

The perception is that regional jets are the way forward for all regional airlines. Closer analysis reveals that the smaller markets vacated by major regional carriers have been left to low-cost smaller airlines, which have taken advantage of the large number of turboprops at bargain values.

The new & developing markets for turboprops

The continuing popularity of regional jets brings into question the future of turboprops. Since major regional carriers are migrating to pure jet or mixed fleets, new and developing markets are required to secure the turboprop's future. Turboprop demand comes from a variety of sources and although the conventional passenger role remains the most important, it is complemented by other applications.

New aircraft transactions

Orders for new production aircraft from the two remaining turboprop manufacturers are few. Orders for new turboprops in the 12-month period between September 2002 and August 2003 are three for ATR and 27 for Bombardier. Air Tahiti ordered two ATR42s and Air New Zealand ordered one ATR 72. This is disappointing given that ATR has a target production rate of 18 aircraft a year.

Bombardier took orders for four Q300s (one for Petroleum Air Services and three for Qantas); and 23 Q400s (six for ANA and 17 for Flybe).

Both ATR and Bombardier are struggling against limited order backlogs, of 13 for ATR and 27 for Bombardier.

Flybe accounts for half of Bombardier's backlog. This carrier's order in April 2003 for 17 Q400s, with a further 20 options, probably saved the programme. However given that deliveries of these aircraft are to be spread over four years (four in 2003, eight in 2004, two in 2005 and three in 2006) further orders will be required if this is to be anything more than a temporary reprieve.

Demand is highest where the particular performance benefits of the turboprop are obvious. One such market is Australia where Qantas Airways issued a request for proposals earlier this year to both ATR and Bombardier for up to 40

turboprops in a mix of 50- and 70-seat configurations. Given the large fleet of Dash 8s in service with Qantas owned subsidiaries, Eastern Australia Airlines and Sunstate Airlines, Bombardier has an obvious advantage. However given the backlogs of both manufacturer, the eventual loser will suffer a major setback.

Used aircraft transactions

There are 211 known deliveries of used turboprops (with 29 or more seats) in the 12 months between September 2002 and August 2003 included a large number of small transactions; most only being for between one and three aircraft. Large deals similar to those for regional jets are rare.

These are based on actual deliveries rather than commitments to buy or lease, since the delivery is often the first public news of a transaction. Where significant commitments have been made after this date they are mentioned in the text, but not included in the totals.

The largest transactions are by: Ameriflight (four EMB-120s); Fedex (ten ATR 42s); Denim Air (five Fokker 50s); Swedline (four Saab 340s); Air Wales (four ATR 42s); and Eastern Airways (12 Jetstream 41s).

Significantly all four passenger operators are European. In comparison with demand for regional jets which accounts for massive orders from a few (mainly US) operators, demand for turboprops is weak and spread widely around the world.

North America

The least active marketplace is in the US, where turboprop activity in the past 12 months has been limited.

The Saab 340 market has been the most active. Chicago Express has taken delivery of the last of 17 ex-American Eagle Saab 340s and Penair has leased an additional 340 from Saab Aircraft

Leasing. Saab Aircraft Leasing has also leased two additional Saab 340s to Colgan Air to add to its fleet of seven.

debis AirFinance has leased three Dornier 328 turboprops to Great Plains Airlines. This transaction is significant because these aircraft are complementing the airline's existing pair of 328Jets.

The only major regional carrier to increase its turboprop fleet is Skywest Airlines, which is adding four Embraer EMB-120s. These are ex-Continental aircraft and are tied to the award of a contract to fly as a Continental Connection carrier.

The only start-up operator is Caribbean Sun Airlines which has taken delivery of two Dash 8-100s.

The lack of smaller independent operators taking aircraft is highlighted by the only other US customer, which is Freedom Air of Guam. This carrier took delivery of a Shorts 360 to replace another one destroyed by a typhoon.

Data from the US Regional Airline Association confirm there is a continuing trend for more airports to lose scheduled services. There was a decline from 1993 to 2002 when the number of airports served by US regional operators fell from 829 airports to 707.

A similar trend has occurred in western Europe, which is fuelling the growth of new independent operators.

In contrast, there appears to be no desire among US independent operators to grow and fill the gap beneath the major regional carriers. Interestingly, regional jet aircraft only serve 223 of the 707 airports, with turboprops providing exclusive service to the remainder.

Canada is seeing more opportunities among the large number of smaller independent operators that characterise the country's air transport system. The locally produced Dash 8 is proving particularly popular. Air Creebec, Arctic Sunwest Charters, Hawkair Aviation Services and Westpoint Airlines have all taken delivery of aircraft during the 12



months covered by our survey. Air Tindi has added a single Dash 7 to complement its fleet of Twin Otters. Quebecair Express leased a pair of Saab 340s.

Caribbean & Latin America

Given the geography of the Caribbean, with its many small islands, it is an ideal environment for turboprops. Unfortunately it is a limited market with only two aircraft placed during the period, all to start-up operator Fina Air of Puerto Rico. The only Central American operator to have taken aircraft is Mexico's Aerolitoral, which has taken delivery of another Saab 340 on lease from Saab Aircraft Leasing.

A total of 11 aircraft have been placed within South America, with seven going to Brazil. The locally produced Embraer EMB-120 is obviously popular, but so too is the Fokker 50, which was operated from new by Rio-Sul and Nordeste. ATR Asset Management is active in the region, and the ATR42 is therefore also popular.

The biggest success has been OceanAir of Brasil which has acquired a fleet of three Fokker 50s and eight Embraer Brasílias.

Western Europe

Western Europe is traditionally the second largest market for commercial aircraft after the US, and there is far more turboprop activity.

While the major airlines follow the US's lead in disposing of their turboprop fleets, the independents continue to expand on the availability of cheap aircraft. In fact it is the majors' fixation on regional jets that is opening up

opportunities for the smaller independents. As major airlines cut back on peripheral routes, new and existing operators are moving in.

What is a small route to a major carrier is an established route with little risk to a smaller one. The combination of established income together with a lower cost structure is proving very attractive for Europe's new breed of regional airlines.

Austria has seen limited expansion at Air Alps and Intersky, which have added another Dornier 328 and a second Dash 8-300 respectively.

Denmark's largest independent regional operators Cimber Air and Danish Air Transport have both acquired additional ATR 42s and ATR 72s in the past 12 months. Despite recently adding capacity, two smaller carriers, Newair and Scan Con, have both failed. Newair operated as an ad-hoc charter specialist and was probably pushed over the edge by the failure of Irish operator Euroceltic, for which Newair operated services. Scan Con was operating 19-seat equipment and Shorts 360s, before it introduced the first of a pair of Saab 340s for its scheduled operation.

France surprisingly has only seen one used turboprop delivery, an additional ATR 42 for Airlinair. Germany has seen a lot of activity among its smaller carriers. Cirrus Airways has expanded with three additional Dornier 328s and a Dash 8-100. City-Air took delivery of its first two Saab 340s, to replace Fairchild Metros, and has recently committed to a further three ex-Swiss examples. Although it has yet to take delivery, Hahn Air is adding a pair of Saab 340s to complement its Fairchild Metros. OLT has acquired two Saab 2000s to operate a shuttle service for Airbus Industrie.

Despite a lull in orders for new aircraft, ATR42s and ATR72s have accounted for the highest number of more than 200 used turboprop transactions in the past year. This indicates a strong market remains for turboprops, which has been created by larger regional carriers moving up to regional jets and abandoning routes for smaller airlines.

Unlike the majority of European flag carriers, Italy's Alitalia not only continues to operate turboprops but has also completed the overhaul of the fleet of its subsidiary Alitalia Express with new production ATR 72-500s.

The only other long-established Italian turboprop operators are Air Dolomiti with ATR 42/72-500s and outstanding orders for two more ATR 72-500s, Minerva Airlines with Dornier 328s and Italy First with a pair of ATR 42s. Two recent start-ups, Air Industria and Air Italica, have both equipped with ATR turboprops.

The Netherlands has seen the rapid expansion of Denim Air following a management buy-out last October.

Taking advantage of the availability of large numbers of cheap aircraft, the Fokker 50 fleet has been increased from eight to 13 aircraft. The airline has started scheduled services from Augsburg airport following the departure of Augsburg Airways.

Established Spanish operator Binter Canarias has added another ATR 72 to its fleet, but the country has also seen a rush of new Saab 340 operators. Gestavi has added a single Saab 340 to its pair of Metros and start-up operator Lagun Air has leased three. Iberline is another start-up operator with a single Saab 340 wet-leased from Swedline of Sweden.

Swedline is a good example of the new generation of entrepreneurial regional operators. Taking control of Varmlandsflyg, an existing operator with a single Beech 1900D, the new management rapidly expanded the renamed Swedline Express to its current fleet of five Saab 340s and two Saab 2000s. For other Swedish operators growth has been slower. Golden Air has added a Saab 340 and a Saab 2000, Nordic Airlinair a Saab 340 and Skyways Express a Fokker 50.

Schedule cutbacks at Swiss have opened up several opportunities in Switzerland. In particular, the flag carrier's virtual departure from the former Crossair hub at Lugano has inspired two or three potential start-up operators all with used equipment. Only one of these, Baboo, has commenced operations with a single Dash 8-300 wet leased from Cirrus Airways.

In the UK the move by BA CitiExpress to an all-jet fleet has opened



up a large number of opportunities for existing smaller operators. Aurigny Air Services has added two ATR 72s to its fleet of Saab 340s and Shorts 360s following the take-over of the Guernsey-London Gatwick route from BA CitiExpress. Eastern Airways practically doubled in size overnight when it sub-leased the entire 12-strong BAE J41 fleet of BA CitiExpress. Most importantly it was not just the aircraft that Eastern acquired, but much of the route network that they had previously served. Air Southwest is an all-new operator formed solely for the purpose of taking over the Plymouth-London Gatwick route vacated by British Airways.

In addition to the expansion of existing operators, the availability of large numbers of young, inexpensive aircraft has encouraged growth among other operators. Air Wales, for example, has grown from a fleet of two Dornier 228s to four ATR 42s, and Loganair has added another three Saab 340s.

Southern Europe

Unusually for a wholly owned subsidiary of a European flag carrier, Olympic Aviation of Greece has added two types of used turboprop over the past 12 months. Two additional ATR 42s have been leased from ATR Asset Management together with the first two of four Dash 8-100s from Bombardier. The latter have replaced the six Dornier 228s previously operating into Greece's many islands.

Independent operator Gee Bee Air has taken the first of three Fokker 50s on lease from AFT.

CIS

The first western-built regional aircraft to be registered in Russia are two Dash 8-300s delivered to Sakhalin Air Transport (SAT). These are being used in support of oil and gas development offshore Sakhalin Island in the Russian Far East.

Start-up operator Caucasus Airlines of Georgia initially wet leased two Embraer EMB-120s from KLM exel, followed by a period of dry lease and most recently the purchase of the aircraft.

Eastern Europe

Although the numbers of aircraft being marketed into eastern Europe are unspectacular, there is a steady rate of growth among eastern European operators which suggests they will continue to take aircraft. Air Baltic of Latvia has leased an additional Fokker 50, its fourth. Air Lithuania has added an ATR 42. Carpatair of Romania has added two further Saab 340s and Silesian Air of Poland has added an ATR 42. Sky Europe Airlines of the Slovak Republic has added two Embraer EMB-120s.

Africa

Africa is now the fourth largest market for used turboprops (after Western Europe, North America and Australasia). Orders are diverse, with single examples of the ATR 42, Dash 8-300, Embraer EMB-120, Fokker F27, HS748, NAMC YS-11 and Shorts 360 being placed with nine different airlines.

The Saab 340 has been the second most popular type of used turboprop in the past year. This indicates an underlying satisfaction with customer support and faith in Saab's asset management organisation.

The only operator to add more than a single example of a type was Blue Bird Aviation of Kenya, which purchased three ex-Air Nostrum Fokker 50s from Bombardier.

Middle East

There has not been a single delivery of a used turboprop to the Middle East in the 12 months covered by our survey. However, Egyptair selected the ATR 42-500 for a new domestic shuttle service. A total of six aircraft were to have been wet leased, four from Air Littoral of France and two from Tarom of Romania. In the event the deal was cut back and only one aircraft from each carrier is currently in service. Since these are wet leases they are outside the scope of our survey.

Asia Pacific

Aero Mongolia is a start-up operator that has purchased two Fokker 50s for domestic services. The airline has been set up by local and foreign investors, but will schedule flights to connect with the international flights of flag carrier MIAT Mongolian Airlines.

The fact that 30% of Bombardier's Q400 order backlog is for Japanese operators (All Nippon Airways and Japan Air Commuter) demonstrates the reluctance of Japanese operators to take used aircraft. However this may have started to change with start-up operator Orange Cargo, which has taken delivery of the first of four Beech 1900Cs for freight services.

Although the entire Indian sub-continent only accounts for eight used aircraft deliveries, the region is seeing some definite signs of activity. India has huge potential given its size, population and the relative wealth of its middle classes. Although regional operations are currently limited, start-up Alliance Air, which is a subsidiary of Indian Airlines, has introduced two ATR 42s, and has two more on order.

Independent operator Air Deccan has also accepted two ATR 42s into service out of the six to be leased from ATR Asset Management.

Another start-up, Visa Airways, has leased two Dash 8-200s from Augsburg Airways of Germany. Further demand comes from elsewhere on the sub-

ROLES FOR USED TURBOPROPS

Region	Total	Passenger	Freighter	Corporate	Part out	Test a/c
Africa	13	11	2	-	-	-
Australasia	20	16	4	-	-	-
Caribbean	3	2	1	-	-	-
Central America	1	1	-	-	-	-
CIS	4	4	-	-	-	-
Eastern Europe	7	7	-	-	-	-
Far East	2	2	-	-	-	-
Indian sub-continent	8	8	-	-	-	-
North America	39	19	16	3	-	1
South America	11	11	-	-	-	-
South East Asia	2	2	-	-	-	-
Southern Europe	3	3	-	-	-	-
Western Europe	93	76	17	-	-	-
Part out	2	-	-	-	2	-
TOTAL	208	162	40	3	2	1

USED TURBOPROP DELIVERIES BY TYPE

Aircraft type	Position	Total transactions
ATR 42	1st	41
Saab 340	2nd	31
Fokker 50	3rd	23
Embraer EMB-120	4th	21
DHC Dash 8-100/-200	5th	20
Shorts 360	6th	14
BAE Jetstream 41	7th	12
ATR 72	8th	11
Dornier 328	=9th	7
Fokker F27	=9th	7
DHC Dash 8-300	11th	5
BAE ATP	=12th	4
Saab 2000	=12th	4
BAE HS748	=14th	3
NAMC YS-11	=14th	3
DHC Dash 7	=16th	1
Shorts 330	=16th	1
TOTAL		208

continent. Pakistan International Airlines is negotiating with ATR to replace its F.27s with seven used ATR 42s or possibly Dash 8s, and Biman Bangladesh is looking for three ATR 72-500s or Q400s, new or used, to replace its ATPs and F.28s.

Australasia has proven to be a useful market for turboprops in recent years, with Indonesia in particular seeing deliveries of a number of aircraft, particularly Fokker 50s. No less than five operators have acquired examples on the used market, three of them in the past 12 months: Pelita, Riau Airlines and Transwisata. The popularity of Fokker aircraft is not surprising, given the nation's previous status as a Dutch colony and previous orders for large numbers of

F.27s and F.28s.

The only recent activity in Australia has been the placement of two of the former Flightwest Embraer EMB-120s, one each to independent operators Network Aviation and Skippers Aviation, and the addition of another Dash 8-100 to Sunstate Airlines.

New Zealand has seen more activity with four operators adding individual examples of various types to their fleets. Papua New Guinea's largest independent operator, Airlines of PNG, has purchased two more Dash 8-100s. Air Niugini has announced that its fleet of elderly F.28-1000 jets will be replaced with a pair of Dash 8-200s. These will complement a third that it acquired new in 1997.

Alternative roles

The applications for the used turboprops delivered in the 12 month period covered by our survey are shown (see table, this page). Clearly the passenger airliner market continues to account for the majority of transactions.

Freighters

The biggest development in the freight market has been FedEx's selection of the ATR 42 to fulfil its need for an F.27-500 replacement. Following the acquisition of eight aircraft from Continental, a further 19 aircraft have been acquired from American Eagle.

Ameriflight has acquired four more Embraer EMB-120s to complement its fleet of three, although the potential is far larger given Ameriflight's fleet of over 100 small turboprop freighters.

The US's other freighter transactions were single Shorts aircraft: one Shorts 330 for Arctic Circle Air Service; and one Shorts 360 for Trans Air. The first ATR 42 with a large freight door has been placed with Air North of Alaska. Roblox Aviation has added another Shorts 360.

Freighters continue to be added to European fleets, and overall western European demand has matched that of the US. In Germany, Express Airways has started operations with a pair of Shorts 360s. Ireland's Air Contractors has added two ATR 42s and an ATR 72. Spain's Swiftair has added another EMB-120 to its fleet as well as its first ATR 42.

Sweden's Westair has added four ATPs to its fleet and UK operator Emerald has selected the type and awaits deliveries while also adding one HS748 and a Shorts 360 in the past 12 months. Elsewhere in the UK, BAC Express has added three Shorts 360s to its fleet.

Indonesia's preference for Fokker aircraft is underlined by GTAir and Trigana Air Service's acquisition of F.27-500's rather than ATR42s as freighters.

Given the efforts that ATR, BAE and Saab have put into freighter conversion programmes, it is surprising to see so many transactions for older generation aircraft types. As well as these two Indonesian operators, Airwork in New Zealand and Miniliner in Italy have added single examples of F.27-500s.

Aircraft & major players

Used turboprop transactions by individual aircraft type are shown (see table, this page). Clearly the ATR 42 is the most popular, helped by its availability.

The Saab 340 is the most popular pure passenger type and second in terms of overall numbers.

Despite the lack of an asset

Like the ATR42/72 and Saab 340, about 10% of Fokker 50s built were involved in used transactions in the past year. The total number of ATRs, Saab 340s and Fokker 50s involved in transactions in the past year have totalled 95, about half of all used turboprop transactions. The majority have been taken by small and start-up operators, many of which are growing at a steady pace.

management organisation, the Fokker 50 manages third place. It even comes close to the ATR 42 in terms of passenger aircraft, with 23 compared to 26 for the ATR 42. The biggest success is its widespread appeal with aircraft placed in Africa, Australasia, Eastern Europe, the Far East, South America as well as the core Western European market.

Fourth place also belongs to an aircraft without an asset management organisation: the Embraer EMB-120, which benefits from its applicability for both passenger and freight roles.

Fifth place belongs to the Dash 8-100/-200 family, which benefits from a strong home demand within Canada and Australasia. Although it lacks a freighter application, its offers a unique performance capability.

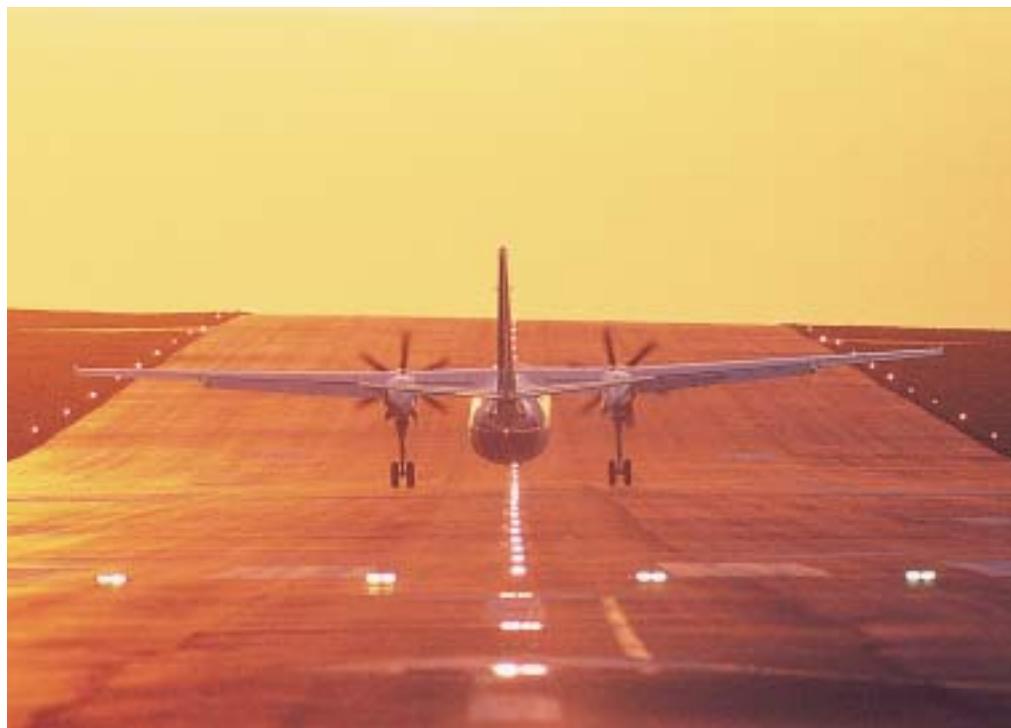
Surprisingly, given the number built and its 'archaic' appearance, the Shorts 360 is sixth in our survey. Half of these are for either passenger or mixed passenger/freight operations.

Sales vs leasing

The regional turboprop market is distinctive for the large section of the fleet on lease from powerful asset management organisations. More recently, large numbers of aircraft have become available from banks and other financial institutions as head leases have expired. Unlike the manufacturers' asset management organisations, many banks have less interest in the long-term values of these aircraft, and simply want them 'off the books'. The result is bargain pricing, which in turn is stimulating the market. As increasing numbers of aircraft are being sold rather than leased, the asset managers' control of the market is being challenged.

Leases to some of the more exotic locations in the world remain problematic for lessors, and the recent experiences of Aerocentury and AFT are unlikely to change this.

Aerocentury recently had to set aside more than \$2 million to cover costs resulting from the lease default and repossession of two Dash 7s leased to Tropical Airways d'Haiti. AFT has experienced similar problems with the lease of three Fokker 50s to Air Andaman



of Thailand. The operator has not paid rental since March 2003 and maintenance reserves have not been paid since April 2002.

Europe leads

The European market is characterised by the placement of large numbers of used aircraft to independent operators and a number of business failures. This was even among operators that had only recently taken delivery of aircraft, such as City Connect Airlines, Newair and Scon Con. This is arguably inevitable given the 'entrepreneurial' nature of the new European regional airline business and highlights the dynamic nature of the European market.

The turboprop market in the US is static, despite an obvious need for services to some of the 122 airports that have lost services in the past decade. The pre-occupation of major regional operators for long-term, fixed price contracts, with large fleets of regional jets operating for the major airlines that take all the 'revenue risk' has destroyed any enthusiasm for launching traditional regional services by independent airlines.

The few independent operators are largely occupied with subsidised Essential Air Service contracts. Data from the US Regional Airline Association confirm that only 1% of US regional services are truly independent.

Summary

This survey of recent turboprop transactions is a snapshot of activity in the past 12 months. It is not a forecast of future trends but provides some clear evidence of the following:

- The number of transactions indicates a strong demand for turboprops. Small airlines are filling niches left by major carriers, although the supply of used aircraft is limited. This should maintain demand for new turboprops over the long-term.
- New orders for turboprops are scarce compared to transactions for used aircraft. New orders are returning as the recession ends.
- The largest market for used turboprops is in Europe with the independent operators.
- US passenger demand is for peripheral markets such as Alaska and the Pacific states and dependencies, such as Guam and Hawaii.
- The most significant developing market is India, with high latent demand and several new operators.
- Despite great efforts on the part of their former manufacturers, the principal market for turboprops remains the carriage of passengers.
- US demand for turboprops in the passenger role has practically ceased, but it leads the world in the conversion of recent generation turboprops into freighters and corporate aircraft.
- Prices have declined to levels that are encouraging operators to buy rather than lease.
- This in turn is broadening the market base away from the traditional leases to North American, European and Australian operators to pure sales to the non-developed world.
- Although there are still large numbers of turboprop aircraft parked, the fact that 202 have been placed in a 12-month period is a positive development. **AC**