737 Classics and MD-80s are the only small narrowbody aircraft with active freight-conversion programmes. Operators with a requirement for these freighters might include new start-up airlines, and those looking to replace ageing aircraft or to upsize from turboprops.

Narrowbody freighter replacements: the market for 737 Classics & MD-80s

The economic downturn that began in 2008, led to increased pressure on air cargo yields and load factors. This has since reduced the demand for passenger-to-freighter conversions.

There are now signs that the air freight market is returning to growth. An increasing number of smaller narrowbody aircraft are being converted. "The tide has turned," claims Kevin Casey, president at Pemco World Air Services. "The narrowbody conversion market picked up substantially in 2012. With more than 20 conversions already confirmed, we project that 2014 will be at least as strong as last year."

Aeronautical Engineers Inc (AEI) believes it will deliver more than 30 converted narrowbody freighters in 2014.

The main conversion candidates in the small narrowbody sector are 737 Classics and the MD-80 family. *Aircraft Commerce* has examined the potential market for these converted aircraft.

The analysis addresses which carriers are converting 737s and MD-80s, and why. It also identifies potential areas for future demand.

Cargo characteristics

Narrowbody freighters such as 737s and MD-80s might be used to transport mail, express packages or general freight.

Express package or integrator operations normally involve carrying small packages in main deck containers or unit load devices (ULDs). The average packing density can be relatively low at 6.5lbs per cubic foot (cu ft). This can often lead to an aircraft reaching its volumetric capacity before exceeding its net structural payload. This is referred to as 'cubing' or 'bulking out'.

Integrator networks are based on hub-and-spoke services, with aircraft generally operating one return flight per night, five or six days a week. The typical route lengths operated by small narrowbodies in an integrator role might be 400-700 nautical miles (nm).

General freight items are often larger or bulkier than express packages, and are mainly carried on pallets.

General freight packing densities are usually higher than express packages, and are typically 7.0-9.0lbs cu ft. An aircraft carrying general freight could 'gross out' by reaching its net structural payload before filling its available volume.

Narrowbody general freight routes and integrator operations are similar in length. General freight operations are more focused on point-to-point markets. This usually results in higher rates of utilisation.

"Small narrowbody freighters are mainly operated on integrator services with low levels of utilisation," says Jacob Netz, analyst and senior consultant at the Air Cargo Management Group, expressing his own opinion. "They are either operated directly by the integrator, or on the integrator's behalf by third-party operators."

Conversion options

The 737 Classic and MD-80 families are the only small narrowbodies that have active conversion programmes. They are likely to form the base of the freighter fleet in this segment. "There are no other small narrowbody freighters available," says Netz. "The A320 conversion project was terminated and the 737-700 production freighter is too expensive for a typical operator. The 737-800 is still popular as a passenger aircraft, so the available conversion feedstock is minimal and expensive."

In March 2014 AEI launched a conversion programme for the 737-800. It expects development and certification of this programme to take two to three years. By the time the conversion is available, in 2017, there may be a number of 737-800s available at the appropriate age and market value.

737 Classics

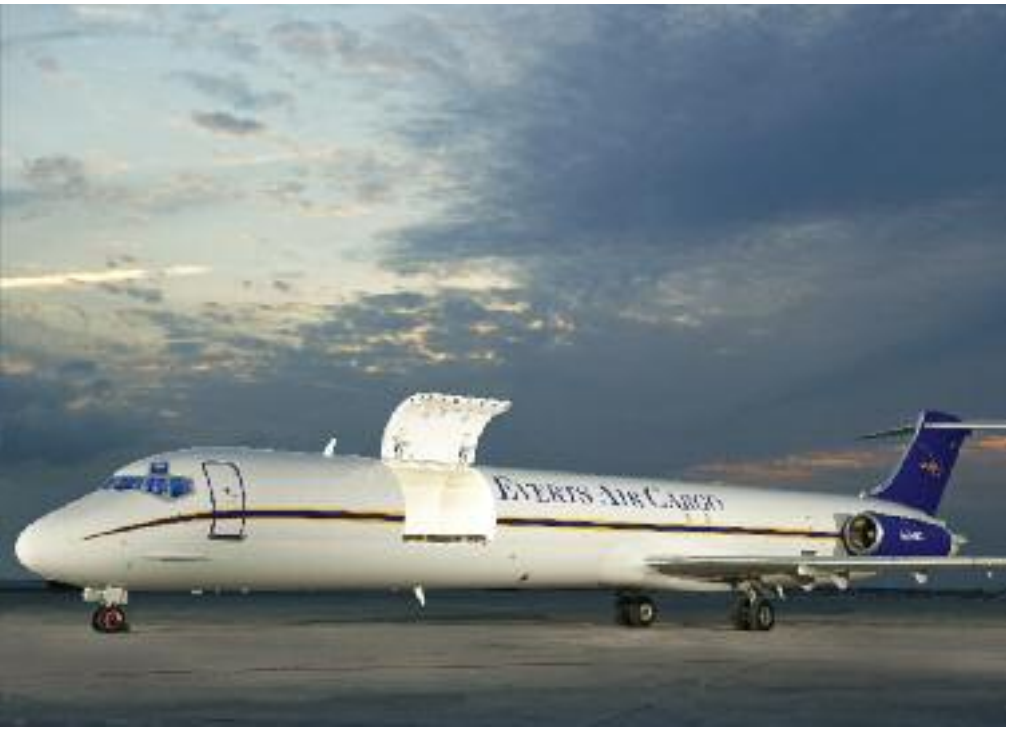
In the near term, most conversions in the narrowbody freighter segment are likely to be centred around 737 Classics. One is that they have the same fuselage cross-section as older types, such as the DC-8, 707 and 727. The standard ULDs used today by most integrators were designed to fit this fuselage shape and size. These containers have a base width of 125-inches and a depth or length of 88-inches. They have a contoured profile with a height of up to 82-inches at the apex. They are commonly referred to as AAA or AAY containers.

Their ability to accommodate AAA/AAY ULDs means the 737-300 and -400 can provide interlining capability on integrator networks.

The 737 Classic series includes the -300, -400 and -500. There are currently three organisations with supplemental type certificates (STCs) for the conversion of 737-300s and -400s: AEI, IAI Bedek and Pemco World Air Services.

Market values are estimated to be $3.0-3.5 million for half-life 737-300s, although values will be lower towards about $2.5 million for an aircraft with a poorer airframe maintenance condition. Values of half-life 737-400s are put at about $4.5 million.

There are already 184 active and parked 737-300s and -400s in a full freight or quick-change (QC) configuration *(see table, page 58)*.



The MD-80SF is most likely to be employed as a general freighter. MD-82s and MD-83s will be converted in the largest numbers. AEI offers the only the conversion programme for the MD-80.

QC aircraft are fitted with a large cargo door, but maintain elements of their passenger cabin interiors such as the overhead luggage bins. This allows them to be quickly converted between passenger and cargo configurations.

With its longer fuselage and higher resulting payload capability the -400 might seem the most logical 737 Classic variant for conversion. Casey, however, believes that the-300 will remain a popular freighter candidate. He points to figures provided by the International Air Transport Association (IATA). These indicate an average freight load factor of less than 50% on international and domestic freight services in January 2014. "If the aircraft are not flying full, operators will not need the extra capacity provided by the 737-400, which has higher capital and direct cash operating costs than the -300," claims Casey.

MD-80s

"The MD-80 is a new player in the air cargo sector," explains Netz. AEI received the first STC for MD-80 freighter conversions in early 2013. It remains the only organisation with MD-80 conversion capability.

The MD-80 family comprises the MD-81, -82, -83, -87 and -88. The AEI conversion programme covers all variants except the MD-87, which has a shorter fuselage than the rest of the family. AEI expects most of the converted aircraft to be MD-82s or -83s. There is very little MD-81 feedstock available. Most of the MD-88 fleet is operated by Delta, which has decided to extend its in-service life.

Most MD-80s in half-life condition are estimated to have a market value of up to about $1.0 million. The value is mainly determined by the maintenance status of the engines.

AEI has converted four MD-80s. Robert Convey, vice president, sales & marketing at AEI, believes MD-80 freighters will prove more popular in a general freight role. "The MD-80 has a smaller fuselage cross-section than the 737, which means the MD-80 cannot accommodate the standard 88-inch x 125-inch contoured containers used by integrators. This means it is less likely it will be used in integrator networks," continues Convey. "We see point-to-point general freight services as the main market for converted MD-80s. Its low capital costs, reliability, and lack of outstanding airworthiness directives should make it popular for point-to-point services in developing markets such as Africa and South America."

Netz agrees that the MD-80's design could make it suitable for operators in developing countries. "For the handful of airlines that operate from rough, gravel runways the MD-80's rear-mounted engines offer a clear advantage." The rear-mounted engines are less susceptible to foreign object damage (FOD) than the 737's wing-mounted engines.

Configurations & payload

737-300

There are 94 active and parked 737-300s in a full-freight configuration and 37 QC aircraft *(see table, page 58)*.

The typical gross payload for a 737-300 full-freight would be 42,400-43,100lbs, depending on the conversion used and internal configuration.

AEI offers nine- and 10-position full-freight conversion options for 737-300s. The nine-position configuration can accommodate up to eight AAA/AAY containers plus an additional reduced-size ULD. Alternatively it can hold up to nine 88-inch X 125-inch pallets.

The 10-position configuration can carry up to eight AAA/AAY containers or 88-inch X 125-inch pallets, plus two further reduced-size ULDs or pallets.

Aircraft that undergo the AEI conversion are given the designation 737-300 Special Freighter (SF). The cost of conversion is $2.535 million. AEI has converted 16 737-300SFs. It has two outstanding conversions.

IAI Bedek provides a 9-position freighter conversion for 737-300s. Aircraft that undergo this modification are designated 737-300 Bedek Special Freighter (BDSF). The -300BDSF can carry up to eight AAA/AAY containers or 88-inch X 125-inch pallets plus an additional reduced-size ULD or pallet.

IAI Bedek also offers a QC conversion for 737-300s. To date, it has converted seven -300QCs and 33 -300BDSFs.

Pemco also offers full-freight and QC conversion options for 737-300s. Aircraft that have been converted to full-freighters by Pemco are designated 737-300Fs.

Pemco's nine-position -300F can accommodate up to eight AAA/AAY containers or 88-inch X 125-inch pallets, plus an additional reduced-size ULD or pallet in the rearmost position. The cost of conversion is $2.58 million. Pemco has already converted more than 50 -300Fs and has another five in progress.

The cost of Pemco's -300QC modification is about $3.45 million. It has converted 30 -300QCs, with another in work.

737-400

There are 53 active and parked converted 737-400s *(see table, page 58)*. There is no QC conversion for the -400.

There are standard gross weight (SGW) and high gross weight (HGW) variants of the 737-400. The HGW variant has a strengthened undercarriage and structure. An HGW -400 would have a maximum take-off weight (MTOW) of 150,000lbs and a maximum zero fuel weight (MZFW) of 117,000lbs. This compares to a MTOW of 143,500lbs and an MZFW of 113,000lbs for an SGW aircraft.

TYPICAL WEIGHT SPECIFICATIONS FOR MD-80 & 737 CLASSIC FULL FREIGHTERS

Aircraft Type	MD-82/-88	MD-83	737-300	737-400 SGW	737-400 HGW
Conversion Providers	AEI	AEI	AEI/IAI/PEMCO	AEI/IAI/PEMCO	AEI/IAI/PEMCO
MTOW (lbs)	149,500	160,000	139,500	143,500	150,000
MZFW (lbs)	122,000	122,000	109,600	113,000	117,000
OEW (lbs)	75,900	77,400	66,500-67,200	69,000-70,400	69,000-71,400
Gross structural payload (lbs)	46,100	44,600	42,400-43,100	42,600-44,000	45,000-47,830

Notes: 1) OEW will vary by individual aircraft. The OEWs stated here show a typical range that varies with conversion programme

The typical gross payload for a 737-400 full-freighter would be 42,600-44,000lbs for an SGW aircraft, and 45,000-47,830lbs for an HGW aircraft, depending on the conversion programme and freight configuration.

AEI, IAI Bedek and Pemco all offer full-freight conversions for 737-400s.

AEI offers an 11-position -400 freight conversion designated the 737-400SF. It can accommodate up to 10 full-size AAA/AAY containers or 88-inch X 125-inch pallets, plus another reduced-size ULD or pallet in the rearmost position.

AEI has already converted 33 -400s and is processing another seven. It has a further 19 on order backlog. The -400SF conversion costs $2.75 million.

IAI Bedek offers a 10-position -400 conversion designated the 737-400BDSF. The -400BDSF can accommodate up to nine full-height AAA/AAY containers or 88-inch X 125-inch pallets, plus a further 88-inch X 125-inch pallet limited to a height of 79-inches.

To date, IAI Bedek has converted 14 -400BDSFs. It is targeting 10 737 Classic conversions in 2014. It believes most of these will be -400s.

Pemco offers a 737-400 full-freighter in an 11- and nine-position configuration, plus a combi modification. The 11-position freighter can carry up to 10 AAA/AAY containers or 88-inch X 125-inch pallets, plus one reduced-size ULD or pallet in the forward most position.

The nine-position configuration can hold eight 96-inch X 125-inch containers or pallets, plus an additional AAA/AAY ULD or 88-inch X 125-inch pallet.

Pemco has converted 30 737-400s, including 21 -400Fs and nine combis. It has another three -400Fs in work plus 20 on order backlog. Pemco's -400F conversion costs about $2.85 million.

MD-80

There are four active and parked MD-80 freighters, including three MD-82s and one MD-83 *(see table, page 58)*.

AEI is the only organisation offering MD-80 conversions. It offers a full-freight conversion. Modified aircraft are given the SF designation.

MD-83s have higher MTOWs and operating empty weights (OEWs) than -82s and -88s, but the same MZFW *(see table, this page)*.

Converted aircraft can accommodate up to 12 88-inch X 108-inch containers or pallets. An MD-82 or -88SF has a gross structural payload of 46,100lbs. An MD-83SF has a gross structural payload of 44,600lbs.

An MD-80SF could also accommodate eight 88-inch X 125-inch pallets loaded longitudinally. These would be limited to a height of 78 inches, but this configuration would not make optimum use of the available volume.

AEI is currently converting a further two MD-80s and has two more conversions on order backlog. The cost of an MD-80SF conversion is $2.35 million.

Market potential

The total of active and parked, passenger-configured 737-300s and -400s, and MD-82s, -83s and -88s is currently more than 1,600 aircraft. This is a significant level of feedstock for future narrowbody freighter conversions.

Convey believes that 737 Classic and MD-80 freighters may be used to fulfil four different requirements: to replace ageing freighter types such as the 727; to replace older 737-300 freighters; to provide organic growth for operators of smaller freighters; and to provide the right-sized aircraft for start-up operators.

Replacing older aircraft

"Some of the small jet freighters may be replaced by the 737 Classic and MD-80," says Netz. "The main candidates for replacement are the DC-9, 737-200, 727-100, 727-200 and BAe 146 QT. It is difficult to estimate how many of them will actually be replaced and when."

These older types currently represent 152 active and 90 parked aircraft in a freight or QC configuration *(see table, page 58)*.

737 Classic and MD-80 freighters would in most cases burn less fuel and have more life remaining than these aircraft.

727-100/-200

The 727 is the most numerous active type among the group of ageing freighters. There are six active 727-100s and 82 active 727-200s in a freight configuration *(see table, page 58)*. The largest operators of active 727 freighters are Kelowna Flightcraft (13) and Cargojet Airways (8), both of which operate -200Fs. Líneas Aéreas Suramericanas also operates eight 727 freighters, although the fleet is split between -100Fs (3) and -200Fs (5).

The 727-100F can accommodate nine of the standard AAA/AAY main deck containers or 88-inch x 125-inch pallets, and the -200F can hold 12 containers.

A 737-300 freighter would therefore offer slightly less cargo capacity than a 727-100 in most cases, while a converted 737-400 would offer similar or potentially greater capacity. The MD-80 would offer a similar gross structural payload to the 727-100F, but cannot accommodate the AAA/AAY containers. The 737-300/-400 and MD-80 freighters all offer less capacity than a 727-200F.

Many former 727 operators replaced their ageing aircraft with the larger 757. The major integrators including FedEx, UPS and DHL have all done this.

Some airlines have replaced 727 freighters with converted 737 Classics. In 1999 the narrowbody freighter fleet of Air Contractors, which flies express package operations on behalf of the large integrators in Europe, comprised six 727-200Fs. These have now been phased out, and four 737-400SFs have been added to the fleet.

Northern Air Cargo has also exchanged 727s for 737s. In 1999 its fleet comprised three 727-100Fs. It initially replaced these with 737-200s, but has now also added 737-300 freighters.

Another airline that has replaced 727s with 737s is Spain-based Swiftair. It previously operated 727-200Fs but has now withdrawn these from service in favour of 737-300 and -400 freighters.

SMALL NARROWBODY FREIGHTER FLEETS - MARCH 2014

Aircraft type	Active	Parked	Total
Older freighters			
146-100	2	0	2
146-200	9	4	13
146-300	11	0	11
727-100	6	8	14
727-200	82	57	139
737-200	20	11	31
DC-9	22	10	32
Total	**152**	**90**	**242**
737 classic freighters			
737-300 (Full freighter)	90	4	94
737-300QC	31	6	37
737-400 (Full freighter)	47	6	53
Total	**168**	**16**	**184**
MD-80 freighters			
MD-82	1	2	3
MD-83	1	0	1
Total	**2**	**2**	**4**
Grand total	**322**	**108**	**672**

737-200

There are 20 active 737-200 freighters worldwide *(see table, this page)*. The largest operators are Aloha Air Cargo (4), Africa Charter Airline (3) and Transmile Air Services (3).

The 737-200F can accommodate up to seven AAA/AAY containers or 88-inch X 125-inch pallets, plus an additional reduced-size ULD or pallet. Converted 737-300s and -400s offer the closest like-for-like replacement options. Both Classic variants would provide more capacity than the -200. The MD-80 could be an option for current 737-200F general freight operators.

Northern Aviation Services operates two airlines: Northern Air Cargo in Alaska and Texas, and Aloha Air Cargo in Hawaii. Both airlines operate 737-200 freighters, but are introducing -300SFs to replace them. "About half of the cargo that our airlines carry is for the US Postal Service and the other half is general freight," explains Jeffery Landrum, vice president maintenance & fleet planning at Northern Aviation Services. "The 737-300SF offers more capacity and reduced fuel burn compared to the -200Fs."

In 2009 Northern Air Cargo's fleet comprised three 737-200Fs. It now includes two 737-200Fs and two 737-300SFs. Aloha Air Cargo's fleet consists of four 737-200 freighters. Two of the -200s will be replaced in 2014 with one -300SF due in May and another in October. Northern Aviation Services intends to continue replacing the 737-200Fs with -300SFs in both of its airline fleets. It believes the smaller fuselage cross-section of the MD-80 is not suited to its operations. "We prefer the -300's larger fuselage for some of the outsize general freight loads that are typical of the Alaskan and Hawaiian markets," explains Landrum.

DC-9

The number of DC-9 freighters has been declining over the past 15 years. In 1999 there were 106 active DC-9s in a full-freight or QC configuration. In 2014 only 22 of these aircraft remain active *(see table, this page)*. Eight of these are -10 series aircraft, while the other 14 are larger -30 series airframes. The largest DC-9F operators are Aeronaves T.S.M., S.A. de C.V (5), USA Jet Airlines (5), Everts Air Alaska (3) and Ameristar (3).

Converted MD-80Fs are well-suited replacements for the ageing DC-9 fleet. The MD-80 was derived from the DC-9, so the two families have the same fuselage cross-section. The MD-80 family has a longer fuselage than the DC-9, so it would provide more capacity. DC-9s cannot accommodate standard AAA/AAY pallets so their operators are less likely to be concerned by the MD-80's inability to do so.

Converted 737-300 and -400 freighters may appeal to DC-9 operators that are looking to offer services to integrators using the standard ULDs.

Three of the largest DC-9 freighter operators have added MD-80SFs to their fleets. Aeronaves T.S.M. recently took delivery of its first MD-80 freighter, an MD-82SF. It is also converting another MD-82 and an MD-83. Everts Air Alaska added an MD-82SF to its fleet, while USA Jet Airlines now operates an MD-83SF.

BAE 146

The number of 146 freighters has remained fairly stable over the past 15 years. There are still 22 active aircraft in a freight configuration, including two -100s, nine -200s and 11 -300s *(see table, this page)*.

Most of these aircraft are operated on behalf of TNT Express in Europe, either by TNT Airways (8) or by wholly-owned Spanish subsidiary Pan Air (8). The fleet of 16 aircraft is split evenly between -200s and -300s. Australian-based Cobham Aviation Services is another significant 146 freighter operator with four aircraft.

It was hoped that the BAE146 would fill the capacity gap between eight-ton turboprops and small narrowbody freighters, but it did not prove to be a popular conversion candidate. Most cargo-configured 146s were delivered as factory freighters with the Quiet Trader (QT) designation. Only two BAE146s have been converted from passenger to freighter.

Like the DC-9 and MD-80, the BAE146 is unable to accommodate standard AAA/AAY containers. A BAE146-200QT can hold up to six 88 X 108-inch containers or pallets plus an additional reduced-size ULD.

The -300QT can hold one more 88 X 108-inch container or pallet than the -200. Converted 737-300s, -400s or MD-80s would therefore offer greater cargo capacity than the BAE146.

The majority of the active BAE146 freighter fleet is most likely to be replaced by converted 737s. As an integrator TNT Express will probably favour the 737 over the MD-80 because of its capacity to accommodate AAA/AAY containers.

There is evidence that a move to 737s is already under way. From 2004 to 2014 TNT Airways increased its 737 freighter fleet from two -300s, to three -300s and nine -400s.

Russian aircraft

Converted 737 Classics, and MD-80s may also be replacement options for ageing Russian-built freighters.

"There are a number of Russian airlines operating turboprop freighters, such as the AN-24, AN-26 and AN-32, says Netz. "Some of these are old and likely to be replaced. For those operators in need of extra capacity the 737 Classics are a good replacement candidate. In addition, the AN-12 medium turboprop freighter is already quite old and could be replaced by 737 Classics."

Andrey Pakhomov, at ATRAN Cargo Airlines, agrees. "The 737 is the best replacement for the ageing fleet of AN-12 aircraft for general cargo and express freight." Pakhomov does not believe

there will be a market for MD-80 freighters in Russia. "The MD-80 is not certified in Russia and as an old aircraft it is unlikely to be certified in the future."

ATRAN Cargo Airlines is an operator that has replaced older Russian aircraft with 737 freighters. In 2004 its fleet comprised six AN-12s, three AN-26s and an IL-76. The current fleet includes three AN-12s and two 737-400 freighters.

Replacing older 737 Classics

Another potential market for 737 Classic and MD-80 freighters might be in replacing some of the earliest 737-300 aircraft to be converted into full freight or QC configurations.

Existing 737 Classic freighter operators might also want to supplement their fleets with additional narrowbodies. For these airlines the 737-300 and -400 are likely to represent the more popular choice. "It is likely that operators with 737 Classics in their fleet would prefer to add more freighters of the same type," explains Netz. "Fleet commonality leads to cost savings." Flight crew and maintenance personnel will not require additional training on a different aircraft type. A common fleet will have the same maintenance requirements and operators will not have to invest in multiple spares inventories.

The largest operators of active 737 Classics in freight or QC configurations are China Postal Airlines (20), Yangtze River Express (15), Europe Airpost (12) and TNT Airways (12).

The largest -300QC fleets are operated by Jet2 (7) and Europe Airpost (7). These aircraft frequently fly passenger services by day and freight operations for European postal networks at night.

Providing growth

Converted 737 Classics and MD-80s might also be considered by operators of smaller aircraft looking to expand their capacity. "There has been a recent trend for operators of turboprops, such as the ATR72 and ATP, to upgrade their fleets with 737 Classics," says Netz. "I think we will see more airlines following this strategy."

Netz highlights Farnair and West Atlantic as two examples of turboprop operators introducing larger 737 Classic freighters.

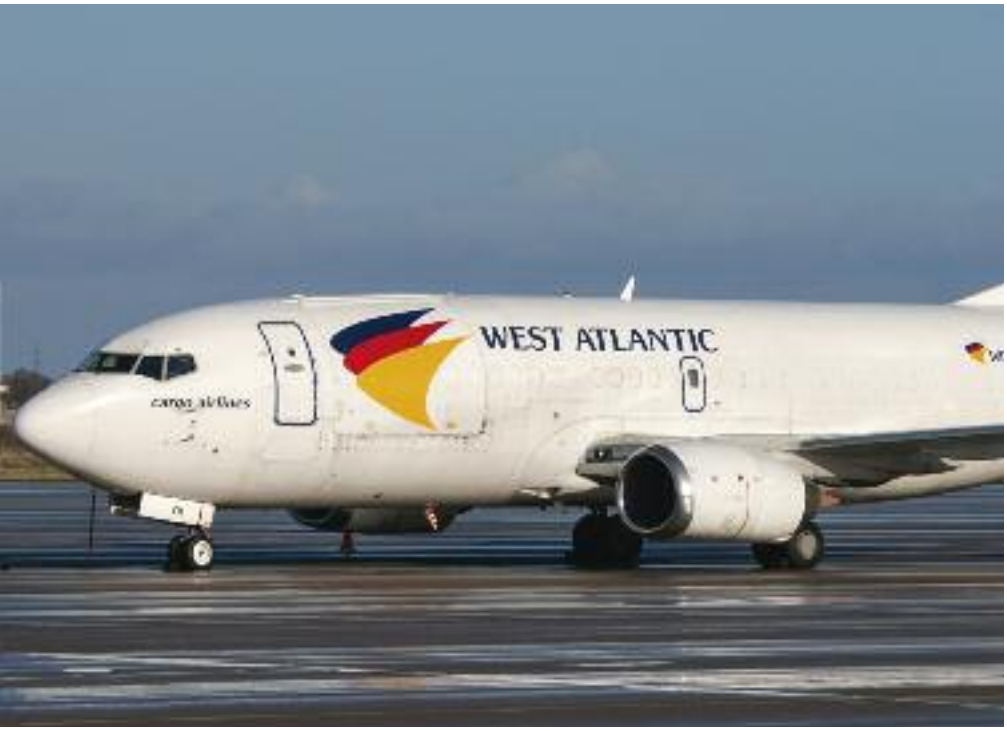
Farnair recently took delivery of its first 737-400SF from AEI and will convert a further three aircraft. It used to operate an all-turboprop fleet, and now has 14 active turboprop freighters, including one ATR42 and 13 ATR72s.

West Atlantic was formed as a result of a merger between Swedish operator West Air Europe and UK-based Atlantic Airlines. The two carriers have maintained their individual aircraft operators' certificates (AOCs). West Air Luxembourg was also part of the group before being sold to Smart Cargo in late 2013.

West Atlantic operates mail, express and general freight services throughout Europe. The two operating fleets have historically been based around turboprops, particularly the BAE ATP. In recent years West Air Sweden has begun operating CRJ-200 package freighters (PF) while 737 freighters have been introduced to the Atlantic Airlines fleet.

"The main catalyst for the introduction of narrowbody jets was the retirement of our seven Lockheed Electras," explains Russell Ladkin, sales & operations director at West Atlantic. The Electras filled the gap between eight-ton turboprops such as the ATP, and the 757 which has become the most popular mainline narrowbody aircraft for integrators. An Electra can accommodate eight 88-inch X 108-inch ULDs or pallets plus one reduced-size container. West Atlantic wanted a replacement in a similar size category.

The 737 was not its primary



737 Classic freighters can accommodate AAA/AAY ULDs, and are subsequently more appealing to integrator operators than the MD-80. There are already nearly 170 active 737 Classics in the freighter and QC configuration.

replacement candidate for the Electras. "West Atlantic was the launch customer for the A320 passenger-to-freighter conversion programme and signed up for three aircraft," says Ladkin. "When that programme was cancelled we selected the 737."

West Atlantic identified the -400 as its preferred 737 freighter, but has been acquiring -300s as well. "We have continued to add -300s as asset values secured it a credible role, unless you really need the additional capacity afforded by the larger -400," explains Ladkin. "The -300 has been a great workhorse for express services. Over the past 18 months, however, the values of passenger-configured -400s have fallen to a level that provides the right mix of economics and feedstock to see this variant being converted in larger numbers. It is likely to replace the -300 in most express package applications."

Atlantic Airlines currently operates five 737-300 freighters and one -400 on mail and integrator services. West Atlantic is also leasing out a second -400 to an external customer.

Ladkin believes that West Atlantic will convert further 737s and that these are most likely to be -400s.

The 737s have not only replaced the Electras. They are also being used to provide extra capacity on routes previously flown by smaller BAE ATPs. At least two of West Atlantic's former ATP services in Europe are now operated by its 737 freighters.

Ladkin believes any further upsizing will come on those services operated for integrators. "Demand in the mail sector is fairly constant. I do not think BAE ATP services will be replaced by 737s in that sector. Any growth would most likely be on Express services," continues Ladkin. "Very few city-pairs are being added in the express sector. As traffic volumes grow, express businesses either need to increase frequencies or introduce a larger aircraft. This can lead to a natural upsizing of aircraft as demand increases."

Despite adding 737 freighters, West Atlantic is not reducing its ATP fleet. "There will always be new markets in which to deploy any displaced smaller aircraft or turboprops," explains Ladkin.

West Atlantic has 30 active BAE ATP freighters between its two operating airlines.

Start-ups

Start-up operators offer another potential market for 737 Classic and MD-80 freighters. At least 10 airlines that have begun operations since 2004 have 737 Classic freighters or QC aircraft in their fleets.

Convey singles out Brazilian operator Sideral Air Cargo as an example. The airline first flew in 2011. Its fleet now includes three 737 Classic freighters: one -300 and two -400s. It recently announced plans to convert an additional two -400s.

Other carriers that have begun flying since 2004 and now operate 737 Classic freighters or QC aircraft include SF Airlines in China, Cargo Air in Bulgaria and Jet Time in Denmark.

Regional considerations

Netz points out that the market for 737 Classic and MD-80 freighters may be limited in some countries due to aircraft age restrictions. "In China there are regulations preventing the registration of aircraft over 15 years of age. There are not many 737 Classics and MD-80s younger than this," continues Netz. "In addition there are regulations in India that limit the registration of aircraft that are more than 20 years old. In some cases age restriction regulations may be waived if the aircraft has good structural integrity, maintenance records and parts traceability."

Netz believes there could be potential customers for 737 Classic and MD-80 freighters in most regions, but does not expect significant demand in the US. Despite a recent announcement that DHL is converting five 737-400s for operations in the US with Southern Air, most major integrators have selected the 757 as their narrowbody freighter in the American market.

Summary

Converted 737 Classic and MD-80 freighters are currently the only option in the small narrowbody segment. They may be used to replace older narrowbody freighters such as the 727 or DC-9. Alternatively they might be used to replace or supplement some older 737 Classic freighters. Other potential markets include start-up airlines and turboprop operators looking to increase capacity.

The 737-300 and -400 are likely to be converted to freighters in larger numbers than the MD-80. Although the MD-80 does not have the same ageing structural concerns as the 737 Classics, the latter can accommodate AAA/AAY ULDs, making them more flexible in terms of the roles they fulfil. 737 Classic freighter conversions have been available for longer, so there are already a large number in service. The benefits of fleet commonality suggest that existing operators will look to add further 737s rather than introduce new types such as MD-80s.

The MD-80 fuselage cross-section means that it cannot hold the standard AAA/AAY containers used by the major integrators, so it is most likely to be used in general freight operations. AC