Maintenance records are often neglected and dismissed as a technical issue by aircraft financiers, but how many have considered what their aircraft is worth without them. Alexandra Cain reports.

SETTING THE RECORD STRAIGHT

A gang of robbers hijack an armoured van that they think is carrying cash. Instead, they find boxes of papers, which are the only copy of an aircraft's maintenance records. They dump the records in a canal.

After spending several weeks and $10.4 million restoring the records, the lessor has learnt its lesson the hard way. Documentation is something it can no longer afford to think of as a side issue.

While a few lessors and financiers have realized they need to ensure their aircraft records are safe, there are plenty who have not. "Most lessors have learnt their lesson, but financiers like banks should pay more attention with respect to record keeping," says Michael Radunz, managing director of German Operating Aircraft Leasing (Goal). With many bankers taking more asset risk than in the past, protecting that asset has become more important than ever.

"They don't do it deliberately," says Colin Short, technical manager at Airclaims. "It is just ignorance. They are just not aware of records."

Without records

Not many cases are as extreme, but sometimes records are stored recklessly in cupboards and sheds exposed to the elements. Often no copies are made. Many aircraft owners are not interested in making sure the records are kept properly, dismissing them as a technical issue. But since the costs of rebuilding them can be as much as $1.5 million for a new aircraft – and significantly more for older aircraft – bankers should be more concerned.

If the papers for an aircraft part cannot be found, the part often has to be replaced. Airclaims recently worked for a client who took an aircraft back from an airline, where one set of Form 1 tags (for parts) was missing. The only solution was to change the components, at a cost of $1 million. "We were only missing 100 sheets of paper, yet those 100 sheets of paper cost $1 million," says Short.

If an aircraft's records are missing, the aircraft is completely worthless. A buyer was recently looking at some desert-parked 747s that were in good condition, unfortunately the records were not. The sale fell through because the cost of sorting out the records would have outweighed the financial advantages of buying the used aircraft.

Records can also delay remarketing and releasing. In Goal's experience an aircraft spends an average of 15 to 20 days on the ground at the end of a lease while its records are being sorted out. This costs between $75,000 and $200,000 in lost lease rentals. "We have delivered seven A310s in the past two years, and the aircraft was always ready to go. But the value is not there without the documentation," says Radunz. For the one aircraft that had scanned documents, there was only two days' delay.

Steve Aliment, vice president, sales at Boeing Commercial Aviation Services remembers one case he was involved in where an aircraft could not be pulled out at the end of the lease because of problems with the records, which took a couple of months and millions of dollars to rectify. "It also caused a lot of acrimony between parties who were on good terms beforehand. Which was unfortunate, because it could have been avoided," he says.

Records are often held to ransom for distressed aircraft that have to be repossessed, delaying the owner's ability to get the aircraft back on lease. One owner recently had to repossess a one-year-old Embraer 145 and, although it reclaimed the aircraft, the records were never recovered, which cost the owner $1 million to restore.

Paper alternatives

Aviation is the second-most documented industry in the world, behind nuclear power, so naturally the paper mounts up. A 25-year-old 747, for example, would have accumulated about 40 boxes of paper.

In the US, records are often kept on microfilm, which requires a reader. It is unlikely that paper will be removed entirely in the near future, especially as all documents need to be signed by the mechanic or engineer. But electronic systems provide a backup, and also allow a potential lessee to examine an aircraft's records while the aircraft is on lease without having physically to go and look at them.

A few companies have already been set up to recover records, and have developed systems to scan them and then categorize them electronically. Regulatory bodies such the International Air Transport Association (Iata) and the Federal Aviation Authority (FAA) have certified scanned electronic records. Manufacturers are also planning systems that are built into new aircraft from the beginning.

Karl Scanlon and a colleague Rhett Williams, developed an electronic system after their experience of working for a lessor and founded Waviatech. "There was no accurate way of keeping records. The only way we could do it was to develop a system ourselves," says Scanlon.

Waviatech will partner with consultancies and companies that already manage aircraft, rather than targeting financiers directly. The company is also offering the product to lessors, consultancies, airlines and MROs. It is particularly appealing to smaller and start-up lessors, which do not have systems in place, such as Fortress, Orix, Finova and Sale.

The system, called Stream, scans to pictures rather than PDFs and forms a database that is searchable by record type or keyword.

"When you re-lease an aircraft, there are 1,500 things you can be asked for. Even if the airline is good, you can spend days looking for the particular bit of information that you want. With this you can search through 48 boxes-worth of records. You can already scan to PDF but it doesn't allow you to manage your records like this," says Scanlon.

The system can be loaded on to disk and also on to the internet. It allows for smoother lease transitions because the next lessor can look at the records electronically. "What we are doing is saving the end of the lease," says Scanlon.

Goal has also developed a system to keep track of maintenance records, in particular airworthiness directive (AD) notes and defect reports. Paper records are scanned to PDF, and then put into a database. This is then loaded on to the web, so anyone with a password – which is usually the operator or owner – can log in.

"It provides much more transparency," says Radunz. "It is also an advantage for the airline itself because it gives them a package of technical information."

Airclaims runs a similar service to recover records. The consultancy visits airlines about three months before the end of lease to prepare the documentation. It scans all of the records to PDF to make sure they are in order, which also provides a back up.

The process of scanning is labour intensive, but it is worth the investment.

Goal estimates that it takes 200 hours a year per aircraft to maintain a proper records system, which equates to $50,000 for the life of a five-year lease. "If you do the math, even one lost lease rate will cost more than that," says Radunz. He points out that if an airline has the same types of aircraft in its fleet, it will be less labour intensive once a system is in place.

When to start

The next question is, when to start implementing these systems. "We do it with all the new aircraft from the beginning. The best way is to start from scratch," says Radunz. He advises that a record system should be kept simple and everything should not be implemented at once.

However, as Short at Airclaims points out, most aircraft owners are still "playing catch up". They tend to realize near the end of the lease that they should sort out the records rather than take care of them throughout.

Drowning in paperwork

Waviatech agrees that most lessors are still using systems to deal with the problem, rather than at the beginning. "The technical guy on the ground knows it will make his job so much easier. It is a matter of convincing the management," says Scanlon.

If lessors and financiers recognize the benefits to these systems, it is possible they will be built into lease contracts.

Soon there may be technologies to keep all records electronically. "In 10 years' time there could only be PCs or laptops in the hangar, provided the authorities grant approval for those systems," says Radunz.

The next step is for all maintenance to be built into the aircraft from the beginning.

Boeing has already developed a number of systems that can be built into all of their aircraft. "There is an awareness of how important records are, but not of how important it is to do something about it before it reaches crisis point," says Aliment. "You can't predict the end of the lease, so we are trying to take the risk out of that part."

These systems include Toolbox, a prognostic system for managing maintenance and Aircraft Health Management, where the aircraft is programmed to look after its own health using self-diagnostic systems.

There is also Boeing Maintenance and Engineering Management, which is a real-time, web-based solution, which can be used to forecast maintenance demand. Operators such as Japan Airlines and Singapore Airlines are already using some of these systems.

Boeing is not providing the maintenance, but is developing inventory management systems.

Using its experience of building aircraft, Boeing has developed computer systems, which record and categorize the searchable data. It then coordinates all the maintenance records from a central system and shares them with the operators. The records and maintenance systems are therefore all kept at Boeing's headquarters. The operators do not need to have computers on site, worry about storage of servers and protecting equipment. The records can also be stored on CD-ROM and viewed.

"We're moving away from the old philosophy of 'hey the aircraft is broken', to 'predict and prevent'," says Aliment.

The new systems also reduce the risk of an airline losing records, and eliminate problems during repossession.

Aliment believes that once a few airlines begin to adopt electronic systems, more will follow. "These systems are about awareness," he says. "It is a conservative industry, but people are smart followers. We are moving in the direction of all-electronic records, but the first thing that causes change is recognition of need."

Boeing is also planning a Goldcare programme for the 787. Start-up lessor LCAL, which ordered six 787s at the Dubai Airshow in November, plans to take a different attitude to leasing through the use of Goldcare and similar maintenance systems from Rolls-Royce. The need to maintain the aircraft is therefore entirely removed from the operator.

This is similar to what is already happening with engines, with the growth of power-by-the-hour packages.

It will take a while for operators to start seeing real value in systems like this, and Aliment believes the problem will more likely be dealt with a little at a time, instead of an operator taking a large risky investment all at once.

"It's not as easy as just snapping it on to the airplane," says Aliment. "You have to change the way you think."

Ultimately, if systems like this are implemented from the beginning, the risk of lending is reduced so financing should become easier to obtain. "It is extending the life of an airplane, and its residual value. This is what a financier looks at," says Aliment.

Who pays?

It is not only the financier or lessor that should take responsibility. Operators also need to ensure their records are in order, because having a smooth lease return also benefits them. Maintenance, repair and overhaul providers (MROs) should consider a partnership with record-keeping services, although some believe their job is to maintain the aircraft and then hand the documentation over. "With MROs the benefit is customer satisfaction," says Scanlon. "We can train an MRO to use our system in a day."

There are also other benefits to having good records. Electronic systems can incorporate translations, for example. Waviatech has already translated records kept in French and Portuguese into English, by scanning the original and laying the translation electronically over the top.

"Many lessors are worried about leasing in China, for example, because the records come back in Chinese and they then have trouble re-leasing them," says Scanlon.

Record keeping is getting better, but not nearly enough people are paying attention to it.

"What we say is do it from the beginning, do it regularly and check the maintenance papers immediately on receipt from your maintenance provider," says Radunz.

And if they make copies, at least they will not have to go swimming in canals. ■

GE Capital Aviation Services and ILFC continue to dominate the operating leasing market, but both have very different strategies. Alexandra Cain compares and contrasts.

THE TWO HEAVYWEIGHTS

Think of a lessor. Unless you work for one, or have just closed a deal with one, your first answer was likely to have been either GE Capital Aviation Services (Gecas) or ILFC – and it makes sense. Because while there is a strong competition among all lessors, with portfolios worth more than $30 billion, Gecas and ILFC are in a league of their own.

At first glance the two companies have a lot in common. Both are owned by massive parents: with Gecas part of GE, the world's largest company, and ILFC majority owned by American Insurance Group (AIG).

Both have been in the business almost from the start: ILFC can claim to have invented operating leasing by leasing a DC-8-51 to Aeromexico in 1973 and, while GE came later, it did acquire most of the portfolio and many of the staff from GPA, arguably the second lessor. Both also have their headquarters in the US. But this is pretty much where the similarities end.

Round 1: Culture

Gecas and ILFC may both have big owners, but the attitude of their parents is very different. Gecas has a much closer relationship with GE – and customers see the two companies as the same. "People know GE so they come to us," says Norm Liu, executive vice-president at Gecas.

Gecas staff also say that they feel they belong to GE. They take part in GE training programmes, and movement into and out of other divisions of GE is fairly common.

Steve Hazy, chairman and CEO of ILFC, says that his company's relationship with AIG is very different. He says it has have little to do with AIG beyond the stock it has in ILFC's shares. They are completely autonomous and AIG does not guarantee or underwrite any of their financings.

"We don't live by the book," he says. "We are a flexible company and we don't necessarily go by arbitrary legal contracts. We try to be responsive and focused on the airlines."

However, Hazy does value AIG's shareholding. "Size is important because the capital requirements are so huge. The airline equity base has shrunk, so most need operating lessors," says Hazy. "The role of an institution like us is for airlines to depend on us. We are needed for our strong balance sheet in bad times and as a source of aircraft in good times."

Liu agrees. "It does help having the backing of a larger company. It is tough out there because of funding availability," he says.

Round 2: Diversification

While both lessors are continuing to grow, they are doing it in very different ways. After 30 years in operating leasing, Hazy does not see why ILFC needs to move into a different market.

"We are like a specialized brain surgeon," he says. "What we do best is operating leases and we have a lot of types of leases. We are focused on airlines and assets, instead of trying to be an airline supermarket."

However, Gecas has taken the opposite approach. In 1998 some 49% of its portfolio was operating leases, with financings accounting for 48% and loans or enhanced equipment trust certificates (EETCs) just 3%. At the end of 2003, operating leasing was just 39% of its portfolio with loans and EETCs 21%.

"We are not solely focused on one area – that is not the making of a whole business," says Liu.

As well as aircraft operating leases, Gecas offers airlines secured loans, structured deals, sale/leasebacks, engine finance, inventory management and even pilot training. "We saw a trend towards airlines outsourcing," says Liu, "and it just made sense to lease the engines as well."

Gecas' operating leasing portfolio is also made up of a wide range of assets, including popular narrowbodies, widebodies, cargo aircraft and regional jets.

"It helps us role over our fleet and gives us a different scale of opportunity," says Liu. Gecas is the only lessor to commit truly to regional aircraft, owning about 275 regional jets from Bombardier and Embraer, and has also launched a 737 freighter conversion programme with Bedek.

"Our competition are companies who just lease, or banks – we are the only ones who offer the complete package," says Liu. "We find airlines don't just want to own or lease everything, they want multiple deals and structured finance. There are providers who do it separately but we do it all – and that's what airlines want."

Liu says this diversification is what helps them continue to be successful even when times are tough.

Hazy disagrees with this strategy. "What makes us very different is we are more of an aircraft marketing and leasing company and we are more airline-orientated," he says. "We don't do sale/leasebacks, we are more focused on our own aircraft fleet. It keeps us busy."

But he says that the lessor does not keep still. "We have a constant quest to come up with innovative solutions for airlines."

One recent product that ILFC has developed is so-called "step-up leases" that are lower in winter and higher in summer, and multiple currency lease rates, which allow payments to be made in several different currencies.

Round 3: Structure

It is easy to contrast the two companies here: Gecas has offices in Beijing, Chicago, Stamford, Dubai, Hong Kong, Luxembourg, Miami, Moscow, New York, Shannon, Singapore, Tokyo, Toulouse and Vienna; ILFC has one in Los Angeles.

"Localization is a big theme for us," says Liu. "We believe in having someone where the business is, rather than a fly-in. Global growth is the most exciting thing to me at the moment. There is always potential there."

Gecas also has regional managers who concentrate on local customers. "We have had an open reception from airlines – which are pleased to have us in the area," says Ray Sisson, senior vice-president and regional manager, Middle East, Africa and CIS, who set up Gecas' Dubai office in 2003. "We are now only across town from Emirates and a short flight to Qatar and Gulf Air."

"It works having local offices on a couple of levels," says Sisson. "If you're far away then logistically it can be a challenge to get to clients, and it helps you be closer to clients if you're nearby. You also hear more about what's going on."

Gecas opened a Russian office in July. Hiring Alex Plat as sales manager. "Russia is one of the places where local knowledge really matters," he says. "It is one thing to talk to foreigners, but you really need a native Russian."

Sisson believes that Russia will be a key future market for the lessor. He says that Gecas can really take advantage of the opportunities in the area by being situated there. "It is a completely different environment to what you would experience in the West. It creates an interesting challenge," he says. "Gecas can play to our strengths there, in a number of areas as well as operating leasing."

The contrast to ILFC, which is entirely based out of California, could not more apparent. "We only have one office because we find it efficient that way," says Hazy. "We are a very unified headquarters – everyone is involved and knows what is going on."

ILFC employees travel a lot, often using the company's corporate jet fleet. "We are on the road all the time, visiting customers. We are a very versatile, mobile team. That is the ILFC style," says Hazy.

He also points out that from California it is closer to the Asia-Pacific region, which is its biggest growth region, than it would be in Europe.

ILFC is a large operation but employee-wise it is quite lean. It has only 130 employees, which works out to six aircraft and $30 million in assets per employee. Gecas has about 230 employees worldwide.

ILFC's staff is made up of a large technical group and the marketing executive group. Hazy says: "This is the way we find works best for us, and we get good feedback from our customers."

One of the biggest similarities between the two lessors is how they view their customers.

Both spend a lot of time trying to make customers happy – but as they are among the most powerful companies in aviation, both will also repossess aircraft when deals go wrong, knowing that they can afford to have some aircraft on ground if necessary. This was perhaps most noticeable when ILFC repossessed 19 aircraft from Swissair in 2001 to speed up the Swiss government's restructuring.

Gecas is also "tough, but fair," says Liu. It likes to stay close to its financial situations and for customers to be open about any problems so it can work through as many as possible.

"For those that were closed, we did have to exercise remedies," says Liu. "We believe in the one-on-one approach and we really try to know our customers well. We like to take a long-term view with our customers and assess their marketability," says Liu.

But perhaps the biggest similarity is the fierce rivalry that the two share. Not only do the two compete with every other lessor for business, but they also relish beating each other for contracts – and loathe losing out to their rival,

Hazy says: "We are the product of 30 years of learning to survive in this culture."

The world air cargo market is growing and much of this growth will be reliant on converted aircraft. But as Alexandra Cain discovers, knowing which conversions to finance and when, can be a tricky process.

CUTTING METAL

Banks tend to focus on new shiny aircraft. They track aircraft orders and follow sales campaigns but few care about what will happen after 12 years (at least until deals go wrong).

This short-sightedness means that few banks have ever studied the cargo market. They may have bid for a new Cargolux, Air France or Cathay Pacific 747 freighter - but they have not looked at conversions.

This means that they are missing out on one of the fastest growing aviation markets.

Recent forecasts by the large manufacturers have revealed that their predictions for world air cargo traffic are rising – and almost three-quarters of this demand will be filled by converted aircraft. If this happens, airlines must be able to finance these conversions.

Passenger-to-freighter conversions can cost anywhere between $4.5 million to $25 million - and when maintenance is added it can easily cost more than this. The problem is finding someone to finance this.

"There are not that many players in the market," says Bert van Leeuwen, head of aviation research at DVB bank, which is active in financing aircraft intended for freighter conversion. "There is a very small group of banks, even smaller for operating lessors."

Banks that are prepared to consider conversions include include DVB, PK Airfinance, Calyon and Erste Bank - but it is not a long list.

However, the list of lessors and funds that are prepared to buy aircraft to convert is growing. Lessors like Boullioun, Babcock & Brown and Gecas are also converting their own aircraft to protect values.

Aircraft choice

The problem is picking the right aircraft. According to most investors, the aircraft most in demand for cargo conversions are the older medium-sized models such as 747-400s, A300-600s, 757s, 767s and MD-11s. Because of the fleet-replacement cycle many of these types of aircraft will soon become available for conversion.

As the 767 is gradually being superceded by the 787, it will become a good conversion target. But this is not true for all aircraft – the DC-10 and the 727-200 have received very little interest from the freighter conversion market.

Often investors interested in cargo conversions have an anticyclical strategy; they take advantage of the downturn in the market in order to buy relatively new aircraft that are undervalued. This is particularly true since September 11, 2001. The values of 747-400s and 737 classics dropped significantly, and could no longer be sold to traders or lessors as passenger jets. Converted profitably, these aircraft have much more value as cargo carriers than passenger jets.

One such company, Republic Financial Corporation, believes that there is money to be made from these types of conversions. "Republic would only buy an aircraft if it had an end user," says Dale Landry, director, aviation sales and leasing at Republic Financial. "When we look at what assets will be likely candidates, we have to look at the age of the aircraft and the cost of conversion."

There are still a number of these undervalued aircraft available for companies such as Republic Financial to pick up, but they will not be around forever. Nevertheless, as there is a significant replacement cycle occurring with large amounts of new passenger aircraft being ordered from manufacturers, ideal conversion candidates such as the 767 should be available for the short- to mid-term future.

Finding investors

Banks often regard cargo conversion financings as being too risky, but it is this very asset risk that makes them profitable. "It is perceived as higher risk and consequently the margins are good," says van Leeuwen. "We are a specialized transport bank so our board is comfortable with the asset and we have freedom in the market."

The problem in many transactions is sourcing the debt. "There is a lot of equity chasing transactions," says van Leeuwen. "Equity is less of a problem than debt." This is because during the life of the aircraft lease, most of the investment will be paid back in lease rates, and the rest will be retained in the aircraft equity. There has been some renewed interest in cargo conversions by banks, which are beginning to become more comfortable with debt, providing the quality of the credit and asset is good. Also, banks such as DVB have started to structure transactions so they can take both asset and credit risk.

"We will continue to take equity positions via funds managed by the bank as long as aircraft values remain sensible," adds van Leeuwen.

Banks take the same conservative view towards financing conversions as they do to any aircraft and are concerned about the residual value. "A financier will want to see a big market for a plane," says Steve Doughty, vice-president sales and marketing for BAE Systems Regional Aircraft Asset Management. "They will be looking at the strength of the borrower, as well as other things such as the length of the contract."

Also for smaller investors and hedge funds, there are certain types of aircraft that are already available from lessors, such as the 737-300 and Gecas, which deter other investors. "It's hard to compete on that number of aircraft," says Landry.

When to convert

Knowing when to convert is essential. Judging whether the cost of converting an aircraft is justified by the end value is tricky, as is deciding whether to use an OEM to perform the conversion or to go elsewhere. "You have to recoup the cost of the conversion in the higher sales price or the lease rental," says van Leeuwen.

For an operating lessor, the decision to convert an aircraft is one that requires timing and being switched on to the demands and needs of the customers. "It's all about economics, and the alternative returns," says Chris Damianos, head of cargo conversions at Gecas. The decision to convert an aircraft is all about balancing two dynamics: the growing market and the large replacement cycle.

This means that not every aircraft will necessarily be converted; some will not be economically viable enough to justify conversion costs. For example, before September 11, there were a lot of 727s being converted. But afterwards the values of 757s dropped so dramatically that it wasn't financially viable to convert 727s anymore when a 757, a newer aircraft, was so undervalued. Equally, if the market picks up for a passenger aircraft, those that are penciled in for conversions may actually not be.

"You typically start converting when the market is starting to diminish and the number of opportunities for it are starting to dry up," says Doughty. "Timing in this industry is everything; it's a very aggressive, price-sensitive market."

"You typically start converting when the market is starting to diminish and the number of opportunities for it are starting to dry up"

Also when an aircraft is purchased, there may not be any conversion slots available immediately and it has to sit on the ground while waiting to be converted, which costs money.

On the plus side, the decision to convert does prolong the life of an aircraft, making it attractive financially. "Converting a passenger to a freighter adds 10 to 15 years to its life," says Landry. "Operators put less hours into cargo aircraft than passenger." Cargo aircraft have a much lower utilization than passenger aircraft – about seven hours a day or as low as three for a narrowbody.

The lessor approach

Many operating lessors find it more beneficial to convert the aircraft themselves. For example, Gecas identifies certain aircraft types, such as the 737 and 767, which it believes would be more viable as a freighter, it then sets up a conversion programme. "Then it's just a matter of getting out there and marketing the cargo aircraft," says Damianos.

The lessor also has its financing subsidiary, PK Airfinance, which will secure the debt for the conversion once it has found a carrier to lease the aircraft.

BAE Systems set up its ATP freighter-conversion programme because six years ago the market for turboprops was oversupplied, while the market for small freighters was attractive. BAE designed a simple cargo door and started offering it as a freighter. It funds the conversions itself but the cost is remunerated in rental rates over the term of the lease to the operator.

Drawbacks

It is very difficult to secure the cost and end value of a cargo conversion. This is further complicated by clashes between any financings on the original aircraft and the lease structure of the conversion. The cost of acquiring the aircraft and the cost of conversion are therefore virtually inseparable and are often tied together. "We would always want to be in control of the aircraft," says van Leeuwen. "If you don't, you are virtually talking about unsecured financing."

Damianos agrees, saying that the conversion has to be secured by the aircraft and by the conversion itself.

Another issue with conversions is that many investors are waiting to see whether certain aircraft perform well as freighters. For example, the 757-200 has only recently been used as a converted freighter, so is unproven in the marketplace.

Cargo conversions are growing fast, despite problems with financing. "There is a really healthy demand for cargo aircraft," says Damianos.

Doughty of BAE Systems agrees. "The market will continue to be healthy and there is a good market out there for us," he says.

With mandates for aircraft financings with good margins becoming hotly contested, some financiers may begin to realize just what they are missing out on. ■