

The past six years have seen wet leasing transformed from a niche, short-term and ad-hoc business to a long-haul strategy for freight divisions at major airlines. Bob Prendergast examines what drives wet leasing and the economics for lessors and lessees in the new-style ACMI business.

The nature of wet leasing

Wet leasing is seen as the way to an instant airline, but it can offer more than that. In effect it is a way of delineating those who operate aircraft from those who market their services.

By offering an instant airline to lessees, a lessor provides short-term capacity for a premium. This has been the principle of wet leasing, both for passenger and freight services. In more recent years wet leasing has been evolved by airlines such as Atlas Air and Gemini Air Cargo to provide long-term solutions for carriers operating scheduled services.

The logic of wet leasing is that those with the knowledge, ability and capital to own, manage and fly aircraft will not always have the ability to market the aircraft's capacity. Airliner services are now commodity products, especially in the freight sector. Delineating the operation from marketing freight is therefore efficient and economical. Wet leases work by the lessors taking the risk of financing and operating the aircraft, employing crew and organising and paying for maintenance. The lessee just has to worry about fuelling the aircraft and providing enough carriage to fill it.

The lessor charges a wet lease rate including the operating cost elements of aircraft, crew, maintenance and insurance (ACMI). The ACMI rate therefore covers the fixed costs of operating the aircraft. The lessor receives a premium rate for ACMI. The lessee therefore also knows what its costs are going to be, since they have been delineated into visible tranches.

Because wet leases provide an instant airline they are by nature short-term. The lessor receives a premium because it takes the risk of owning and financing aircraft

and running a virtual airline. The lessee avoids the problem of having to set up its own operation, which historically it has otherwise done when taking a long-term view on the business. The premium rate for ACMI has only been justified in the short term.

The evolution of wet leasing into long-term contracts would appear to remove or reduce this risk for the lessor, as well as providing the lessee with more of a case for setting up its own operation. Atlas Air is the prime example of long-term leasing. It operates scheduled freight services for major flag carriers. This would appear to be less risky than most traditional ACMI leases, but in reality the lessees have cancellation agreements in the event of an economic downturn. Effectively, therefore, there is no such thing as a long-term wet lease contract.

Freight business

The problem for many freight operations is that they are part of a larger passenger airline. Passenger divisions that are earning the big bucks will always come first and the culture and decision-making will, of necessity, favour the needs of the passenger market.

The small freight division of a major airline is usually one that relies on the belly capacity of passenger aircraft and sometimes a small sub-fleet of freighters operating within a separate cargo department.

The freight market and the demands of customers are now such that offering just belly capacity on passenger flights does not come close enough to the requirements of the freight divisions.

Besides coming second place in the

airline's priorities, belly capacity has several other disadvantages:

- The amount of capacity available changes and is unpredictable;
- Freight capacity in passenger operations is rarely the required amount;
- It has the cost base of a major passenger airline, not of a pure freight operator;
- Freight is dependent on the itinerary of the passenger operation; and
- Passenger routeings do not always match freight networks.

Different airlines allocate their costs in different ways, but as far as the cargo division is concerned many of them effectively wet lease the belly capacity from their passenger parent. The problem is that the freight department is dependent on a route structure based on passenger demands and frequency requirements, whereas freight demand may not follow that pattern. For example, on some routes from Europe to the southern CIS and surrounding states, belly capacity on passenger aircraft is not enough to satisfy freight demand.

The freight operator needs to be autonomous so that it can look for ways to adjust its own capacity to the needs of its market. The problem for a minority freight division in many major passenger airlines is that freight is a low priority. Suggestions that investment be placed in new equipment for the freight operation to expand its operations can be a hard plan to sell to the larger passenger division. Even the wealthiest airlines have limited capital and a long list of options with greater priorities than acquiring



Atlas has cornered the wet lease market with long-term contracts made with lessees that require scheduled freight operations.

aircraft for a small division in the airline. A request for \$300 million for two new 747-400Fs to open new scheduled freight services is not going to be heard by many, when the capital could be invested in an Internet reservations system.

The need to be independent from larger parents has spurred on many major European flag carriers and major US airlines into wet leasing capacity from Atlas Air, first, and then Gemini. Atlas and Gemini operate seemingly permanent scheduled services for these airlines. While this takes some of the risk away from the lessor, it also allows the lessees to operate their own scheduled services independently and more economically than the mainstream passenger operations. Both sides therefore benefit.

Wet leasing also serves a purpose for ad-hoc and truly shorter-term deals. These are likely to be for a period less than six months with a minimum aircraft utilisation of about 200 block hours on an ACMI basis.

Wet lease structures

The ACMI basis of a wet lease has to benefit both parties. This stream of revenue for the lessor has to cover all

costs and leave enough for overheads. The main risk with wet leasing is that crew have to be employed whether or not they are active; they must also receive recurrent training and be provided with accommodation and transport. Aircraft have to be financed and maintained, again, irrespective of their productivity.

This pressure on lessors means a minimum level of aircraft utilisation is needed to make the operation economic. Contracts between lessors Atlas and Gemini and major carriers would seem to guarantee sufficient aircraft utilisation, at least while the lease contract was being honoured. These two lessors operate 747-200/-400s and DC-10s. Utilisations for used freighter aircraft should be at least 3,000 flight hours (FH) per year, or 250FH per month.

In actual fact 747 lessors will be looking to secure contracts with monthly utilisations of about 325–350FH per month. Lessees are therefore only likely to secure an aircraft if they can guarantee the lessor a minimal level of aircraft utilisation, as well as lease term for a minimum number of months.

Sufficient aircraft utilisations can be achieved by splitting the use of an aircraft between two lessees. This causes difficulties for the lessor, however. First, the aircraft has to operate 'dead legs' when transiting between lessees' operations. Second, if there are reliability or aircraft on ground problems then the lessor will have to pay a lessee a penalty for a delayed or cancelled service, or fund the cost of a replacement wet leased aircraft itself.

Lessees usually insist on having an aircraft full time. Monthly utilisations of at least 300FH are therefore required for the DC-10, MD-11 and 747.

If lessees require lower utilisation then a stepped leased rate can be arranged. Low rates of utilisation will be charged at high block hour rates. The rate will then come down if utilisation increases.

The lessor usually has to pay penalties to the lessee if schedules are missed. The lessor also has to provide some level of guarantee of an ability to carry a certain level of payload on routes, taking into account slight payload differences between aircraft and headwinds.

Starting a wet lease operation is not easy because of the perceived risk the wet lessor takes in owning the aircraft. Atlas Air was started by Michael Chowdry when he had access to a spare aircraft and persuaded its owners that he could make a business case out of his proposed wet lease contracts with major airlines.

Atlas is now a very well-established airline and operates a fleet of 20 747-200s and -400s. It has a high credit rating and in one case is graded as the most financially sound airline in the world. The same rating places Singapore Airlines in 20th position.

Although lessees are responsible for the cost of fuel, they are not taking a risk, since the amount consumed on each route can be accurately estimated.

Lessor economics

To illustrate the economics of wet leasing, a comparison can be made

between the costs to the lessor and the ACMI rates it is able to realise in the market.

The two most popular types are the 747-200 and DC-10-30. However, Atlas Air has in recent years also started operating a 747-400F and Gemini is now getting into used MD-11s for freight conversion.

The lessor's costs of aircraft ownership can be more variable than when dealing with new aircraft. Acquisition and build costs, as well as lessee credit ratings, all have an effect. Straight leases will command a market lease rate, reducing variation in lease rentals.

The 747-200 acquired and converted to freighter will have a total build cost in the region of \$50 million. A monthly lease rate factor of 1.3% results in a monthly dry rental of \$650,000.

Similarly, a DC-10-30CF has a market dry lease rate of about \$300,000. Like the 747-200, the rental factor will be higher than the 1.0% rate for new aircraft; and will be about 1.2%.

The 747-400F is an unusual aircraft for most freight operators. Atlas Air has been an exception; it acquired an aircraft two years ago when 747-400 orders were at a low level. Taking account of a freight operator's willingness to acquire a 747-400 only when generous lease rentals are offered, an acquisition price of about \$100 million is probable, with a corresponding lease rental of \$1.0 million per month.

The MD-11, although still young, is unpopular with passenger operators and lessors, and so freight carriers are in a buyer's market. Converted freighters could have a build cost as low as \$60 million if the buyer has a strong enough credit. The aircraft would have a lease rate factor of about 1.1%, generating a lease rate of about \$660,000 per month.

Most wet lessors secure enough contracts to achieve an aircraft utilisation of 3,600 hours per year or 300FH per month. Since most lessors will be looking for at least 325FH per month, the 747-200 and DC-10-30 are assumed to achieve 3,900FH per year. The longer range 747-400 and MD-11 are expected to produce 4,200FH per year.

This will translate into FH lease costs (see table, this page). The 747-400F is 50% higher than the 747-200, while the MD-11 has twice the rate of the DC-10-30CF. The higher costs of the younger aircraft are balanced by lower maintenance charges.

Insurance costs are assumed to be a 1.25% annual charge of appraised market value, generating the FH rates shown.

Flight crew costs are another element that have a degree of variation. The three-man aircraft are unlikely to have higher

LESSOR'S ACMI RATE & COST ELEMENTS TO PUT AIRCRAFT ON WET LEASE

Aircraft type	747-400	747-200	MD-11	DC-10-30
Flight hours per year	4,200	3,900	4,200	3,900
Charged ACMI rate \$/FH	7,000	5,300	5,000	4,000
Aircraft lease/finance charge \$/FH	2,857	2,000	1,886	923
Maintenance \$/FH	1,540	2,000	1,325	1,600
Crew cost \$/FH	930	857	870	790
Insurance cost \$/FH	298	160	179	80
Total costs \$/FH	5,625	5,017	4,259	3,393
Lessor's margin \$/FH	1,375	283	741	607

crew charges than two-man machines. All four types will be used on long-haul operations, close to the end of their range capabilities. The two-man 747-400 and MD-11 will therefore need a supernumerary crew member. These will either be a captain or first officer, and overall the extra crew member will incur a cost equivalent to the average of a commander and co-pilot.

Basic salaries vary widely between operators, as do scales. Some airlines rate their scales according to aircraft type and maximum take-off weight. Surveys of US airlines reveal that in the past Airborne Express DC-10 captains have received twice the basic salary of Atlas Air 747 commanders.

An annual salary for a 747-400 captain might be \$110,000. Salaries for the same position on a 747-200 might be lower in some cases, but is assumed to be equal here. First officer salaries would then be about \$85,000; an 'average' supernumerary crew member would be about \$97,500. A flight engineer's salary is assumed to have a basic rate of \$70,000. Lower salaries would be paid for the MD-11 and DC-10-30.

Allowances might be high if the wet lessor had crew based overseas. In this case a rate of 40% of annual salary might have to be paid. Employer taxes could add another 20% of basic salary. Training costs would have to reflect average time required in the simulator each year. One cost the wet lessor escapes is providing hotel accommodation, which is borne by the lessee.

The annual crew cost for the 747-400 is then about \$560,000, while it is \$514,000 for the 747-200. The -400's

higher costs are explained by the fact that it uses a supernumerary crew member, who is higher paid than a flight engineer.

On the same basis the MD-11 and DC-10 have annual costs of \$522,000 and \$474,000.

Each crew would probably achieve 600 FH per year and corresponding crew FH costs are \$930 for the 747-400, \$860 for the 747-200, \$870 for the MD-11 and \$790 for the DC-10-30.

All-in maintenance costs, including all rotables, line maintenance, check reserves, heavy components and engines are about \$1,550 for the 747-400, \$2,000 for the 747-200, \$1,300 for the MD-11 and \$1,600 for the DC-10-30.

Under the circumstances above, total costs for each aircraft are \$5,625 for the 747-400, \$5,020 for the 747-200, \$4,260 for the MD-11 and \$3,400 for the DC-10-30 (see table this page).

The closeness of the 747-400 to the -200 and of the MD-11 to the DC-10-30 is explained by the younger aircraft having lower maintenance costs, in spite of higher finance and insurance charges.

Because the younger aircraft have higher payload and longer range capabilities the rates that lessors can charge are higher.

Examples

Atlas Air with a dedicated fleet of 747 freighters has been highly successful in the wet-lease market. Its favoured aircraft has been the -200 model, but the bold move by Cargolux into the -400 market has also made that model take a significant amount of the capacity offered by Atlas.



Atlas runs a lean and mean operation. It knows what it can and cannot do. In a mirror image of its own business it outsources everything it cannot do. This allows it to have strict control of costs and to keep them to a minimum. Atlas Air outsources maintenance. Many airlines must look on the structure of Atlas with envy: a minimum of staff, high aircraft utilisation and it passes the problem of marketing its capacity on to its lessees.

The key to Atlas Air's success lies in controlling costs with what is probably a low-risk, long-term revenue stream. Typically, a lease will be for a period of three years. Atlas successfully records an average substantially in excess of 300 block hours per aircraft per month.

Economics

The market rates and potential margins for the four types are shown (see table, page 63). The higher rate of the 747-400 and MD-11, compared to their older counterparts, might be expected to dissuade lessees from taking the younger aircraft.

First, the higher payloads of the younger aircraft give them the ability to generate the lowest ton-mile costs, provided they can be filled. Second, their shorter range also means that technical stops or restricted payloads can be avoided. This is only in the case where the younger aircraft are operating inside their payload-range capabilities and outside the profiles of their older counterparts.

The third advantage is the lower fuel burn, which, like maintenance, balances

most of the FH cost differences between old and new. An example is the Amsterdam-Dubai route. The 747-200 burns 200,000lbs fuel, while the -400 burns just 156,000lbs of fuel. In this case the -200 has a \$3,600 higher fuel cost when priced at 55 cents per US gallon.

A similar example is Amsterdam-Narita, where the -200 burns 288,000lbs of fuel and the -400 262,000lbs of fuel. Here the -200 has a \$2,150 higher fuel charge.

These differences only make an impact or justify the use of the -400 over the -200 where the -400 has a payload advantage.

On routes within the -200's range capability the -400 is not as economical, unless it can be guaranteed that its payload will be fully utilised and at high yields.

A similar situation occurs where the mission is outside the range capabilities of both aircraft and they have to make technical stops. These very long distance routes will mean the -400's fuel cost saving will probably not override its higher ACMI charge. The lessee will also have to consider the -400's higher weight-related costs.

"Overall the -400 does well on a sub-set of the -200's routes," says Steve Fortune, president of Magellan Aviation. "On a very long route such as Singapore-Paris the -200 can only carry 75,000lbs, but the -400 is also payload restricted at 163,000lbs, compared to its full payload of 260,000lbs. Both have to stop to be able carry an economical payload."

Atlas Air has been able to get a grip on the market and has the 747 to thank for this. It provides the most economical

It is hard for the DC-10-30 to compete with the larger and larger range 747 on east-west routes. While the DC-10-30 is suited to north-south markets, the MD-11 will present a danger to the 747-200 in coming years.

payload and has the right range performance for most of its Atlas' lessees.

Gemini has had to compete with Atlas, but uses the DC-10-30. Because of its shorter range it cannot compete with the 747 on east-west routes. These are too long for the DC-10 to be competitive. The MD-11 is closer to the 747-200 in both payload and range and this may explain why Gemini has considered acquiring some.

The MD-11 will become a serious threat to the 747-200 in coming years. It will soon be acquired at rates that give it an extremely economical lease rate. It will also have a weight-related charge, maintenance and fuel burn advantages over the 747-200. For example, the MD-11 has three engines with longer on-wing times than the 747-200's four powerplants with poorer reliability. The MD-11's payload also comes close to the 747-200's.

The DC-10, meanwhile, has to operate north-south routes because it cannot compete with the 747 on longer range east-west routes. The DC-10 is therefore the most economic long-haul aircraft for operations between Europe and the Middle East and Asia and between the US and Central/South America. This is illustrated by Gemini's operation and those of others such as Challenge Air Cargo. 