



# Talking Turkey

The Turkish MRO industry is looking at cooperation as a way of becoming a regional centre of excellence and making a greater contribution to the national economy. **Ian Harbison** talks to the main players in Istanbul

Turkish Technic has its main business in two large hangars at Istanbul's Ataturk Airport on the European side of the Bosphorus (photo: Turkish Technic)



In January, Turkish Technic and myTECHNIC announced that they had signed a five-year agreement covering the purchase of technical services, sales and lease of material and hangar slot allocations based on the capacity requirements of both companies.

At the time of the announcement, Dr Ismail Demir, the General Manager of Turkish Technic said that MRO had been nominated as one of the leading industrial sectors in Turkey and that, by working in harmony with others in the sector, a greater

contribution could be made to the Turkish economy. Daglar Çizmeci, Board Member of myTECHNIC, concurred, adding that the agreement was an important step for Turkey to become a maintenance centre in the region and that, by improving mutual trust, the civil aviation knowledge of the country could be used more efficiently and productively.

The agreement comes at a time when, despite the high price of oil, the Turkish airline industry has been growing. Most notably, Turkish Airlines has doubled its fleet to over 120 aircraft in the last five years and is set to

double again over the next five to seven years. Not all of these aircraft have been brand new, so they have arrived in the fleet with an immediate maintenance requirement. Other Turkish operators tend to operate older aircraft, which again produces a need for the aircraft to be looked after regularly. With lower labour rates than Western Europe and a reputation for skilled engineers, all three Turkish MRO facilities (the other is MNG TECHNIC – see *box story*) have been successful in attracting customers from a wide catchment area.

**The Turkish Engine Center, a joint venture with Pratt & Whitney, should see its first engine arrive in October this year. Work will be transferred from the current shop at Ataturk, seen here** (photo: Turkish Technic)

The company has its main business in two large hangars at Istanbul's Ataturk Airport on the European side of the Bosphorus, and also has a third, smaller hangar in Istanbul, where some single and twin engine training aircraft and business jets are maintained. In addition, a three-bay narrowbody hangar is under construction and planned to be operational in May 2009 in the capital of Turkey, Ankara. This has become another hub for Turkish Airlines, especially for its new low-cost sub-brand, Anadolu Jet.

However, the focal point for the latest developments is the Sabiha Gökçen International Airport, located on the Anatolian (Asian) side. In December 2004, Turkish Airlines launched its Havacilik Bakim Onarim ve Modifikasyon Merkezi (HABOM) project there (see *MRO Management*, March 2005).

This project has had several false starts, including an abortive deal with Singapore Technologies in 2005, but a hangar complex with nine narrowbody and three widebody bays is now planned for completion by the end of 2010, and the Turkish Engine Center, a joint venture with Pratt & Whitney, should see its first engine arrive in October this year. The total investment is around \$200 million. Alongside is a planned joint venture with Goodrich to build a 43,000ft<sup>2</sup> nacelle and radome repair facility that should open later this year.

This is part of a strategy to create a campus of aerospace companies that will provide a one-stop shop and centre of excellence for the region. In this context, the agreement with myTECHNIC takes on a greater strategic significance, as Sabiha Gökçen is also the



site of that company's new hangar, located inside the proposed site for HABOM.

Speaking to *MRO Management*, Demir said Turkish Technic has an ambitious growth plan with the intention of becoming one of the top five MRO companies in the world within 10 years. Further, the intent is to have a presence overseas within the same →

## MNG TECHNIC

MNG TECHNIC was formed in 2002 as a subsidiary of the MNG Group – a large industrial concern with interests ranging from construction, tourism, finance, communications and the defence industry sector, as well as MNG Airlines with eight Airbus A300, seven Fokker F-27 freighters and two Airbus A330 freighters on order for 2010.

Volkan Eser, Marketing Manager, recognises that his company is much smaller than Turkish Technic, but points out that it is profitable and extremely successful, especially after a record year in 2008 when 72 C checks were carried out. With a capacity of 65 slots a year in the 5,000m<sup>2</sup> hangar at Ataturk airport, careful management was needed. The company is in urgent need of additional space, but he hopes there might be a solution in the not too distant future. While he had to turn work away in the boom time, and the opening of 2009 is looking good, he expects lower overall numbers this year.

One of the major deals has been a five-year contract with airBaltic of Latvia, signed in December 2008, which will see 14 C checks carried out on its Boeing 737-300/500s in 2009, with the entire 16-aircraft fleet visiting in the subsequent years. The company has had considerable success with carriers from Russia and the CIS states, and Central and Eastern Europe, including fleet deals. For example, Dubrovnik Airline is sending six McDonnell Douglas MD-83s for C checks under a three-year contract. He is also proud of the fact that the company has attracted aircraft from five flag carriers – Air Slovakia, Alitalia, Azerbaijan Airlines, Czech Airlines and Turkmenistan Airlines. At the same time, Eser says smaller airlines need an MRO facility they can rely on and MNG TECHNIC will continue to support them. Lease companies are worth up to 15 slots a year, and with increasing numbers of aircraft expected to be returned from some now depressed market areas, such as India, he is hopeful that they will be coming his way.

While the MD-80 market might last for a few more years, the company has decided to move into the Boeing 757-200 market,

as the aircraft has become popular recently and is appearing in the company's market area.

Alongside airframe maintenance, the company can also offer shops for electric and electronics; slides, slide rafts and life vests; wheels and brakes; and hydrostatics. Avionics capabilities will be expanded and a mechanical shop will be added. This will allow MNG TECHNIC to offer greater support packages beyond just airframe maintenance.



(photos: MNG Technic)

MNG TECHNIC has also developed an engineering capability that allows it to carry out specific modification work to meet AD/SB requirements. These include the rib 5 modification on the Airbus A320 and pylon/strut modification work on the 737 and 757.

Line maintenance is another revenue stream and one that looks to be potentially very busy this year. With the economic crisis restricting holidays, Turkey is increasingly attractive as a destination, being outside the Euro zone. One inclusive tour operator, says Eser, has asked for a quotation to service 1,400 flights into Dalaman airport on the south coast during this summer season, and 700 to nearby Antalya.

The company has invested in training, achieving EASA Part 147 approval in May 2008, and has provided around 15,000 training hours for the technicians from MNG TECHNIC as well as from the third parties in 2008.

**Table 1: Airframe MRO capabilities of Turkish companies**

Turkish Technic	myTECHNIC	MNG TECHNIC
<b>Shared capabilities</b>		
A300 B2/B4/C4/F4	A300 B2/B4/C4/F4	A300 B2/B4/C4/F4
A319/A320/A321	A319/320/321	A319/320/321
737-600/700/800/900	737-600/700/800/900	737-600/700/800/900
737-300/400/500		737-300/400/500
MD-80	MD-80 Series	MD-80 Series
757-200		757-200
<b>Unique capabilities</b>		
767-200/300	767*	727-200
A300-600		DC-9 Series
A310-200/300		
A330-200		
A340-300		
747-400		
Avro RJ70/100		
Gulfstream IV		
* Planned capability		

timescale, although this need not be through acquisition, but could be the establishment of an MRO network of companies with complementary capabilities. Initial discussions have already been held with two such facilities. He stressed that the plans are based on cooperation with myTECHNIC and with MNG TECHNIC. Successful growth, he says, comes from partnerships, not from crushing the competition.

This will be easier as top level management across all three companies have extensive formal and informal contacts, many having worked for Turkish Airlines at some point in their career. However, Dr Fuat Oktay, Executive Vice President (Commerce) for Turkish Technic, added that his company takes the lead in this project. This is because it has the greatest experience as, while the current name only dates back to May 2006, when the company became a wholly owned but independent subsidiary of Turkish Airlines, it was established along with the airline in 1933. It also has the greatest range of



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capabilities and most advanced processes, such as lean techniques.

Demir adds that, while the company had a current cost advantage over the rest of Europe, this will not last. Instead, competitiveness in the general market has to come from skilled labour producing quality work with better turnaround times. This ties in naturally with the plan of national economic development, which has also seen an increase by the Government in research and development funding for aviation in general.

In 2008, third-party revenue increased to almost 25% of total revenue, and one of the aims is to increase this to 50% in the near future. Current activities to increase available capacity will definitely help to achieve this goal. Of course, he says, Turkish Airlines is also a customer, but significant attitude change has taken place since the separation in 2006. This requires the workforce to treat each customer equally. Although some natural privileges of volume should still be applicable to the customers, the fact that each rectification should be charged can sometimes be overlooked and this has now changed.

Another part of the strategy, reflecting the company's wide range of services, is that of providing total support packages to customers. Two recent successes have been Iraqi Airways and Somon Air. For Iraqi Airways, it will offer engineering support and component pool agreements for two Boeing 737-700 and line maintenance support at Baghdad International Airport. The Somon Air agreement covers engineering support and wheel, tyre and brake overhaul for two 737-800s and line maintenance support at the Dushanbe International Airport in Tajikistan.

**TEC**

The Turkish Engine Center (TEC) will take over from the Turkish Technics engine shop at Ataturk airport, with staff being transferred, and will specialise in the CFM56 and the IAE V2500. Although the CF6-80A3/C2 will remain Turkish Technic's responsibility, there are plans to form other partnerships to provide services in this area, as it is fitted to just six Airbus A310s in the airline's current fleet.

Daniel Tennant, General Manager of TEC, seconded from Pratt & Whitney, says the layout has been developed using the manufacturer's US plants and its various MRO facilities around the world, as well as

Turkish Technic's own experience. It will adhere to the Achieving Competitive Excellence operating system of United Technologies (Pratt & Whitney's parent company) and incorporate lean techniques, Continuous Improvement Programmes and cellular manufacturing.

The Center will start with the CFM56 as it already powers large numbers of Turkish Airlines aircraft, with the V2500 due to arrive on some Airbus A321 aircraft in the near

**Although Turkish Airlines is still the main customer, Turkish Technic plans to increase its third-party work to 50% in the near future** (photo: Ian Harbison)



**1983:** One set of Esavian doors 20.0m wide and 7.5m high at Middle Wallop in the UK.

**2008:** One set of Esavian doors 350.7m wide and 26.8m high for AMECO Beijing.



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future. This year will see a few engines arrive from September onwards, with 80 in 2010, as it takes over from the Ataturk shop, and over 100 in 2011. The full capacity of 200 engines per year should follow in 2013. This compares to the current shop's throughput of 70 engines, most of which are from the airline and the rest from some domestic carriers. Although the airline's fleet growth will generate a larger base loading for the shop, besides Turkish Technic's current customers, such as Pegasus and Sky Airlines, TEC will actively seek third-party work and has already signed its first customer, Saga Airlines, a Turkish carrier that currently sends its engines to Pratt & Whitney's Norway Engine Center.

While a test cell should be built at Sabiha Gökçen in 2012, engines will have to be ferried to and from the existing facility at Ataturk for the time being. This will require careful planning, comments Tennant, as there are restrictions on carrying loads like these over the Bosphorus suspension bridge at certain times of day.

In the end, he says, TEC will succeed through cost, quality and expertise.

### Other MRO activities

Demir says the military MRO market is also attractive, as the Turkish Air Force has two projects that fit well with Turkish Technic's capabilities. The first is the Boeing Peace Eagle aircraft, an airborne early warning and control (AEW&C) platform, of which four have been ordered. The company already has a contract for maintenance support as the aircraft is transitioned into service and is now negotiating for full in-service support. The second is the Airbus Military A400M transport aircraft. Turkish



### Manpower

Fortunately, a career as an aircraft engineer or technician is seen as worthwhile in Turkey and there are a number of educational establishments that offer aviation-related courses. While there is some transfer of personnel between Turkish Technic, myTECHNIC and MNG TECHNIC, sometimes caused by relatively small pay differentials, each company has its own training facilities that can find a steady stream of applicants.

Turkish Technic has just started offering two different types of scholarships, for education or research. The nine-month scholarships will be offered to 42 qualified students, with 30 going to high school students, nine to colleges and three to bachelor degree students in universities.

Students of listed aviation schools can benefit from the scholarship programme, including Bagcilar Anatolian Technical High School, Bursa Hürriyet Anatolian Technical High School, Eskisehir Merkez Anatolian Technical High School, Kayseri Melikgazi Anatolian Technical High School's Aircraft Framework-Engine, Aircraft Electrics-Electronics departments, Anadolu University Civil Aviation College, Erciyes University Civil Aviation College, Kocaeli University Civil Aviation College's Aircraft Framework-Engine, Aircraft Electrics & Electronics departments, Istanbul Technical University's Aircraft Engineering Department and Middle East Technical University's Aviation and Aerospace Engineering departments.

The company is planning to work closely with a number of these institutions to develop courses that reflect the actual needs in the maintenance facility.

Having just started operations, myTECHNIC has only a small percentage of its planned 1,200- to 1,500-strong workforce, but it has already allocated space for four 20-seat classrooms lecture-style instruction and training and another classroom for computer-based training. The biggest challenge so far has been to find qualified certifying staff.

MNG TECHNIC has invested in training, achieving EASA Part 147 approval in May 2008, and has provided around 15,000 training hours for the technicians from the company as well as from third parties in 2008.

Aerospace Industries is a partner in the programme, with a 7.15% share of the total work offset against an order for 10 aircraft by the Turkish Air Force. In both cases, the small fleet size probably makes it unrealistic to develop a military maintenance capability, especially for Peace Eagle, as it is based on the 737-700.

Business jet work to date has been limited to the Gulfstream IV operated for the Government as a VIP aircraft. Turkish Technic cannot carry out warranty work but is otherwise fully capable of looking after the aircraft. With hangar space available at Ataturk airport, Demir says increased maintenance of business aircraft and light aircraft is a future possibility, adding that Turkish luxury yacht designers would provide a good source if VIP conversions were considered. Freighter conversions are less likely, he thinks, as Airbus has the main share of the market and Boeing conversions are often carried out by companies that have a labour cost advantage over his.

**The myTECHNIC hangar uses translucent polycarbonate for its external walls. Even on dull days, there is sufficient light inside the hangar that no artificial light is required (photo: Ian Harbison)**

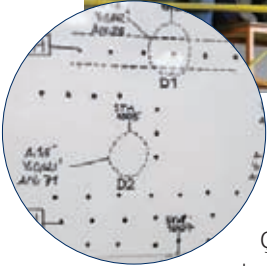
### myTECHNIC

The myTECHNIC hangar, says Remzi Saltoglu, Commercial Director, represents an investment of \$65 million. Standing on 60,000m<sup>2</sup> of land, it is a three-floor building with 15,400m<sup>2</sup> of hangar space (equal to 12 narrowbody slots). Unusually, 24,800m<sup>2</sup> of workshops, offices and storage area and 6,000m<sup>2</sup> of engine shops are located on two lower floors. This required some 300,000m<sup>3</sup> of earth to be moved during construction, to enable the building to be built onto the side of the airfield. Certification by the Turkish Director General of Civil Aviation was received in August 2008 and opened for business a month later, the first time it had acted as an agent for EASA, and another indicator of the strength of the country's growing aviation capabilities.

While it might be thought to have captive customers in local carriers ACT Airlines and Onur Air, as stakeholders in these companies are investors in myTECHNIC, he says this is not the case. Two McDonnell Douglas MD-80s from Onur Air are test aircraft, so it is important myTECHNIC has already attracted overseas and other Turkish customers, most notably Saudi low-cost →



**This 737 arrived at myTECHNIC with a large number of dents around the rear door caused by ground support equipment. As this was outside Boeing's repair limits, the Turkish company developed its own repair scheme that was approved by the OEM** (photo: Ian Harbison)



carrier Sama Air for C5 checks on its 737-300s. In fact, says Daglar Çizmeçi, the company is ahead of expectations, with eight aircraft, twice the forecast, having arrived so far. Two of these are Turkish Airlines aircraft, to be repainted into Star Alliance colours, although further work will be held over until the temporary facility can be improved. However, he cautions that, while bookings may look good numerically, an eye has to be kept on the quality of revenue generated.

Engine work, for the moment, involves just the General Electric CF6-50, although tooling for the Pratt & Whitney JT8D-200 Series is on the way. Five engines were worked on in 2008, 15 are expected in this year and 25 in 2010. Eventually, the plan is to deliver 96 CF6s and 74 JT8Ds per year.

The company will mainly carry out disassembly, assembly and some minor repairs, with module repairs being outsourced. A separate exclusive three-year Material Support Agreement with Kellstrom Industries covers all new and overhauled,



consumable, expendable and rotatable parts used by myTECHNIC. This has already been extended and myTECHNIC will now dismantle and part out a number of CF6s on behalf of Kellstrom.

Engines from aircraft in the hangar can be delivered by 8-tonne lift straight into the shop, which has six bays for the CF6-50 at present. Mobile tool carts are used for disassembly/assembly and fixed tool racks with shadowboards for module work. Serkan Ertekin, Workshops Director, says lean is important (in fact, the company claims this is the first greenfield lean MRO facility in the world) and the layout has been carefully designed to provide a comfortable working environment for the staff (there are 15 at present, seven of whom are ex-Turkish Technic).

Component support includes wheels, tires and brakes; electrics and electronics; and life vests, slides and rafts. However, under the terms of the agreement, most component repair work will be outsourced to Turkish Technic, although there will also be economies of scale to be gained from the larger partner's purchasing power.

### Future prospects

Çizmeçi says the deal with Turkish Technic is an excellent opportunity for myTECHNIC to link up with the incumbent carrier and its technical subsidiary, and he is also glad that Pratt & Whitney is involved in the Turkish Engine Center. He particularly appreciates the decision to plan work on an annual basis, and has been pleasantly surprised by the attitude of the other side. He recognises that the company is being tested by Turkish Technic at the moment on its capabilities.

At the same time, the company is an independent business. He says the investors in myTECHNIC understand the long term nature of the aviation business and accept that the break even point, originally expected to be in six years, has been extended by a further two to three years as a result of current

**This wheel cage was designed with the assistance of military experts with experience of mine resistant vehicles. If a tyre explodes during inflation, the blast is dissipated and debris contained** (photo: myTECHNIC)

## Environment

Several aspects of the developments at Sabiha Gökçen have been designed with the environment in mind.

The Turkish Engine Center will be built to the standards of the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, with up to 20% recycled material and renewable energy sources for a portion of its energy load. In addition, overall water use on the site is expected to be reduced by 40% compared with conventional facility designs.

The myTECHNIC hangar uses translucent polycarbonate for its external walls. Even on dull days, there is sufficient light inside the hangar that no artificial light is required. The cleaning line for the engine shop has double-skinned containers for the various chemicals, which reduces the energy needed to heat them and maintain the correct temperature. The chemicals only need to be changed every three years, when they will be removed and treated by a specialist company. There is also a sophisticated air extraction and filtration system.



(photo: myTECHNIC)

economic circumstances. They are still confident that their aims will be achieved.

For his part, Demir acknowledges that the delays to the HABOM project have not hurt as much as they might have done. The partnership with Pratt & Whitney is with a company that complements Turkish Technic's activities, whereas ST Aerospace was in the same business. The appearance of myTECHNIC not only brings a new partner, but valuable hangar space at Sabiha Gökçen. Turkish Technic is also a much stronger company than it was in 2004, when HABOM was launched.

With all this in mind, there is a feeling of confidence that the ambitious targets for the companies and for the national strategy can be met. ■