

# CFM56-7B aftermarket & values

**The CFM56-7B is a popular engine, and there are few spare units available on the market. Lease rates have held firm, while values have climbed steeply over the past two to three years.**

**T**he 737NG has become the second most numerous aircraft in operation, and with it the CFM56-7B has become one of the most popular engine types. The operational fleet exceeds 5,100 engines. Despite these large numbers, there are relatively few CFM56-7Bs available as spares.

The CFM56-7B has already established itself as a reliable powerplant, achieving removal intervals rarely seen with earlier generation engines (see *CFM56-7B maintenance analysis & budget, page 18*). First removal intervals are commonly 18,000-20,000 engine flight cycles (EFC) for the lower rated -7B20 and -7B24 engines, which is equal to 27,000-38,000 engine flight hours (EFH). These intervals are explained by the fact that the engine has high exhaust gas temperature (EGT) margins and overall good durability, and because it is removed mainly when it has reached life limits for life limited parts (LLPs).

Higher-rated -7B26 and -7B27 engines, which account for about half the

engines in operation, have shorter removal intervals of 9,000-12,000EFC, equal to 14,000-21,000EFH.

Most operators have annual utilizations of about 3,000 flight hours (FH), so first removals are happening only once the aircraft have reached five to nine years of age in many cases. Moreover, the majority of 737NG deliveries have been within the past five years. Engine removal and shop visit activity has therefore been low, and has only started to climb over the past three years. Global shop visit activity is estimated to have reached about 500 shop visits in 2007, and is expected to reach about 650 for the whole of 2008. Activity is predicted to climb further to reach 850-900 shop visits in 2010.

This steep climb in engine maintenance activity will clearly lead to an increased demand in spare engines, but there are signs that availability is already tight. "Shop visit demand has not yet solidified because the engines have long removal intervals, and most needs for spares are still covered by short-term

leases," explains Andrew Pearce, director at MacQuarie Aviation Capital. "The main market is with small operators, since the large airlines are well supplied with spares. The number of shop visits is likely to double over the next two years, however."

Values of CFM56-7Bs, and of 737NGs, have firmed in recent years as the industry has gone from having surplus aircraft to experiencing a shortage. While availability of A320 family aircraft increased from 2001 to 2004, the supply of readily available 737NGs remained relatively tight, and all lessors and traders reported that any 737NGs and CFM56-7Bs that became available did not remain on the market for long.

Demand has in fact remained so strong that list prices for new CFM56-7Bs increased rapidly. These are about 12% higher for 2008 than they were in 2007. Some are reported to have paid more than 100% of the list price to get hold of engines. List prices for 2008 are about \$9.2 million for bare -7B27 engines, \$8.4 million for -7B26 engines, and \$7.8 million for -7B24 engines. "Supply of engines dried up in 2005-2007," says Abdol Moabery, president and chief executive officer at GA Telesis. "This drove values up. While discounts were possible up to 2005, by 2006 deals were being done at higher than list price."

This high demand has had a direct impact on short- and long-term lease rates. Pearce estimates that short-term lease rates are at least \$3,000 per day for terms of up to 12 months, which is equal to \$90,000 per month. Rates are often close to \$4,000 per day, or \$120,000 per month.

Long-term lease rentals have also climbed, with Pearce now estimating monthly rentals at \$60,000-70,000 for deals of three to five years.

Concerns are now being raised by the relentless rise in oil prices and the effect it is having on airline costs, the economy and demand for air travel, and airline fleet plans. Older aircraft types like the MD-80 and 737 Classics will obviously be parked or retired before any 737NGs are considered in capacity reduction plans.

Predictions of how high oil and fuel prices will affect the 737NG market are mixed. "Lease rentals for the CFM56-7B are unlikely to weaken because the



*The CFM56-7B's long removal intervals has meant that shop visit activity has only started to climb in recent years. This kept supply of spare engines tight and pushed up lease rates.*



737NG will remain popular," says Dennis Smink, chief operating officer at SGI Aviation Services. "The old aircraft types will suffer in large numbers, but I predict the availability of 737NGs to remain tight. Early production engines are now on a climbing wave of shop visit activity and the next two years will be very busy for the CFM56-7B overhaul market and leasing business. This will clearly affect lease rates, and demand for spare engines is going to be high. Short-term leases, to provide cover for shop visits, are currently commanding rentals of \$3,000-4,000 per day, and this does not include maintenance reserves. Long-term rentals are attracting lease rate factors of about 1% per month, which on list prices of \$9.5 million for a bare engine is equivalent to \$90,000-95,000 per month. Moreover, purchase discounts are hard to obtain. Going forward we expect lease rates to remain firm rather than weaken."

Pearce reiterates that the CFM56-7B maintenance market will mature over the next two to three years. This will coincide with a significant change in the fleet mix. Not only will older aircraft types be phased out over a short period, but demand for the 737NG and A320 could strengthen as airlines make every effort to acquire the most fuel-efficient aircraft. The downward pressure on passenger yields and upward pressure on fuel costs are also taking their toll on airline finances, and airlines are, as a result, seeking all ways possible to raise liquidity.

"We have seen a 300% increase in demand from airlines wanting to do sale and leaseback transactions on engines,"

says Moabery. "Airlines need liquidity and we are seeing a lot more opportunities to buy engines from operators. There have also been a few deferrals of 737NG deliveries, and so some engine production slots from CFM have opened up. Only the highest-rated engines are sold to lessors, however, and this means we are having to pay for -7B27 engines, which have list prices that are about \$1.4 million more than -7B24 engines. At the same time, while demand is still strong, lease rates have softened a bit over the past three months because airlines are cutting back on aircraft utilisation slightly due to the changing economic conditions of the market."

Smink reports the same increase in interest from airlines in doing sale and leaseback transactions. "SGI Aviation Services first offers asset management services, and we can source spare engines for airlines. This is both in terms of buying and leasing. We offer pre-lease inspections, which include inspecting documents, maintenance records and LLP sheets. We also perform cashflow analyses of transactions, which consider rentals and maintenance reserves, and also negotiate return conditions with the lessors on behalf of the airlines. We can also negotiate maintenance reserves, and also sell engines for airlines that are restructuring.

"We also arrange sale and leaseback transactions, but while there is high demand for these from airlines that want to raise liquidity, there is less debt available to finance these transactions," continues Smink. "The equity levels required by debt providers have increased to 25-30%, and lessors need this first.

*The fast rise in fuel prices over the past year has weakened airlines' finances with a consequent increase in demand for sale and leaseback transactions. Supply of debt is limited, however, and debt margins have increased to as much as 250 basis points.*

Once the quick engine change (QEC) has been taken into consideration, equity can be up to about \$3.2 million on a dressed -7B27 engine. Sourcing debt remains a problem. The credit crunch over the past year has meant that some financial institutions are unable to provide debt, while others are now wary of lending to the industry because of the poorer credit ratings of some operators, and the industry's difficulties with high fuel prices as a whole.

"Terms for sale and leaseback transactions are seven to 10 years. Lease rental factors of 1% per month are equal to about \$90,000 for a new engine," continues Smink. "A used engine that is three or four years old can be bought for about \$7 million, and it can be expected to have lease rates of \$70,000-75,000 per month. There can be good margins for lenders, but there is the risk that the cost of debt could go up as global interest rates rise. Debt is already expensive, with margins now 250 basis points over base rates. This can mean that a lessor is paying 7% annual interest on the 70-75% debt portion of the purchase price, and these payments have to be funded from lease rentals. These high debt margins compare with margins of about 80 basis points from a few years ago. Debt balloons are also becoming harder to negotiate, so sale and leaseback transactions are actually becoming more difficult to justify for lessors, despite the growing interest from airlines." **AC**

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