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Engine leasing is growing, and original equipment manufacturers have expanded into the aftermarket to take advantage of expected continued growth. Lessors with the most modern engines, ability to grow and offer a diverse range of services are in the best position.

Top engine lessor & portfolio survey

It is estimated that the world's installed fleet of western jetliner engines totals about 38,000 units, supported by about 5,000 spare engines. More than 1,300 of these are provided by 14 engine lessors (*see table, page 10*). This number represents at least 20% of the spare engine fleet, and the portion of leased engines is expected to grow to as much as 50%.

The numbers shown for some of the portfolios do include technical support engines, which would be used to cover warranties and short-term requirements.

Some lessors also specialise in short-term leases and trading, rather than specialist leasing. This is the traditional role of small engine lessors.

This means not all the 1,340 engines shown in the table are for leasing as spare engines to provide cover for planned removals over the medium- and long-term.

Engine leasing can provide high returns, but requires significant investment and has other high barriers to entry. It is also becoming more difficult for independent engine lessors to acquire engines of later technologies. So which engine lessors are best placed to take advantage of this growth, and what plans do lessors have to increase their portfolios?

Market development

Original equipment manufacturers (OEMs) have increased their presence in

the aftermarket in the past 10 years, both in the engine maintenance repair and overhaul (MRO) business and in engine leasing. The OEMs have also concentrated their efforts on the latest generation of engines. Many offer airlines vertically integrated services for engine MRO and spare engine provisioning. OEMs now also have larger portfolios than independent engine lessors (*see table, page 10*).

The global fleet has seen a rapid retirement of older generation aircraft, and as a consequence many small independent engine traders with older technology engines have left the leasing business. Engine leasing has also changed, with medium- and long-term leasing accounting for a larger portion of deals than the traditional spot market deals and short-term leases.

The all-encompassing deals offered by OEMs to airlines, and the high capital cost of the latest generation engines, has made it hard for independent engine lessors to enter the new-generation engine leasing market. Some, however, have been able to build their portfolios through sale and leaseback transactions. The traffic downturn and large number of aircraft parkings in the past year has also seen aircraft and engine values drop steeply. This has pushed later generation aircraft and engines into the secondary market earlier than expected, and made engines available at distress values in some cases. This has provided independent lessors with opportunities to acquire later

generation engines.

The predicted rise in engine leasing is expected to increase competitive pressures on lessors to keep up with OEMs. Because OEMs are able to offer airlines vertically integrated MRO and engine services, independent lessors are expected to seek partnerships with independent engine shops. OEMs also have the advantages of access to larger amounts of capital and debt at lower cost.

The increasing power of OEMs in the MRO market has increased their market share of the MRO and aftermarket business of latest technology engines. This has raised survival pressures on independents to increase their presence in the market for later technology engines. Most independent lessors are therefore anxious to expand their portfolios with the CFM56-5B/-5C/-7, V.2500, PW4000 and CF6-80C2.

Engine lessors

There are five OEM engine lessors; GE Engine Leasing (GEEL); Pratt & Whitney Engine Leasing (PWEL); Rolls-Royce Leasing Ltd; Shannon Engine Support (SES); and International Aero Engines (*see table, page 10*).

The largest portfolio is held by GEEL, which has 300 units, with a probable total value of \$1.7 billion. This is followed by Rolls-Royce Leasing Ltd with 226 engines, worth about \$1.3 billion. PWEL's portfolio of 123 engines

All independent engine lessors state plans to expand their portfolios with modern engine types, such as the CFM56-7, but OEMs are hard to compete with.

almost entirely consists of PW powerplants, although it has two CFM56-3s.

These five lessors have a combined portfolio of about 780 engines, with GEEL dominating the OEMs with almost half of these. This clearly illustrates the OEMs' dominance of the engine leasing market.

In addition to their own engine types, some OEM lessors have their competitors' engines in their portfolios. GEEL, for example, has both PW and RR engines in its portfolio to support its parent company's MRO customers. Rolls-Royce Leasing Ltd similarly has GE engines in its portfolio, and PWEL has CFM56 engines.

The two smaller OEM-owned lessors, SES and IAE, only have engines manufactured by their parent companies. SES is a wholly-owned subsidiary of CFM International, and has the world's largest CFM56 portfolio. This includes 88 CFM56s, of all variants except the -2 series, and another 40 pool engines for customers requiring product support services.

SES now serves as the sole provider of product support engines and spare CFM56 engines for lease for the MRO arms of CFM International's parent companies, GE and Snecma, so that spare CFM56s for lease via Snecma Services and GEES are available from SES. Some CFM56s are still to be transferred from GEEL's portfolio to SES.

IAE has a portfolio of 30 engines for its customers, available on short-, medium- and long-term leases. IAE has its Lease Club for airlines, and is targeted at operators with fleets of less than five aircraft. Lease Club provides a pool of engines, and the portfolio has been sized to provide subscribers with about 10% of spare engine coverage short-term spare requirements. Airlines pay regular access fees and short-term lease fees when spare engines are required. IAE can, however, provide dedicated V.2500-A1 and -D5 engines for spare lease support if required by airlines.



Independent lessors

The largest barrier to entry in the leasing market of modern technology engines is the high capital cost of the engines. The average engine value in Rolls-Royce Leasing Ltd's portfolio is almost \$6 million (*see table, page 10*). This compares with \$1 million or less for JT8Ds and JT9Ds, on which many small independent lessors and traders have relied. There are a few major lessors, however, which have portfolios with high value and later technology engines.

Besides capital cost, the supply of modern technology engines has been kept tight by the OEMs. Independent lessors have been able to take advantage of the sudden supply of later generation engines coming onto the aftermarket in the past year as a result of the sharp downturn in traffic. This resulted in 737 Classics, A320s and a variety of widebodies coming onto the market at values that have made acquisition easier for independent lessors. The need for airlines to raise liquidity has also raised the number of sale and leaseback transactions for engines, giving lessors the opportunity to increase their portfolios.

The largest independent lessors are Engine Lease Finance (ELF), Volvo Aero Services (VAES) and Willis Lease Finance Corporation (WLFC). These have similar sized portfolios, and the three account for more than two-thirds of engines provided by independent lessors (*see table, page 10*). These three lessors also compete most directly with the OEMs, by providing engines on medium- and long-term leases for spare engine coverage as a core part of their business.

WLFC, which is self-owned, has the

largest independent engine portfolio, with 150 engines valued at about \$650 million. This is only exceeded in number by GEEL and Rolls-Royce Leasing Ltd. WLFC's varied portfolio puts the average value of each engine at \$4.5 million. This consists of JT8D-200s, CFM56-3/-5/-7s, V.2500-A1/-A5s, RB211s, CF6-50s, CF6-80s, PW2000s and PW4000s. PW4000 variants include the numerous 94-inch fan model, plus a few 112-inch fan versions for the 777.

WLFC provides engines for all requirements, including technical support and short-, medium- and long-term leases. Its customer base is globally spread, with little concentration.

WLFC president Charlie Willis says he plans to expand the portfolio by \$150-300 million worth of engines each year. "This will be subject to market demand and our financing ability. We are in the process of completing a securitisation package and hope to raise \$300-350 million of senior debt. We were planning this in late 2001, but delayed it because of the industry downturn. We will now use this facility over the next two years to grow our portfolio," says Willis. "Occasionally we get opportunities to acquire engines on the market. We recently completed a deal with Olympic Airways for \$25 million, and bought some CFM56-3/-5s and CF6-80s from them. We have also managed to acquire some PW4090s. These are operated in small fleets and there are a low number of removals, so the engines are not needed all the time by their carriers. Naturally we want to expand our portfolios with the most popular engines; preferably the most popular in production."

Volvo Aero Leasing has a portfolio of

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129 engines, 48 of which are regional aircraft powerplants. The jetliner engine fleet includes 49 widebody and 32 narrowbody powerplants of old and medium technology.

Volvo Aero Leasing specialises in short- and medium-term leases, with its average term being six months to first- and second-tier airlines.

It also does sale and leaseback transactions, and plans to develop its portfolio away from old and medium technology engines to later generation powerplants, listing the CFM56-5B and -7, CF6-80, V.2500, PW2000 and PW4000 as the main types in its portfolio (*see table, page 10*).

As part of the Volvo Group, Volvo Aero Leasing is already vertically integrated with its own engine shop, Volvo Aero Engine Services in Bromma and Trollhattan Sweden. The Volvo Group also has a long history of providing engine parts and engine trading and sales. It has a total of 49% of Aviation Lease Finance (ALF), which specialises in supporting customers with shorter-term engine requirements.

ELF's portfolio, larger than three of the OEMs, comprises 120 of most jetliner engine types, except the JT8D 'Baby' family, JT9D series and RB211-535E4 series. This is valued at about \$600

million, putting the average engine value of its portfolio at \$5 million (*see table, page 10*). ELF's portfolio noticeably has a large number of latest generation engines, including the PW4000-100, PW4000-112, Trent 700, CFM56-5B, CFM56-7 and V.2500-A5 engines.

ELF's portfolio of 120 engines includes the engine portfolio of engine lessor Aviation Lease Finance (ALF).

ELF is owned by BTM Capital, which is in turn wholly-owned by Bank of Tokyo-Mitsubishi.

ALF is 46% owned by ELF, 44% owned by Volvo Aero Services, and the balance by BTM and Volvo. ALF concentrates on larger transactions and shorter-term leases.

Regulations by ELF's owner prevent it from providing engines on shorter-term leases. ELF offers medium and long lease terms, with most of its transactions 4-7 years. Its major customers include British Midland, KLM, LTU, Airtours, Alaska Airlines, Mexicana, TACA, Singapore Airlines, Malaysian and Cathay Pacific.

ELF's rapid expansion is made possible by the financial strength of its parent company. It is currently seeking to grow its portfolio with members of the CFM56 family, the V.2500, RB211 models, CF6-80C2s and various regional jet engine types. ELF has already grown

its portfolio through sale and leaseback transactions, with engines sourced directly from airlines.

These large independent lessors are followed by a series of smaller portfolios. The largest portfolios of this group are held by Aeroturbine and AMTEC, both located in Miami.

Aeroturbine is only five years old, and has grown its portfolio from engine transactions and engine management deals. The majority of its business started with older technology engines, in particular JT8Ds and JT9Ds, and has progressed into modern engine types.

The majority of Aeroturbine's fleet of 48 engines consists of a mixture of CFM56-3s and JT8D 'Baby' series engines, and a few PW4000s. The number of CFM56-3s now totals 20, forming the majority of the portfolio. The mixture of generations of engines is reflected by the portfolio's estimated value of \$120 million, putting average value at about \$2.5 million per engine.

Aeroturbine now offers all ranges of lease terms to a variety of airlines, engine shops and aircraft lessors but specialises as a niche player and does not compete with the same products as the OEMs or large independent lessors. It primarily offers trading, engine exchanges and short-term leases to airlines to solve their

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TOP ENGINE LESSOR PORTFOLIO

Lessor	Parent company	Portfolio size	Portfolio value \$ million	Engine types
General Electric Engine Leasing	GECAS & GE Engine Services	300	N/A	Variety of GE, PW, Rolls-Royce engines
Rolls-Royce Leasing Limited	Rolls-Royce & GATX Capital	226	1,300	RB211-524/-535, Trent 500/700/800, Tay, V.2500-A1/-A5, AE3007, BR710/715, CF6-50/-80
Willis Lease Finance Corporation	Willis Lease Finance Corporation	150	650	JT8D, CFM56-3/-5/-7, V.2500, RB211, CF6-50, CF6-80, PW2000, PW4000
Volvo Aero Leasing	Volvo AB	129	N/A	JT9D, PW2000, PW4000, CFM56, CF6-80 & V.2500
Pratt & Whitney Engine Leasing	United Technologies	123		JT8D Baby, JT8D-217/-219, JT9D-7Q/-7R4, CFM56-3, PW2000, PW4000-94/-100/-112
Engine Lease Finance including Aviation Lease Finance	BTM Capital	120	600	PW4000-94/-100/-112, PW2000, JT8D-217, CF6-50/-80, CFM56-3B/-3C/-5A/-5B/-5C/-7, Trent 700, RB211-535, V.2500-A1/-A5
Shannon Engine Services	CFM International	88	750	CFM56-3/-5A/-5B/-5C/-7
Aeroturbine	None	48	120	CFM56-3B1/2, -3C1, JT8D Baby, -217/-219, PW4056/60
AMTEC	ITP	48	N/A	JT8D Baby, JT8D-217/-219, JT9D series, CFM56-2/-3, V.2500-A1/-A5/-D5
Magellan	Magellan Group	33	20	PW4060, CF6-80C2, JT8D, JT9D
GA Telesis	GEB Investments & private ownership	25	N/A	CF6-50, JT8D Baby, JT8D-217
International Aero Engines	P&W, Rolls-Royce, MTU & JEAC	30	N/A	V.2500-A1/-A5
MTU maintenance	MTU Maintenance Hannover	20	90	CFM56-3C1/-7, CF6-50C2, CF6-80C2, V.2500-A1/-A5

short-term problems. Aeroturbine will buy and leaseback engines, but also sells engines again after lease terms have expired, and has acquired CFM56s in recent years through opportunity purchases.

Engine management advisory services for the maintenance of CFM56, JT8D, JT9D, CF6, PW4000 and V.2500 series engines are another speciality. Although maintenance management is its key

strength, and vertical integration between engine MRO providers and lessors to compete with the OEMs is anticipated, Aeroturbine has no plans to become affiliated with an engine shop. It does, however, intend to expand its engine portfolio, and is aiming to double the number of late model high by-pass engines in its portfolio in the next three years, focussing on the CFM56, V.2500 and PW4000.

AMTEC has a similar number of engines to Aeroturbine, but these are mainly older generation JT8Ds and JT9Ds, which today have values of less than \$1 million. AMTEC is a division of the Spanish company ITP, which has a number of engine repair facilities in Mexico and Spain.

AMTEC offers all range of lease terms, up to five years, and provides engines to major airlines across the globe.

In addition to engine leasing, AMTEC also provides engine parts, engine maintenance management services, and on-wing repairs and maintenance. It contracts with its customers to provide engine repairs at appropriate engine MRO providers.

Although AMTEC has not yet decided how it will grow its portfolio, it aims to expand with later technology CFM56-3/-7, CF6-80 and PW4000 engines.

Magellan Aircraft Services has 33 engines, 30 of which are older generation JT8Ds and JT9Ds, with an estimated value of \$20 million. Magellan specialises in short-term leases of 60-90 days. Its portfolio and type of lease are typical of a traditional independent engine trader and lessor. Its major customers are aircraft lessors and cargo carriers. Like many other lessors aiming to acquire later technology engine types, Magellan plans to add up to \$15 million of new technology engines to its fleet each year. It is principally interested in the PW4000, CF6-80C2 and V.2500.

GA Telesis is a new entrant to the engine leasing market, having started its business with a portfolio of 25 engines, some of which it owns and others it manages. The majority of these are CF6-50 engines, although it holds a small number of JT8Ds and JT9Ds.

GA Telesis is 50% owned by GEB Investments, a company founded by the late George Batchelor, and 50% by its senior executives Andrew Toult and Abdol Moabery. Not only does GA Telesis offer all types of lease term, but it also offers power-by-the-hour rates for long-term leases. It plans to add an additional 50 engines to its portfolio over the next two years, and is interested in the CF6-80, CFM56, PW2000, PW4000 and RB211-535E4.

MRO provider MTU Maintenance Hannover also holds a small portfolio of about 20 engines, with an estimated value of \$90 million. These are later generation engines, for which the company has maintenance capability for, including the CF6, CFM56 and V.2500. MTU Maintenance focuses on engine repair and maintenance, but has a small portfolio for its MRO customers. These are held for all types of lease term and engine pool membership. It has also performed sale and leaseback transactions. MTU maintenance plans to increase its pool with CF34, PW2000 and CFM56-5 engines, and plans to grow its portfolio up to 100 engines within the next five years.

MTU Maintenance has subsidiaries in Vancouver, Zhuhai and Sao Paolo, and offers a range of engine management services.

Future portfolios

The pressures put on independent lessors by OEMs' are evident in their stated plans to develop their engine lease portfolios with modern technology engines. Consolidation among engine MRO providers is already evident, and a smaller number of large engine shops dominates the market for later technology engines. These dominant players include all OEMs, in particular GEES. This concentration of facilities for modern engine types, and the retirement of older types, naturally makes it harder for independent MRO providers and lessors to maintain market share. Independent lessors are therefore anxious to develop their portfolios with modern engines.

The barriers of entry to this market are higher than the older technology engines because financing requirements are high for new technology engines. Independent lessors are likely to find smaller sources of funds with higher capital costs than OEMs, which are also able to offer airlines complete MRO and spare engine deals.

This likely to deter more independent lessors competing directly with the OEMs, and push independents to find market niches. **AC**

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