Y	Y	Y	Y	Y	Y
ExpressJet Services		Y							
Flybe Aviation Services	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fokker Services	Y	Y	Y	Y	Y	Y	Y	Y	Y
Gameco	Y	Y	Y					Y	
Goodrich	Y	Y	Y	Y	Y	Y	Y	Y	Y
OGMA				Y		Y	Y		
Rolls Royce (engine related)		Y		Y	Y	Y	Y		Y
Sabena Technic	Y	Y	Y	Y	Y	Y	Y	Y	Y
Samco	Y	Y	Y	Y	Y	Y	Y	Y	Y
StandardAero	Y	Y		Y	Y	Y			
VLM M&E	Y	Y	Y	Y	Y	Y	Y	Y	Y

ERJ-145 family has not been considered in the data below. The market shares, as produced by Aircraft Fleet & Analytical System (ACAS), do not include the ERJ-135BJ Legacy aircraft. In addition, the geographical breakdowns are conducted according to ACAS's view of countries and their relevant world region.

Engine maintenance

The ERJ-145 family, unlike many other aircraft, only has one engine option: the Rolls-Royce (RR) AE3007A. The number of companies that offer maintenance for this engine is not that high, and engine shop facilities are even more rare (see first table, page 26).

As would be expected, RR is one of the major maintenance providers for the AE3007A engine, and enjoys a market share of 40% of shop visits and engine overhauls. The majority of operators have signed engine maintenance agreements with RR.

RR has facilities around the world in Brazil, Canada and the UK (England and Scotland). Its Canadian facility is particularly prolific, taking 25% of the share on its own. This equates to 424 engines according to ACAS. Nevertheless, RR comes in second to StandardAero, which has nearly 48% of the global market. Again, one of its facilities is particularly busy: its Maryville shop, in the US, takes a huge 46% of the global market share, with 798 engines overhauled.

The only other company that figures in the engine overhaul market share breakdown is OGMA of Portugal, which has only 2% of the market. Nevertheless, it is still a third option for customers, and

has overhauled over 34 engines. Any company that has overhauled fewer than 20 engines over the previous year is not mentioned, while 150 engines (over 8%) are listed as having an unknown contractor. Just over 1% of engines is up for tender.

The location and market share for engine overhauls reflects the locations of many of the operators of the ERJ-145 family. North America operates 68% of the fleet and accounts for just over 70% of engine overhauls. Europe operates 14% of the fleet and European shops overhaul nearly 15% of the engines.

There is a similar situation with the overhaul of auxiliary power units (APUs), which is offered by only a few facilities. The market is dominated by the APU manufacturer, Sundstrand, which accounts for a massive 78% of the market. The number of APUs whose maintenance is up for tender, or whose provider is unknown, amounts to 9%, while Revima APU takes nearly 8%. The remaining 5% is shared between StandardAero (Maryville), Honeywell and Empire Aero Center.

Base maintenance

Nearly 70% of base maintenance checks (accounting for 596 aircraft) are carried out in-house. Just over 2% are performed by an unknown contractor, which leaves 28% for third-party facilities.

ExelTech Aerospace in Canada is the largest of these remaining facilities with 10.5% of the C and heavy check market share. AAR Aircraft Services and OGMA are the next largest facilities, each with 4% of the market. Gameco in China has

just 2.21%, but this could be due to the current low numbers of the ERJ-145 family being operated in China. These are due to rise in the next few years, however, so Gameco's share may increase accordingly.

Embraer Service Center undertakes a surprisingly small number of C and heavy checks, with only just over 1.5% of the market.

The remaining market is divided between five European facilities, at least three of which can be also classed as in-house providers. Regional (France), FlyBe Aviation Services (UK), LOT Polish Airlines (Poland), Lufthansa Technik (Switzerland) and Pan Europeenne Air Service (France) all share the last 5.5%, in that order.

Asia Pacific

As Asia, or more precisely the Indian sub-continent, does not operate any of the commercial models within the ERJ 145 family, there are no maintenance facilities offering third-party work on the aircraft in the area.

The Asia Pacific, however, has a fleet of 35 aircraft, 31 of which are in China, with the remainder in Thailand and Australia. The only major MRO facility in the area seems to be Gameco in China, which is ideally placed for the additional 40 aircraft that are on order and due to be delivered to China over the next few years. Additionally, ST Aerospace and its subsidiaries are capable of offering some base and light maintenance.

North and South America

The vast majority of maintenance for

ERJ-135/-140/-145 LINE & LIGHT MAINTENANCE SUPPORT

	Maint operations control	AOG support	Line checks	A checks	Engine QEC changes	Engine changes	Landing gear changes	APU changes	Thrust reverser changes
AAR Aircraft Services	Y	Y	Y	Y	Y	Y	Y	Y	Y
Air France Industries / KLM E&M	Y	Y	Y	Y	Y	Y	Y	Y	Y
Alitalia Servizi / Atitech			Y	Y					
Aviation Technical Services (ATS)				Y					
AvMax Group				Y					
Cirrus Technik				Y					
ExelTech Aerospace	Y	Y	Y	Y	Y	Y	Y	Y	Y
ExpressJet Services			Y	Y					
Flybe Aviation Services	Y	Y	Y	Y	Y	Y	Y	Y	Y
Fokker Services			Y	Y	Y	Y	Y	Y	Y
Gameco	Y	Y	Y	Y	Y	Y	Y	Y	Y
Goodrich	Y	Y							
OGMA	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sabena Technics	Y	Y	Y	Y	Y	Y	Y	Y	Y
Samco	Y	Y	Y	Y	Y	Y	Y	Y	Y
ST Aerospace				Y	Y	Y	Y	Y	Y
StandardAero		Y			Y	Y			
VLM M & E		Y	Y	Y	Y	Y	Y	Y	Y

the ERJ-145 family is carried out in North America. This is undoubtedly due to the fact that nearly 70% of all the ERJ-145s in operation are with North American airlines.

The majority of maintenance facilities in North and South America seem to be independent MRO companies, with only a few facilities being connected to airlines. The airlines that deal with their maintenance in-house, but that also have third-party facilities, are really only ExpressJet and Trans States Airlines. These two airlines alone account for 34% of the global fleet.

The major facilities in North America that are not connected to an airline are those of AAR Aircraft Services and ExelTech Aerospace. The major facilities in South America are the Embraer Service Center and VEM Maintenance & Engineering. In addition, there are the APU and engine facilities of Sundstrand Power Systems (APIC), RR and StandardAero, as well as other smaller providers.

While there are a few major MRO facilities in America that carry out the majority of the global requirements for the ERJ 145 family, there are also many smaller specialist companies, which concentrate on the small areas of maintenance, such as bearings, smaller engine parts, wheels and airframe parts, that the larger companies lack the time or tooling to carry out. The MROs will, where necessary, sub-contract some of their work to these specialist companies in order to ensure that all necessary work is carried out to a high standard and on time. Such specialist firms include: Hawker Pacific, which carries out landing

ERJ-135/-140/-145 BASE MAINTENANCE SUPPORT

	C checks	IL & D checks	Composites	Strip/paint	Interior refurb
AAR Aircraft Services	Y	Y	Y	Y	Y
Air France Industries / KLM E&M	Y	Y	Y	Y	Y
Alitalia Servizi / Atitech	Y	Y	Y	Y	Y
Aviation Technical services (ATS)	Y	Y	Y	Y	
AvMax Group	Y	Y			
Cirrus Technik	Y	Y			
ExelTech Aerospace	Y	Y	Y		Y
ExpressJet Services	Y	Y	Y	Y	Y
Field Aviation	Y	Y	Y	Y	Y
Flybe Aviation Services	Y	Y	Y	Y	Y
Fokker Services	Y	Y	Y	Y	Y
Gameco	Y	Y	Y	Y	Y
Gameco	Y	Y	Y	Y	Y
OGMA	Y	Y	Y	Y	Some
Sabena	Y	Y	Y	Y	Y
Samco	Y	Y	Y	Y	Y
ST Aerospace	Y	Y	Y	Y	Y
VLM M&E	Y	Y	Y	Y	Y

gear maintenance; and Chromalloy, which offers engine maintenance management and a parts repair scheme. There are many component and composite support companies in America. In addition there are very large global companies, such as Goodrich, which specialise in rotables and logistics. Their size means that they are also in a position to offer operators additional services, such as engineering management and technical support.

Europe

The second largest operation of the ERJ-145 family is in Europe, and this is true also of the maintenance locations. The companies that offer third-party maintenance for European aircraft are mostly based in Western Europe, and are split evenly between airline maintenance divisions and independent MROs.

The facilities that are connected to current operators are: Alitalia

ERJ-135/-140/-145 ENGINE MAINTENANCE - AE3007A

	Engine health monitor	Engine maint manage	On-wing engine maint	Engine shop visits	Parts repair schemes
AAR Aircraft Services	Y		Y		
Air France Industries / KLM E&M			Y		
ExelTech Aerospace			Y		
Flybe Aviation Services		Y	Y		
Gameco	Y	Y	Y		Y
Goodrich			Y		Y
OGMA	Y	Y	Y	Y	Y
Rolls Royce	Y	Y	Y	Y	Y
Samco	Y	Y	Y		
StandardAero		Y	Y	Y	Y

ERJ-135/-140/-145 SPARE ENGINE SUPPORT

	On-wing support	AOG services	Short-term leases	Med/long-term leases	Engine pooling
Air France Industries / KLM E&M	Y	Y			
ExelTech Aerospace			Y		
Flybe Aviation Services	Y	Y			
Gameco	Y	Y	Y	Y	Y
OGMA	Y	Y			
Samco	Y	Y			
StandardAero		Y			
Rolls Royce	Y	Y	Y	Y	Y

ERJ-135/-140/-145 ROTABLES & LOGISTICS SUPPORT

	Rotable inventory leasing	Rotable inventory pooling	Repair & doc manage	AOG support	PBH rotables support
AAR Aircraft Services	Y	Y	Y	Y	Y
AvMax Group	Y	Y	Y	Y	
ExelTech Aerospace				Y	
Flybe Aviation Services	Y	Y	Y	Y	Can do
Fokker Services	On system level	On system level	Y	Y	On system level
Gameco			Y	Y	
Goodrich	Y	Y	Y	Y	Y
OGMA			Y		
Rolls Royce (engine relates)	Y	Y	Y	Y	Y
Sabena	Y	Y	Y	Y	Y
Samco			Y	Y	
Turner Aviation	Y	Y	Y	Y	
VLM	Y	Y	Y	Y	Y

ERJ-135/-140/-145 HEAVY COMPONENT MAINTENANCE

	Wheels tyres & brakes	APU test & repair	Thrust reversers	Landing gear	Landing gear exchanges
AAR Aircraft Services	Y			Y	Y
Air France Industries / KLM E&M	Y			Y	
Alitalia Servizi / Atitech	Y				
Cirrus Technik	Y				
ExpressJet Services			Y		
Flybe Aviation Services	Y		Y		
Fokker Services	dormant		dormant	dormant	
Gameco	Y				Y
Goodrich				Y	Y
Hawker Pacific				Y	ERJ 145 -ER & -LR only
OGMA	Y			Y	Y
Revima APU		Y			
Sabena	Y	Y	Y	Y	Y
Samco	Y				Y
Sundstrand Power Systems (APIC)		Y			
VLM	Y	Y	Y	Y	Y

Servizi/Atitech; FlyBe Aviation Services; LOT Polish Airlines; Luxair; Pan European Air Service; Regional; and Swiss.

Independent MRO facilities in Europe can be found with: Cirrus Technik; Fokker Services Woensdrecht; KLM UK Engineering; Nayak Aircraft Services; OGMA; RR; Sabena Technics; SAMCO Aircraft Maintenance; and Lufthansa Technik Switzerland.

Many of these companies started life as airline engineering departments, but now they are independently operated, stand-alone companies. In addition, companies such as SAMCO, Sabena Technics and FlyBe Aviation Services can offer nearly all maintenance requirements, with the exception of those specialist jobs such as engine maintenance, engine leasing and some heavy component repair and overhaul. OGMA and RR are specialists in engine work, as previously mentioned. Smaller companies may specialise in Europe too. An example is Turner Aviation, which carries out overhaul, modification and repair of aircraft components, systems and avionics.


Those countries that operate the aircraft are well supported with maintenance companies. In fact, there is probably a greater choice of maintenance provider for the ERJ-145 family in Europe than in North and South America, even though the majority of work is completed in America.

Middle East and Africa

Like Asia, the Middle East has no commercial models of the ERJ-145 in operation. Even though the Executive variants are operated there, there are nevertheless no major maintenance facilities in the Middle East for the ERJ-145 family.

Africa has 11 aircraft actively operated, but there are no major maintenance companies offering support in the area.

South African Airlink, which operates five ERJ-135s, does much of its own maintenance in-house, but all its engine shop work is completed by RR's UK facility.

If an aircraft encounters problems in areas that have no maintenance cover, such as Asia, Africa, or the Middle East, many of the major global MROs would be able to assist the operator by sending out the relevant personnel and parts. Airlines with their own maintenance department would also be able to do this, if not already partly done, to cover their network. 

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