

The DC-9 and 737-200 are stalwarts few would part with. Some have still not been hushkitted and these are available with others that have. With the prospect of a flood onto the market in the next few years what are the prospects for the DC-9 and 737-200?

What is the market for the 737-200 and DC-9?

The 737-200 and DC-9 are aircraft that will just not go away. They are simple to operate and owners cannot find an economic justification to replace them with new aircraft. These qualities have kept the 737 and DC-9 market stable.

Looming Stage 3 compliance in North America could change this. Aircraft which do not have a hushkit order in place will be forced to sell at the end of 1999. Stage 3 compliance in Europe is required by April 2002 and aircraft not modified by this date will also have to be sold. What then will be their market and value prospects?

European issues

Until recently only Stage 3 hushkitted aircraft have been allowed to operate in North America and western Europe after compliance deadlines. Any aircraft that are not hushkitted by these deadlines will have to be sold into other parts of the world. Aircraft would still have to be hushkitted if their new operators were to fly them into North America or western Europe.

The issue has now been complicated by the European Commission's ruling that airlines will not be allowed to import hushkitted aircraft, or aircraft otherwise modified to comply with Stage 3, into Europe after the first of April 1999 unless the engine bypass ratio is higher than 3:1.

That is, European airlines will be permitted to hushkit their current fleets, but will not be allowed to import any more Stage 2 aircraft and hushkit them. Aircraft such as early 747-100s and DC-

8-70s can still be imported. Hushkitted aircraft can still be transferred between European states.

Aircraft operated by non-European operators can only fly their hushkitted aircraft into European airspace if they were on the operator's national register between April 1995 and April 1999. The purpose of these rules is to cap the number of hushkitted aircraft flying through European airspace.

This new rule has an affect on the market for all aircraft. It means the European market will be totally closed to DC-9s and 737-200s after April 1999. It also means North African or eastern European operators cannot buy more DC-9s and 737-200s and then fly them into western Europe even if they are hushkitted.

The European rules on Stage 2 hushkitted aircraft are further complicated by these aircraft only being allowed to operate to an age of 25 years. An exemption of three years can be given.

These limitations will put some further pressure on the DC-9 and 737-200 market and their values.

The European Commission has decided that it doesn't want an increase in the number of aircraft which only just meet Stage 3 compliance and have higher gaseous emissions.

There are a number of operators and hushkit suppliers who feel this ruling is a political move to help the sale of new aircraft. This rule has not been replicated in North America. It is likely to damage the economic viability of operators of hushkitted aircraft, especially small freight operators.

Split fleet

Most decisions to hushkit 737-200s and DC-9s will have already been made. Generally younger aircraft have been chosen since they have a longer economic lives ahead of them to amortise the cost of modification. Hushkitted aircraft will be free to operate and their values will be boosted or at least maintained. The decision to hushkit has been made because these aircraft are young and will be kept. Older ones will be phased out.

The production capacity of hushkit suppliers over the next year is almost accounted for. Unless temporarily parked while waiting for a kit to become available, any aircraft in the US which miss the Stage 3 compliance deadline will never be hushkitted. Many of these older aircraft will come onto the market in the next year. All 737-200s in Canada have been hushkitted. western Europe still has three and a half years to hushkit aircraft in its fleet.

The market prospects of 737-200s and DC-9s requires two analyses; one for hushkitted aircraft and one for non-hushkitted aircraft. Since the Stage 3 compliance deadline is due three years sooner in North America, the issue of hushkitting is even more relevant to operators in that area.

Fleet breakdown

The value of 737s and DC-9s over the next two years will be most influenced by their configuration. The majority of DC-9s were built before 1972 and so are now older than 26 years. The DC-9 build



Northwest has a large fleet of DC-9s, all of which have been hushkitted and refurbished. These are the most valuable DC-9s in the global fleet.

specification was more uniform than the 737-200 fleet, although a series of different engine variants was used.

The fleet of non-hushkitted DC-9s varies widely between the oldest with low thrust variant engines and younger aircraft with higher powered engines.

The majority of 737-200 production was before 1983, making the fleet 10 years younger than the average DC-9. The 737-200 is divided between Advanced and non-Advanced aircraft.

Advanced models are younger and have higher operating performance. Despite this there are still some 737-200As in Europe and North America which have not ordered hushkits. This includes British Airways' fleet of 25. BA had the option to hushkit its aircraft and decided not to. The modification would have improved the fleet's value, but BA opted for a sale and leaseback transaction. BA's aircraft are prime 737s and a hushkit modification would be justified on these aircraft.

The general trend is that older non-Advanced aircraft are less likely to be hushkitted.

Next we consider the number of non-hushkitted aircraft likely to come on to the market over the next two years. Of particular interest are the aircraft retired by the large operators, since they will

have most effect on market value, as will the age and number of aircraft already available.

DC-9 fleet

The fleet analysis (see table, page 15) shows the number of DC-9s in each global region. The number of aircraft hushkitted, not hushkitted and those which have outstanding orders for hushkits are shown on this table.

Despite the 10 year age difference of 737-200s and DC-9s the proportion of the global fleet committed to hushkitting is similar for each type. This reflects most operators' desire to continue using older aircraft rather than replacing them.

There are still a large number of DC-9 fleets in Europe and North America for which hushkit orders have not been committed. These fleets are generally small and operated by secondary airlines. Operators include Adria Airways, Binter Canarias, Iberia, Macedonian Airlines, Express One, Eurofly, Aerocaribe, Continental and several small private operators. Continental has a fleet of 26 aircraft which do not have hushkit orders currently in place. Three of these are owned, but 23 are on lease from various companies.

TWA has options on hushkits. There are also several aircraft operated by US Airways which do not have orders for hushkits and these will be sold. The US government has 54 aircraft and 13 operated by Hawaiian Airlines which are

exempt from Stage 3 compliance.

This leaves just 48 DC-9s in North America which do not have a commitment made for hushkit orders and are not exempt Stage 3 compliance. The majority of these are -10 and -30 models, although there are also a few -50 models with no hushkit decision. Soon these cannot be sold into Europe and this could mean that some good quality DC-9s have to leave the North American market.

There are currently 19 DC-9s on the market, although this includes eight mid-1970s build -50s being sold by Meridiana. These are still being operated. The remaining aircraft are mainly late 1960s and early 1970s build -10s and -30s being marketed by US Airways and Australian Aircraft Sales.

DC-9 prospects

The oldest aircraft will not be hushkitted. Those on operating leases are able to be simply returned before the December 1999 Stage 3 deadline is reached. Besides raising the issue of what airlines with aircraft on operating leases will do about capacity, lessors and airlines will have a reduced market into which they can sell their old DC-9s. Some may be willing to temporarily ground their aircraft while they wait for hushkits to become available. Others may try to seek exemptions from the Federal Aviation Administration for a short period.

There are two markets for the DC-9. Firstly, some non-hushkitted DC-9s will be sold to regions such as Africa, Central America and South America.

These markets are limited and the performance of the oldest aircraft powered by the lowest thrust engines is insufficient for many airports in the region. Despite expansion, the limited latin American market means some DC-9s will have to find alternative homes. Technical support for DC-9s is not globally widespread, but localised in specific areas.

The parts salvage market is the only alternative. Air Canada has recently sold some of its aircraft for parts salvage. US Airways has a fleet of 50 DC-9s. The oldest 16 are still flying but will not be hushkitted and will come onto the market. The remaining 34 have already been modified and will be kept. US Airways has also sold 18 aircraft in the past 18 months, some for parting out. These aircraft were not hushkitted and achieved around \$2 million: a good price considering their modification status.

The JT8D's popularity means even DC-9s with lower thrust variant JT8Ds have high scrap values. Two -7 or -11 engines start an aircraft's value at about \$1.5 million and other rotables and materials can add another \$1.0-\$1.5

DC-9 GLOBAL FLEET			
Region	Hushkitted	Non-hushkitted	Orders for hushkits
Europe	7	73	36
North America	233	370	178
Central/South America	1	76	
Africa/Asia		14	
Middle East			
Far East & Australasia			
Total	241	541	214

737-200 GLOBAL FLEET			
Region	Hushkitted	Non-hushkitted	Orders for hushkits
Europe	17	126	55
North America	133	245	204
Central/South America	18	151	9
Africa/Asia	2	111	4
Middle East	3	25	
Far East & Australasia	11	62	
Total	184	720	272

Source: BACK Aviation Link

million. "There is a high demand for DC-9 parts and engines," says Stuart Peebles, director of aircraft sales and leasing at US Airways and Leasing. "Despite the prospect of a large number of aircraft coming onto the market and limited capacity for absorption outside the US and Europe, I am not worried about selling DC-9s. Venezuela is taking a lot of DC-9s. We and others have sold a lot of aircraft over the past few years, including about 40 in the past 12 months. The scrapping of some for parts will reduce the number available and this will help values. Overall it is difficult to predict how many aircraft will be on the market at any one time."

The status of the DC-9 fleet is greatly influenced by Northwest. Northwest has a fleet of nearly 200 aircraft and took the decision to refurbish its fleet and keep them, investing in hushkits. The airline, however, is susceptible to a highly attractive deal from a major manufacturer. Northwest is now believed to be about to announce a launch order for up to 250 A318s powered by the PW6000. If this order goes ahead then a large number of DC-9s will be released onto the market, although probably for at least another three years. Northwest's DC-9s are probably the best aircraft in the global fleet and so set a benchmark on values.

DC-9 values will also be affected by what other operators are doing with their fleets. ABS certified a hushkit for the DC-9-50 in 1997, and several operators have

placed orders.

The kit has a list price of \$2.08 million per shipset. However, making the aircraft Stage 3 compliant is not as simple as just placing an order with ABS. The DC-9 was originally marginally Stage 2 compliant and required a kit from Pratt & Whitney to become fully Stage 2 compliant. Although little had to be done technically with the aircraft, aircraft that have not had this kit fitted will require further expenditure. The Pratt & Whitney Stage 2 kit has a list price of about \$400,000, presenting a further barrier to life extension for aircraft not already modified.

Finnair has ordered Stage 3 kits for 10 -50s. "We will hushkit them and keep them for a significant period to serve domestic and local traffic," explains Colin Molloy, senior manager aircraft programmes at Finnair. "We will also install a new interior and the avionics required for reduced vertical separation and TCAS. This works out at about \$3 million per aircraft, equal to \$30 million for our fleet of 10 or the price of one new Airbus or Boeing. Our -50s are late 1970s and early 1980s vintage and average only 37,000 FH and cycles and so are relatively young compared to the rest of the global fleet. The resale prospects are not good when the impending retirement of hushkitted aircraft from AirTran as well as MD-80s are considered. All this means it makes sense to keep them."

SAS has recently completed a sale and leaseback transaction with the

International Airline Support Group (IASG). This deal is for 20 DC-9-40s which SAS is in the process of hushkitting. "The average lease period for these aircraft is 39 months," says Peter Murnane, chief financial officer at IASG. "We will fully amortise the investment in the aircraft over just three or four years and expect to have some residual value left in them after that – that is a good deal. Values of hushkitted aircraft are now probably as high as \$5-\$6 million. The other feature of DC-9s is that they are very difficult to justify replacing when they have a lot of life left in them. It is now difficult to hushkit aircraft quickly because of the backlog of orders. This means that there is little downward pressure on the values of hushkitted DC-9s and MD-80s."

AirTran is another fleet to be watched. The airline will start taking delivery of its first 717 in mid 1999. "We will first replace our 10 737-200s on a one-for-one basis with the 717s," explains Dick Schroeter, chief financial officer at AirTran. "We will then bring in another two 717s before we start to sell any DC-9s. This means we will not start shedding DC-9s for another two years and they will all be hushkitted by this time."

DC-9 values

Despite the expected wave of retirement of the oldest un-modified DC-9s, the market's most prominent players seem unconcerned about too many coming onto the market and driving down values. The oldest aircraft will be scrapped for parts and the market is strong. A sale value of \$2 million for a 100-seat aircraft about 30 years old which is fully amortised is impressive.

Other un-modified aircraft with a good maintenance status, better performance characteristics and enough remaining life for acquisition finance and possible hushkit amortisation will be sold into Central and South America. Some may be hushkitted later as required. Although the market for DC-9s outside Europe and the US is not large, the number of DC-9s that fit into this category and come on to the market in the next few years will probably be comfortably absorbed.

This will then leave just the best hushkitted aircraft in the US and a few in western Europe. The loss of un-hushkitted aircraft by the smaller carriers in the US will leave them without capacity and they are the strongest candidates to take hushkitted aircraft from the larger operators as they retire them over the next few years. Hushkitted aircraft will trickle down from the largest operators to the smaller carriers, with the poorest aircraft being scrapped for parts.



The number of 737-200s in North America with no hushkit commitment made is only 14. This small number reflects investors' confidence in the aircraft.

Opinions on values of DC-9s and 737-200s are mixed. At times there are large numbers of aircraft on the market or plenty of transactions to make estimates against. At other times there are few and values are only theoretical.

For these reasons value estimates vary, but early 1970s build non-hushkitted -30s are put at anywhere between \$1.7 million to \$4.1 million. Hushkitted aircraft of the same vintage are said to have values of around \$5.3 million. If the market becomes flooded with non-hushkitted aircraft they will be worth far less even considering the market for parts salvage.

Late 1970s build non-hushkitted -30s are put at \$3.5 to \$5.5 million and hushkitted aircraft close to \$7.0 million. These estimates for hushkitted aircraft reflect the possible value of Northwest's aircraft.

Non-hushkitted late 1970s build -50s are estimated at \$4.0 to \$5.5 million and hushkitted aircraft \$7.3 million.

Non-hushkitted DC-9s would have lease rates in the region of \$20,000 to \$90,000 per month depending on age and condition. Hushkitted aircraft would attract premium rates of \$75,000 to \$100,000 per month.

737 prospects

The 737s without hushkit orders are small fleets operated by carriers such as Aerosweet, Air Charter, Air Kazakstan, Air Liberte, Air Malta, Air Toulouse, Croatia Airlines, Lithuania Airlines, Malev, Transaero, Ukraine International Airlines, Frontier Airlines and Grand Air. The largest fleet with no hushkit commitment is British Airways' 25 aircraft.

This leaves only 14 737-200s in North America with no hushkit commitment made.

There are already 52 737-200s on the market, which includes several aircraft built from the late 1970s onwards. The BA aircraft will also start coming onto the market in about one year when the carrier takes delivery of its first A319s. Despite not being hushkitted, BA has until 2002 to make the aircraft Stage 3 compliant and there has been a lot of interest for them. Six have been sold to Lan Chile.

There is also interest for Air France's hushkitted aircraft and Sabena is committed to sell its aircraft to European Aviation. These will be modified with the Nordam hushkit.

Olympic Airways is still undecided about its 11 aircraft, although Nordam has an unannounced European customer for 11.

The 737-200 fleet is younger than the DC-9. This fact will mean operators and

lessors will be more resistant to parting out their fleets. Non-hushkitted aircraft will be sold to airlines outside Europe and North America. Other parts of the world also require aircraft to be hushkitted. These are the Caribbean and Central and South America. That is, aircraft sold into these regions will still have to be hushkitted if they are to be flown into these regions. The recent European non-addition rule for hushkitted aircraft means markets in North Africa and eastern Europe will be restricted.

737-200 market

The 737 market is larger than the DC-9. There is broader support for the 737. A number of start-up operators use hushkitted 737-200s and they have gained popularity in eastern Europe. Asia is also a strong market and there are several carriers with medium sized fleets.

Like the DC-9, there will be a flow of non-hushkitted 737-200s out of western Europe and North America over the next few years because of failure to meet Stage 3 noise compliance. The non-hushkitted aircraft are generally the older ones, but even these still have plenty of economically useful life remaining. Non-hushkitted 737-200s have values in the \$4.0-\$5.5 million range. At this value the 737-200 is hard to beat economically with a new similar sized aircraft. The

737-500 has a \$35 million list price which is too great to offset its lower fuel burn and maintenance costs.

There could be as many as 82 aircraft from North America and western Europe on the market over the next few years in addition to the 52 already available. The 737 market is currently very strong and recent deals involving -400s have resulted in high lease rates. The consensus is that despite there being 52 aircraft on the market 737s are in short supply. The implications then are that non-hushkitted aircraft will find markets without values suffering too much.

"The 737-200 is still sought after," says Bill Langton, president of AAR sales and leasing. "There will be a lot of trading activity in the next few years. The market will be depressed but a lot of aircraft are fully written down. The 737 will not disappear since it is a regional airliner and so has a large market."

The 737 is not completely free of criticism. It is less durable than the DC-9 and this could go against the Boeing aircraft. "The DC-9 bonding process is better," says Schroeter.

"The 737 has quite a large number of ageing aircraft ADs and the modifications which have to be made by 75,000 flight cycles are expensive," explains Murnane. "Southwest will get out of its aircraft by 75,000 cycles for this reason.

Several large carriers will soon start to retire and replace aircraft. AirTran will off-load 10 aircraft from mid 1999 over about one year. These have orders outstanding for Nordam hushkits and so will be premium aircraft. Six are leased and four owned. "Our aircraft are in the process of being hushkitted," says Schroeter. "The 737-200 market is stable and we have only got to sell four hushkitted aircraft. We have already had some interest in forward sales in the US. I estimate the value for a hushkitted 737-200H is \$5 million to \$7 million and dry lease rates are a 1.25% to 1.50% factor of this."

Frontier has two -200As and five -200s as well as five -300s. Two of the -200s are hushkitted and Frontier is trying to convert two -200Hs to meet the 75% compliance deadline by the end of 1998. If it is unsuccessful it will be forced to ground one of the non-hushkitted aircraft. Frontier is about to take one hushkitted -200A and will return its five non-hushkitted -200s/-200As with either five hushkitted -200As or -300s. It will also expand its fleet by about another five aircraft to take its total fleet to 20.

737-200 values

Values of 737-200s are put at levels almost identical to similar vintage DC-9s.

Non-hushkitted early build 1970s aircraft are valued at \$2.0-\$4.0 million and hushkitted aircraft at \$5.0 million. Later 1970s build aircraft are put at \$3.5-\$5.5 million and hushkitted aircraft near \$7.0 million.

Non-hushkitted 737-200s would generate dry lease rates of \$25,000-\$75,000 per month, while hushkitted 737-200s would have monthly rates of \$65,000-\$90,000. These are compared to rates of \$225,000 and higher for modern generation equivalents.

Bargain basement

There is no doubt that DC-9s and 737-200s in the right modification status present a golden opportunity for any airline outside of North America and western Europe not affected by the EC's recent non-addition rule. Airlines based outside western Europe and North America and not needing to fly into these regions can ignore hushkitting and acquire aircraft with the lowest capital cost which have an economic working life of at least another 10 years.

Their low lease rates make the DC-9 and 737-200 the only option for all but the major carriers. The only limit to the DC-9's and 737-200's absorption into the market are traffic growth and demand for aircraft. AC