




ARABIAN AEROSPACE

THE MAGAZINE FOR AEROSPACE PROFESSIONALS IN THE MIDDLE EAST AND NORTH AFRICA

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STANDARD IN
THE REGION
THAT SUCCESS
IS MEASURED
BY CONTINUOUS
EXPANSION BUT,
FROM A
BUSINESS POINT
OF VIEW IT
DOESN'T MAKE
SENSE.'**

MAJALI: MY GOAL AT GULF

SHOW REVIEWS

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displays at
Al Ain and
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His Highness Sheikh Ahmed bin Saeed Al Maktoum enjoys the new show daily at AIME watched by F&E Aerospace managing director Alison Weller and Arabian Aerospace Editor-in-chief Alan Peaford (left).

More milestones as Arabian Aerospace celebrates one year

The first quarter has been very busy for the aerospace industry in the Middle East and North Africa – and this issue of the magazine reflects that.

At *Arabian Aerospace* we have been flat out with a number of milestone events.

The year kicked off with the first Bahrain Air Show – a great triumph for the organisers and a credit to the Bahraini Government, which had backed the show as a way to introduce the industry to the fantastic Gulf island state.

Days later was the AI Ain show, where the world's top aerobatic pilots came together for some spectacular performances.

Then we were in North Africa for the latest AeroExpo in Marrakech, Morocco, where there were some interesting new aircraft to be seen as well as some new applications on old ones. Dubai was not to be outdone with the MRO Middle East and Aircraft Interiors Middle East (AIME) shows running their second editions as co-located events. Days later came the first ever Aerospace and Defence Training Show in Dubai and Manufacturing 2020 in AI Ain, the latter being the first conference from the fledgling Middle East Aerospace Consortium.

We were proud to be media partners for these events and

were able to broadcast our increasingly successful Arabian Aerospace Radio from the shows. The programme can be heard as a podcast through our website www.arabianaerospace.aero – there are some great interviews there with the movers and shakers of the industry in the region.

At the AIME and MRO shows we had another successful first, when we launched *Arabian Aerospace's Show Business*, a daily newsletter aimed at the delegates and exhibitors.

The daily was a great success and even HH Sheikh Ahmed bin Saeed al Maktoum, chairman of Emirates and Dubai Airports, stopped off to take a copy and complement the team on the quality of the regular magazine too.

We are now celebrating the end of our first year with this, the fifth edition of the magazine. It has come a long way in a short time and I am grateful to the hundreds of industry professionals who have taken time to pass on comments and suggestions which, hopefully, will ensure that we continue to deliver the premier business-to-business aerospace magazine across the whole region.

**ALAN PEAFORD
EDITOR-IN-CHIEF**

COVER: Gulf Air CEO Samer Majali is leading the revival of the Gulf's oldest airline. PICTURE: IAN BILLINGHURST

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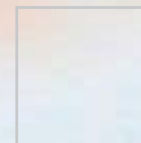
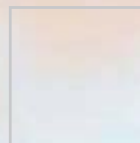
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Strata's five-year plan to reach the top level

Strata, the aerostructures business launched by Mubadala and based at Al Ain, is set to take a place among the top three businesses of its kind by 2015.

Speaking at a conference looking at the future for aerospace manufacturing and organised by the Middle East Aerospace Consortium, Eric Sparrow (pictured left) engineering head of the Strata business, said the company had a clear strategic plan to be among the top three aerostructures business within five years.

The first steps for this plan are now clearly in view as the first of three 21,000 square metre manufacturing facilities are being built at Al Ain airport in the UAE, where the conference was being held.

"The first factory will be complete in May, we expect inspection and certification in June and then start full production in September," Sparrow said.

The key to success will be the gradual integration of engineers and artisans from the Emirates. "Nothing is going to happen unless we have local ownership," Sparrow said. "We have set up a three-year training programme and are hand-picking youngsters from schools. They will work for a year here and then with our partners, who could be overseas or in our in our own facility. Getting equipment is easy. Getting the right level of talent is the challenge."

Sparrow said the company was looking at other expansion opportunities that would help it position as a tier one supplier for the next generation of passenger jets expected later this decade.

"We expect to have around 800 staff by 2014," he explained.

Strata announced the first production contract with Airbus at the Dubai Air Show last year. This is for the manufacture of aileron composite panels and the production of assembled aileron shipsets for the A330 / A340 aircraft series.

The two agreements represent the first work packages directly from Airbus under the Master Supply Agreement signed between EADS/Airbus and Mubadala in November 2008.

The aileron work packages include:

- Composite panels – in 2011, Strata will begin manufacture of carbon fibre panel skins of the aileron components and will be the global sole source provider for Airbus of these components.

- Assembled aileron shipsets – by mid 2012 Strata will become dual source supplier for assembled aileron shipsets, alongside the Airbus plant in Nantes, France. Strata will produce up to five shipsets of ailerons per month.

Training for the engineers and artisans will take place at the Al Ain International Aviation Academy.

Iran's 'flatfish' evades radar

Iran has conducted a successful test of its first domestically developed radar-evading aircraft, a senior military official said.

The prototype of the aircraft named 'Sofreh Mahi' (flatfish) passed all radar-evading tests, said General Aziz Nasirzadeh, Lieutenant Commander of the Iranian Army Air Force.

The General said that once the flatfish-shaped aircraft passes further tests and its features and capabilities are completed, the Defence Ministry will start its mass production.

"Production of the actual size as well as mounting and testing weapons and a number of systems on the aircraft are the next phases

before we can start its mass production," Fars News Agency quoted Nasirzadeh as saying.

Abu Dhabi Royal killed in crash

A senior member of the Abu Dhabi ruling family, Sheikh Ahmed bin Zayed al-Nahyan died in a tragic flying accident in Morocco in March.

The 41-year-old head of Abu Dhabi's sovereign wealth fund, ADIA, and the younger brother of Abu Dhabi's ruler had been a passenger in a glider flying in Rabat when it crashed into a reservoir near the Al Nahyan royal palace south of the Moroccan capital.

Sheikh Ahmed is the second of the late Sheikh Zayed's sons to die in an

aviation related tragedy. In June 2008, Sheikh Nasser bin Zayed al-Nahyan, was killed when the helicopter carrying him and his colleagues crashed into the Arabian Gulf.

Smart Traffic move by Turkish

Turkish Airlines is to be the launch customer for Honeywell's Smart Traffic system. Honeywell said the airline would get an avionics suite that includes Smart Traffic, IntuVue 3D weather radar systems and Smart Runway.

Delivering for health

The Saudi Red Crescent Authority (SRCA) has taken delivery of an Airbus A318 as part of the

expansion of its air support capabilities. At present, the expansion targets about 35 aircraft in total, including fixed-wing airplanes and helicopters.

The Airbus A318, which will initially be operated for the SRCA by Perfect Aviation of Portugal, will serve in a medical evacuation role, including the transport of injured persons to hospitals – both within Saudi Arabia and elsewhere in the Middle East.

CUSS in Arabic for Sharjah

Sharjah International Airport, working with technology firm SITA, has launched the world's first Common Use Self-Service (CUSS) kiosks with an Arabic interface.

The kiosks are in use by passengers of Air Arabia, Nas Air, SAMA, Indian Airlines, Indian Express and Jet Airways at Sharjah.

In the five-year deal, SITA is also providing web check-in for Air Arabia and the 3.6 million passengers it brings through the airport each year.

These combined check-in services are now available with Arabic and English interfaces.

Four up for ACJC

Airbus Corporate Jet Centre (ACJC), the specialist in ACJ VIP cabin completion and associated services, has delivered its fourth VVIP cabin, for an undisclosed customer in the Middle East.

Saudi Arabian sign P&W wash deal

Pratt & Whitney and Saudi Arabian Airlines have signed an agreement expanding P&W's EcoPower engine wash service network to the Middle East and North Africa.

Under the agreement, Saudi Arabian Airlines will operate two EcoPower service centres in Jeddah and Riyadh with options to expand to other locations throughout the kingdom. The airline will have the capability to wash all engine types within its fleet as well as a wide variety of other commercial powerplants, including JT9D, PW4000, PW2000, GE90, Trent 700, CF6, V2500, CFM56 and CF34.

"Increasing fuel efficiency and cutting CO2 emissions are top priorities for Saudi Arabian Airlines," said director general Khalid Abdullah Almolhem.

"Operating as an authorised EcoPower service centre, we can now promote these benefits to all operators who fly within the Kingdom," added Ali Abdullah Milaat, MD, technical services strategic business unit.

Damman testing centre opens

A new \$1 million non-destructive testing centre has been opened in Dammam, Saudi Arabia involving a collaboration between Abdulla Fouad Holding Co and General Electric Sensing and Inspection Technologies.

Faisal A Fouad, president of Abdulla Fouad Holding said: "This is the only centre of its kind in the region and shows our commitment to enhancing local expertise and support. We are thankful to the GE team for their support and we are looking forward to



Egyptair extends its range

Egyptair and leasing company GE Capital Aviation Services (GECAS) have taken delivery of the first Boeing 777-300ER (Extended Range) commercial jetliner to join the Egyptian national carrier's fleet.

Egyptair operates a fleet of five Boeing 777-200ERs, five 737-500s and 12 737-800s, with another eight 737-800s on order directly from Boeing.

The Egyptian flag carrier is leasing the new 777-300ER from GECAS and will take an additional five 777-300ERs on lease through the second quarter of 2011 to continue upgrading its long-haul service.

"This delivery is a substantial milestone in the history of Egyptair. We will continue to bring the latest aircraft to our customers, who deserve the best of everything. This is a continuation of the long-term partnership with Boeing," said Hussein Massoud, chairman of Egyptair Holding Company.

The new aircraft has 346 seats, including 49 lie-flat beds with a 78-inch seat pitch, plus an in-seat entertainment system throughout the cabin. It will operate on routes to London, Tokyo and North America.

working to ensure a successful partnership."

The new 460 square metre facility will operate as a service centre, using the latest non-destructive testing technology not only for aerospace but also in other sectors, including oil and gas, and power generation.

Inspection capabilities include areas such as ultrasonic flaw detection, eddy current instrumentation and radiography.

The inauguration of the centre follows the opening in 2008 of GE's service and training facility for sensing and inspection products in Abu Dhabi which, itself, was preceded a year earlier by the Saudi Arabian Sensing Solution Co repair and training centre in Al Khobar, also in conjunction with GE.

Maximus defends Russian aircraft

Abu Dhabi-based cargo provider Maximus Air Cargo has defended the use of properly maintained Russian aircraft and put its full weight behind the GCAA in its drive for safety by supporting safety conferences.

There have been calls for restrictions on some aircraft types entering UAE and Fathi Buhazza, president and CEO of Maximus and founder of Care by Air, underlined the importance of key players in the region's aviation industry pulling together with the GCAA in the drive for safety.

"There has been much bad press about Ukrainian and Russian aircraft, when actually the problem lies not with the aircraft but with

sub-standard operators who fall short of international safety standards.

Maximus's fleet includes an Ilyushin 76TD and an Antonov 124-100, which adhere to the highest standards and have proven invaluable in humanitarian missions for the UAE Red Crescent, Red Cross and the United Nations," he said.

"The GCAA is taking steps with operators who do not meet safety standards and Maximus fully supports this and believes that this firm approach will work."

UAE plans three new satellites

A second observation satellite funded by the Dubai government is likely to orbit the Earth in the second half of 2012. And there are plans to develop

two more, according to the Emirates Institute for Advanced Science and Technology (EIAST).

A spokesman for EIAST said that DubaiSat-2, will be a much bigger satellite than the existing DubaiSat-1 with more advanced capabilities.

EIAST launched the UAE's first earth observation satellite at a cost of US\$50m in July last year.

Qatar could launch re-engined A320

Qatar Airways could be the launch customer of a new re-engined version of the A320 which Airbus is believed to be unveiling at Farnborough Air Show in July.

The Doha-headquartered airline already operates 25 A320-family aircraft and has orders for 20 more but is also evaluating a possible deal for Bombardier's C Series twinjet.

Chief executive Akbar Al Baker has confirmed the airline is studying the proposed upgraded A320 family, which is expected to be offered with CFM International's Leap-X advanced turbofan and a version of Pratt & Whitney's GTF geared turbofan.

Arabian Jets deal with Avtrade

Commercial aircraft component supplier Avtrade has signed a partnership deal with Arabian Jets, the Saudi Arabian-based aviation consultancy firm.

The deal comes less than a year after Avtrade opened its Dubai office to serve the regional market "

In 2009, Avtrade opened a sales office with a 24 Hour AOG desk in the Dubai Airport Free Zone (DAFZ). Its logistics centre of excellence opened in March bringing component support for B737, B767 and A320 aircraft.



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"Bargaining chip" rumour denied

Emirates Airline chairman Sheikh Ahmed bin Saeed al Maktoum has made it quite clear the company was never used as a bargaining chip in Dubai's talks with Abu Dhabi over funding.

"We never really talked in any way about any of our strategic companies with Abu Dhabi," Sheikh Ahmed told Dow Jones. "I know it's always been the rumour."

Abu Dhabi has been widely reported as "bailing out" Dubai with \$15 billion of financial assistance to help ease a \$26-billion debt that rocked the financial stability of the Gulf States in the world's financial market.

Many pundits questioned what Dubai would offer Abu Dhabi in return for the cash, with prized assets like Emirates Airline thought to be part of negotiations.

"When you think about what Emirates has achieved, I think anyone would want to have equity in it," Sheikh Ahmed told Dow Jones. "It's a very successful business for Dubai."

Emirates Group is one of Dubai's most prized assets and one of the fastest growing airlines globally. The carrier indirectly contributes in the region of AED40 billion (\$10.89 billion) to Dubai's economy each year and is key to the emirate's success story.

"If it wasn't for Emirates, this market wouldn't have been able to grow as it has. It's a huge contribution," Sheikh Ahmed said, highlighting the economic benefits to the emirate of a group that employs more than 32,000 people in Dubai.

AJW powers in to support Buraq

Libyan carrier Buraq Air has selected A J Walter Aviation to provide power-by-the-hour support for an additional two B737-400



Gulf pride in response to humanitarian needs

The tragic earthquakes in Haiti and Chile in the first quarter of the year led to Gulf organisations deploying aircraft for humanitarian aid missions.

Qatar Emiri Air Force (QEAF) utilised its Boeing C-17 Globemaster III airlifters for the first time.

"When the QEAF acquired two C-17s last year, we did so with every intention of supporting international disaster-relief and humanitarian missions around the world," said Brig. Gen. Ahmed Al-Malki. "We take great pride in being among the first of many nations to respond to Haiti and Chile, delivering several thousand tons of food, water and medical supplies."

Just days after Haiti was struck by an earthquake on January 12, a Qatar C-17 delivered aid to the country's capital, Port-au-Prince. On March 4, Qatar sent a C-17 filled with humanitarian aid to Chile in response to that country's February 27 earthquake.

Meanwhile Dubai-based VIP charter business Air Partner continued to assist with relief flights to Haiti and airlifted more than a dozen support vehicles to aid the clean-up and re-building operation.

A chartered Boeing 747-400F flew to neighbouring Santo Domingo from the United Arab Emirates carrying 14 Land Cruiser pick-up vehicles, loaded bumper-to-bumper on the main deck, together with generators and toilets.

All relief supplies came from the International Humanitarian City in Dubai.

Air Partner offices worldwide played a role in coming to Haiti's aid in the wake of the devastation that beset the country. Last month the Group arranged numerous humanitarian aid relief flights carrying vital cargo, medical personnel and support workers.

aircraft in its fleet.

The five-year deal follows a previous agreement with AJW, which already supports the airline's two B737-800 aircraft with more on order.

Buraq Air was the first private airline in Libya. Based at Tripoli International Airport it has scheduled services to Europe, North Africa and the Middle East.

Sudanese airlines banned by EC

The European Commission (EC) has blacklisted all air carriers of Sudan on the basis of safety assessments by ICAO.

Twelve commercial airlines from Sudan were banned citing "persistent non-compliance".

Also, following an

examination of Iran Air's operations, evidence of serious incidents and insufficient oversight from the authority, the Air Safety Committee also concluded that its operations in the EU should be restricted. The carrier will only be allowed to use certain aircraft for flights to Europe.

Tunisia gets a lift from Hercules

Tunisia has ordered two Lockheed Martin C-130J Super Hercules airlifters with an initial three years of logistics support.

The new C-130Js, scheduled to be delivered in 2013 and 2014, will be the longer fuselage or "stretched" variant of the C-130J. A contract signing ceremony took place at the Tunisian Ministry of

National Defense (MND) in Tunis.

"Tunisia is the 12th country to select the C-130J Super Hercules," said Jim Grant, Lockheed Martin vice president of business development for air mobility. "More and more, as countries recognise and appreciate the proven qualities of this tremendously flexible platform, we are seeing it become the preferred airlift option."

Tunisia currently operates a fleet of C-130Hs and C-130Bs, first purchased in the mid-1980s. The new C-130Js will support Tunisian operations across the mission spectrum, including relief efforts around the world, fire-fighting and traditional airlift sorties.

Muscat airport plans face delays

Oman has said that the extension of the country's main airport in Muscat will be delayed by two years and may cost the state up to an extra \$500m after runway excavations hit sea water.

News agency Reuters quoted a government official as saying the Muscat airport extension will now be completed in 2014, not in 2012 as expected due to soft ground, which contractors come across in some places.

The airport currently handles about four million passengers a year and will be able to accommodate 12 million after the extension. Oman is also building new airports at Duqm, Ras Al Hadd, Musandam and Sohar.

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Gama radiates success all round

Gama Aviation FZC – the newly-founded Middle East arm of the international Gama Group – has been awarded its Air Operators Certificate (AOC) by the UAE General Civil Aviation Authority (GCAA).

Managing Director Dave Edwards said: “We’re absolutely delighted. We started the application process in June 2009 and I’m particularly pleased with the speed with which we’ve been able to drive the project forward – it’s a proud achievement for everyone.”

Group CEO Marwan Abdel Khalek, the man who founded Gama in 1983, said the AOC marked another significant step in the company’s worldwide development. “We are now the only business aviation group to hold operating licences in Europe, North America, the Middle East and Bermudan Approval.

“With the addition of the first three aircraft in the region, a Challenger 605, 604 and an 850, it brings our worldwide fleet to more than 75 business jet aircraft, which represents models from the Learjet 45 all the way through to the Boeing Business Jet and at every level in between.

“When I founded the business I always aimed to expand into the region where I spent my childhood and, after sustained growth and development, we have now achieved it.”

First flight success for ATR 42-600

The ATR 42-600 pre-series aircraft successfully carried out a first flight in Toulouse in March.

The aircraft, powered with Pratt & Whitney 127M engines, completed a two-hour flight.



Phil Brugger, account manager – aircraft wheels and brakes, Goodrich Corporation (left) and Ghaith Al Ghaith, flydubai’s CEO, celebrate the arrival of the first Boeing Next-Generation 737 aircraft equipped with Duracarb brakes.

Flydubai brakes new ground

The first Boeing Next-Generation 737 aircraft equipped with Goodrich Corporation ‘Duracarb’ carbon brakes has been delivered to Dubai’s low cost airline Flydubai. It is the seventh B737NG to join the fleet.

The wheels and carbon brakes will provide weight savings of approximately 700 pounds (318 kg) per aircraft compared to high capacity steel brakes, and 550 pounds (250 kg)

compared to standard capacity steel brakes.

In addition to the fuel cost savings from the reduced weight, the Goodrich carbon brake also offers significantly higher brake life compared to the steel brakes.

Goodrich will supply the equipment for flydubai’s entire fleet of more than 50 Boeing Next-Generation 737-800 aircraft and will retrofit their existing six aircraft.

The high degree of commonality between the ATR 72 and the ATR 42 will enable the ATR 42-600 to benefit from certain tests completed by the ATR 72-600, whose 150-hour flight campaign started in July 2009. Both ATR 42-600 and ATR 72-600 will enter into service next year with Royal Air Maroc as a launch customer.

JALCo and Chromalloy team up

Jordan Airmotive (JALCo) has teamed up with Chromalloy for inspections and service on gas turbine engine components.

The two companies announced a three-year deal at the MRO Middle East show in Dubai in March. The \$2 million agreement covers commercial aircraft

engines, including the JT8D, RB211-524 and CF6-80C2.

The agreement includes the addition of service for CFM56-3 turbine engine components beginning in mid-2010.

Jumbo clears another hurdle

Emirates SkyCargo and DAE are both early customers for Boeing’s latest jumbo freighter, the B747-800F, and have been watching milestone developments with interest.

Boeing has completed initial airworthiness testing on its 747-8 Freighter.

This enabled test engineers to be on board during future flights and allowed the remaining two 747-8 Freighter test airplanes to begin flight tests.

The 747-8 Freighter test programme calls for approximately 3,700 hours of testing using three aircraft. First delivery is planned for the fourth quarter of this year.

Oman Air staff get a quick getaway

Spatial Composite Solutions, the Dubai-based manufacturer of crew training equipment, has won a contract to supply Oman Air with two cabin evacuation trainers.

Under the contract, Spatial will design and build A330-300 and B737 NG Cabin Evacuation Trainers, for installation at Oman Air’s new Aviation Crew Training facility at Muscat International Airport. Delivery is scheduled for October 2010.

Oman’s chief executive Peter Hill said: “These devices are equipped with the latest crew training technology and will provide our growing team of cabin staff with the best environment in which to hone their safety training skills.”

JetEx aids record breaking flight

Dubai-headquartered JetEx Flight Support received public recognition for its role in helping a Swiss team set a new world record for circumnavigation of the globe.

Riccardo Mortara (62) co-captain Gabriel Mortara (28) and co-pilot Flavien Guderzo (26) set the record for the fastest flight around the world in a 9,000 to 12,000 kg aircraft.

The team flew a 1980 Sabreliner 65, completing the 36,770 km minimum distance in 57 hours 54 minutes. The average speed around the world was 647km/h, beating pioneering pilot Steve Fossett’s time of 67 hours and one minute which was achieved without stops in the state-of-the-art VirginFlyer in 2006.

Correction

In the last issue of *Arabian Aerospace* we told you about the launch of the WorldView-2 satellite, the first high-resolution multispectral platform, offering 50cm panchromatic (black and white) and 184cm full-colour resolution images.

In the article we said that the final adjustments to the satellite were being made by Space Imaging Middle East.

This was incorrect – the satellite was, in fact, launched and operated by DigitalGlobe.

We apologise for the error.

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1. WINNER: *ROBB REPORT* “BEST OF THE BEST,” JUNE 2009.
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Bahrain in tune with

REPORT ALAN PEAFORD

The aviation industry needs more air shows like Dubai needs more shopping malls, said the guy in the seat next to me on our flight to Bahrain. We were both on our way to the inaugural Bahrain International Airshow.

Three days later, the same man was a convert. Full of praise for a remarkable triumph of hope over experience.

The event had always been billed by show co-organisers, Farnborough International (FIL), as being something different.

"This is not a trade show in the way of Dubai, a Farnborough or a Paris," said Amanda Stainer, FIL's exhibitions & events director. "The underlying agenda was to give an opportunity for Bahrain to demonstrate its credentials as a centre of aerospace excellence and a chance for companies to meet their customers in fantastic settings."

The Sakhir airbase had been completely changed for the show. Air-conditioned luxurious chalets with a sense of permanence never usually seen at shows, lined a large static display.



His Majesty King Hamed brought his enthusiasm and passion for aviation to the show. Displays from pilots from all over the world entertained the many visitors.

There were no booths, no tyre kickers ... and no members of the public.

The Bahrain public had their own special area several kilometres from the business end of the airfield, where a carnival atmosphere prevailed with many experienced show circuit professionals likening the whole event to an up-market Royal International Air Tattoo.

"Having been working on this project for more than four years now it has been such a pleasure to see it come to fruition and we have been delighted to receive some fantastic feedback from participants and visitors alike," Stainer said after the event.

As an inaugural event it could be marked as nothing but a resounding success. According to the Bahrain CAA, the other co-organiser, the event hosted 40 participating companies, 94 aircraft and visiting delegations from 25 countries.

Even though the show wasn't supposed to be about announcing deals, the organisers were delighted to make a point that contracts worth somewhere in the region of one billion dollars were

Continued
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the times...





It wasn't all about pilots. For the first time visitors could get close to a range of unmanned air systems demonstrated at the show. The UAVs came from the States, Europe and the region. Inset, the booming F-15 at the speed of sound.

signed with participating companies at the event from all over the world. Also, some 30,000 people visited the public and trade areas over the three days.

Among those major deals were Yemenia's purchase of ten A320 planes from Airbus; Bahrain's purchase of nine Blackhawk-M helicopters from US manufacturer Sikorsky; Gulf Air's agreement to lease two Embraer 170 jets; Selex's award of \$15 million contract by the Bahrain Civil Aviation Authority for a primary surveillance radar and two Mode-S secondary surveillance radars at the Bahrain International Airport.

Many Bahrain companies took the opportunity to launch new services at the show and several international companies announced their intention to set up regional headquarters on the island.

Among these were the UK's Aerospace Defence and Security organisation, A|D|S, which announced it is to choose Bahrain as the central hub for the Middle East.

Chairman of the supreme organising committee, HH Sheikh Abdulla bin Hamad Al Khalifa spoke on behalf of the Bahrain Government, which had backed the show with royal patronage. "We are delighted by the results of the first Bahrain International Airshow," he said.

HAWK EYES MORE MID EAST DEALS

The Royal Bahraini Air Force (RBAF) Hawks were displaying on home ground but attracting attention from visitors to the BAE Systems chalet, who watched the trainers perform a tight formation fly-past each day of the show.

RBAF took delivery of an initial order of six Hawk Mk129 Advanced Jet Training Aircraft from BAE Systems four years ago to meet its future requirements to train its front-line pilots and develop an indigenous military flying training capability. Bahrain is the fifth user of Hawk aircraft in the Gulf Co-operation Council (GCC). The two-seat, single-engine Hawk has been sold to 19 customers worldwide.

"The show brought manufacturers and users under the same roof, enabling them to do business effectively and uniquely, reflecting Bahrain's status as a regional centre for transport and trade.

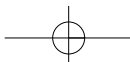
"The strong presence of the leading aerospace and defence manufactures signalled the inaugural show's success and reflected Bahrain's status as a pioneer in the aerospace industry in the Middle East.

"The airshow is a welcome boost to Bahrain's economy and to its profile as a business centre in the region."

The 40 VIP chalets and the royal pavilion saw as steady stream of senior trade and high-level government and private high-net-worth visitors passing through.

In the skies above the Sakhir base there was plenty to see from the spectacular team displays of the Saudi Hawks and Jordan's Flying Falcons, a passing visit by the Patrouille de France and solid ear-splitting aerobatics from Russian, European and American warbirds.

When Gulf Air flew by with an aircraft livery promoting the show it became apparent that Bahrain is committed to the show – and despite all the cynicism that went before, it looks like one that could be here to stay.



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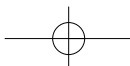
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AIN, NO STOPPING US NOW...

REPORT ALAN PEAFORD / PICTURES PAUL MERRITT

The peace and quiet of Abu Dhabi's oasis city of Al Ain was shattered for four consecutive days at the end of January – but the residents were not complaining. Instead, all eyes were on the sky as some 23 aerobatic display teams went through their routines.

Record crowds arrived for this year's Al Ain Aerobatic Show, now organized by Abu Dhabi Tourist Authority (ADTA) as one of the emirate's key tourism events ... and the Authority must have been celebrating the high calibre of performance that took place.

There was a mix of civilian and military teams, ranging from the Saudi Hawks and Bahrain's F-16 Falcons through to the Red Gnats, the aircraft used by the Red Arrows before they switched to Hawks. The Gnats made an impressive Al Ain debut.

A team of disabled Italian pilots called We Fly won the crowd over and reinforced the strong general aviation message that flying is an inclusive sport.

Several of the teams that had performed the week previously at the Bahrain Air Show made the trip to Al Ain, including Team Viper, whose Strikemasters painted in colours from Saudi Air Force and Yemen, were impressive.

The Aero GP – such a hit the previous year – allowed competitive aerobatics with incredibly skilled pilots strutting their stuff. This was the first in the 2010 Grand Prix season with Hungarian Zoltan Veres winning the trophy ahead of South African Nigel Hopking.

The Al Ain event is now annual and is growing in its professionalism and its popularity. It now occupies a place among the greatest aviation spectacles in the region.



Top: (L-R) 1. Hungarian Zoltan Veres puts his Extra 300 through its paces; 2. The Saudi Hawks; 2. Pylon racing in the Aero GP; 4. Jonathan Whaley's Hawker Hunter and below the Goodyear Eagles keep it tight.





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powering progress

Gulf Air CEO Samer Majali inside the comfortable interior of one of the airline's new Embraer E-jet.



I'll bridge the Gulf to profitability...

Alan Peaford reports from Manama on the progress and the plans for Bahrain's national carrier and talks to CEO Samer Majali about how he is implementing the strategy.

The peaceful island Kingdom of Bahrain has always been fuelled by debate – whether in the country's parliament, Shura Council or in the souqs. It has often been said that with two Bahrainis in a room there will be three points of view.

But there has probably not been a greater source of argument over the last decade than about the future of Gulf Air, the country's national carrier. As the oldest airline in the region – it celebrated its 60th birthday in March – and the one with the most regional

destinations, it has a place in the heart of most Bahrainis.

When other partner nations in the ownership of the airline – Abu Dhabi, Oman and Qatar – pulled out of the partnership, Bahrain elected to keep the brand going at a huge cost to the country.

The resulting debt to the Bahrain Kingdom could be as high as 20 per cent of the country's GDP of \$13bn and the airline was continuing to make annual losses of an

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estimated 500 million dinars (US\$1.5bn) so a clear unified view that stretched from His Majesty King Hamad through to the lowliest tea-boy in the souq was that something that must be done.

In summer last year Samer Majali, the former chairman of IATA and CEO of Royal Jordanian (RJ) was headhunted by Mumtalakat, the Bahraini sovereign wealth fund and the designated owners of the airline whose CEO, Talal Al Zain, had been tasked with the job of turning the airline around.

Majali had a track record with RJ, having brought the airline into a successful flotation and perhaps, more importantly, through the hoops and barriers needed to become part of one of the global alliances.

Al Zain and other board members at Mumtalakat say getting Majali was not easy, but having achieved everything he could with RJ, the challenge facing Gulf Air gave the son of the former Jordanian Prime Minister something he could rise to and he took his seat at the airline's Muharraq headquarters in August.

Influential families

Having an Arab at the helm of the airline was new. Here was a CEO who could read for himself the various criticisms and suggestions that filled the pages of the local press; and more importantly could detect the undertones of the comments from members of influential families within the kingdom; who would share their view on what a national airline should be doing.

But Majali is his own man and Al Zain had publicly given him his head to deliver solutions. Less than three months into the job, Majali offered stark options – and a plan for turnaround.

“The one thing that was clear was that doing nothing was not an option,” Majali said. “My goal is to deliver an airline that is commercially sustainable – one that delivers value to the Kingdom of Bahrain without the need for the Government to fund it. The second thing is the product – to bring back Gulf Air to consistent high quality and value for money for the customer.”

The message to the doubters was stark. By doing nothing it would cost the Bahrain government a billion dinar (\$3bn) of extra debt over the three years.

“We looked at five different options using the ‘do nothing’ as the baseline,” Majali said. “There were some good alternatives but they couldn’t do what we needed – bring the airline to at least break-even by 2012.”

The result came in the strategy rolled out last November. “We chose a simplified fleet option with fewer wide body airplanes – between four and eight; increasing the narrow-bodied aeroplanes to a great extent and introducing regional jets.

“Then restructuring the network to find new routes to provide high revenue streams in and out of Bahrain and include city pairs with Bahrain as a hub,” Majali said.

The new proposed network sees an emphasis on



“This plan gives us the best chance to reduce losses and improve the product .”

Samer Majali

flights three hours from the Bahrain hub and a few going beyond. It calls for an expansion from 42 to 56 cities and keeping the same number of aircraft as currently used, but with a very different mix.

The first two Embraer 190s were introduced to the fleet in March. These were aircraft available direct from the Brazilian manufacturer that had originally been ordered by Nigerian Eagle. The first was brought to the Bahrain Airshow in Gulf colours. They are fitted with seatback IFE and with comfortable 2x2 seating they are on lease for three years.

Passenger acceptability

“It’s very unusual to get aircraft so quickly but with a short-term lease we can test out passenger acceptability and evaluate the other aircraft in this sector,” Majali said. The airline is likely to bring another two E-Jets into the fleet by the year-end. The likely end target is ten regional jets by 2012.

“This lease deal gives us experience. We have no experience in the economics. How much does it save? What’s the revenue increase? Plus it gives the chance for our customers to have a look.

Other carriers have tried turboprops and failed miserably. People want jets. The question is, how small a jet is acceptable?”

Majali expects to make a decision on aircraft choice by the end of the summer and is currently evaluating the Airbus 318, the Bombardier C-Series and the Mitsubishi Regional Jet (MRJ) as well as the Embraer E-Jets.

As well as six destinations into Western Europe – double the current serving – and key financial capitals in the Far East, the underlying strategy is to reach secondary points throughout the Middle East region within three hours flying and with populations of between half a million and a million people. “These are places that are not very well served,” Majali said. “We think we can get in there and gain commercial advantage. But these are smaller destinations and they require smaller aeroplanes.

“By introducing double daily flights we can reach new people who would not stay overnight. We can serve Bahrain better and provide regional-to-regional connections, regional to medium-range connections and regional to long-range connections. This is far better than long-range to long-range connections, which are the lowest yield and the highest cost.”

Many of the medium range flights – up to six hours – will be operated with the A320 or possibly A319 extended-range aircraft.

The strategy has met some resistance within influential Bahraini quarters and Majali has

sympathy with the views but the proposed options reduces the call on government support to as little as 150 million dinars (\$500m) over the next three years.

“Some people don’t like us refocusing; cancelling routes,” he explained. “It has become the standard in the region that success is measured by continuous expansion and not closing down. But, from a business point of view, it doesn’t make sense. Some routes become profitable so you should do them. Others don’t. Therefore make a sound business decision and get off the route.

“It’s how people perceive airlines. Often they are seen as instrument of national policy. That is true, even for Bahrain. It promotes the kingdom and it is important the airline continues to prosper and be seen on key destinations. But sometimes those routes don’t make sense. We had a lot of push-back when we decided to shut down Shanghai. China is supposed to be the future? But we had to freeze it. In the future we may go back when it makes economic sense.

“There is always a preoccupation with large airplanes. People love large aeroplanes. Large is what people strive for. But they only make sense if you can fill them with good revenue. There is no point deploying a 380 or 777 for the sake of deploying. Get the right profitable network and fit the aeroplane accordingly – not get the aeroplane and try and make it fit the network.

“We have to have a different mindset. People

may think airlines are about getting airplanes. It is not. It is a business.”

Progress is already underway. The new modern efficient aircraft are coming into the fleet with seven A320s introduced in the last year. Five narrow bodies have been replaced and the airline has grounded a further five A340s, which were more than 15 years old. “They were not serving passengers well and they were expensive to use,” Majali said. “With the regional jets, 10 have gone out and nine have come in.”

The product itself is also changing. “It’s not just about cost-cutting. We also need to improve revenue,” Majali said.

Good quality product

The aim is to provide a consistent product. “Some of the complaints we have had say ‘Very good flight out and then poor one on the way back’. That is no good. We have to invest in making sure it is consistent throughout, so the product on a flight to Sana’a is the same as to London. We are not going for a seven-star luxury product but a pragmatic good quality product that we can deliver every single time.

“People who buy tickets on Gulf Air will know what they expect and get what they expect. We won’t concentrate on the cheapest ticket but people will select Gulf Air because it delivers what they expect and sometimes exceeds that.”

In March the airline launched its single service

super-business class called Falcon Gold, combining the old first and business classes to a single cabin.

“Rather than invest in new seats on older airplanes, we decided to maintain the existing first and business class seats. We don’t want to incur the cost of changing and then getting rid of them as we introduce new airplanes,” explained Majali.

A new cabin design with new seats will be introduced as the fleet is renewed. The first class personal Skychef service is now being offered to all Falcon Gold customers.

“Everybody gets additional value from this,” said Majali. “The original first class passenger gets exactly the same seat and service he is used to but only pays for a super-business class seat; the full-fare business class now sits in a first class seat and gets first class service and the passenger buying a restricted business class ticket gets the original business class seat but the first class service. We hope this will encourage more people to travel in our new product.”

The finance to underwrite the move to profitability has been confirmed by the Bahrain Government’s Finance Department with ongoing transparent monitoring by the department and by Muntalakat.

The manpower will decrease and costs will be cut.

Optimising the manpower

Majali is equally frank about this challenge. “There will not be massive lay-offs but, over the next two or three years, we will be strict in terms of performance, control on retirement and people coming in. There may be voluntary redundancies but it is about getting down to the right numbers and optimising the manpower.

“Nobody wants an employee who doesn’t add value to the airline to stay in the airline, whether they are Bahraini or not. This is standard practice in any business.”

The airline has taken major steps towards Bahrainisation of the airline.

“It is a great source of pride that 43 per cent of our employees worldwide are Bahraini. That’s the highest proportion of any carrier in the region. In Bahrain itself more than 50 per cent are nationals. It is our target to see that figure matched globally.”

Majali says the survival plan is not set in stone.

“A good plan is one you can modify as you go along,” he said.

“It has to have flexibility built in. We keep drilling to the direction we want to go but may need some right turns, left turns, or some detours. We have 20 routes that we think are profitable but some other carrier might start flying there and it becomes unprofitable.

“This plan gives us the best chance to reduce losses and improve the product but whether we break even in 2012 or 2011 or even 2013 is anybody’s guess.”

There’s no doubt that if and when this happens, Bahrainis will share a single viewpoint – that this was a job well done.



Embraer's Jose Luis Molina, vice president marketing and sales Europe, Middle East and Africa, with Majali as the Gulf airline welcomes the Embraer regional jet to the fleet.

MIDDLE

C



Bombardier believes the CSeries will be the perfect pitch for the middle east market.

Ian Sheppard reports.

Bombardier expects the CSeries to be the ideal regional jet for the Middle East when it is introduced into service in 2013 – but predicts many will be purchased by third parties and leased to airlines around the world, taking regional aviation further towards the model seen for Airbus and Boeing narrowbodies.

Bombardier hopes to sell around 1,600 CSeries aircraft to leasing companies over the next 20 years – 50 per cent of the number it predicts it could sell in total. This represents half the total aircraft market in the 100-149 seat sector in the period – a total that the Canadian manufacturer believes will amount to around 6,300 aircraft.

The company added momentum to its marketing drive to the financial community by holding briefings during Euromoney's 20th

Annual Airfinance Conference in Dublin. Bombardier Commercial Aircraft's delegation was led by Gary Scott, president commercial aircraft, and included three vice presidents – Rod Williams (commercial operations), Pierre Poutissou, (marketing) and Ben Boehm (programs). In 2004 Boehm was Scott's first team member when the former Boeing executive started the project that led to the CSeries launch in July 2008.

Scott said the options for financing aircraft were: via the banks; lessors doing operating leases or 'sale and leasebacks'; government Export Credit Agency (ECA) guaranteed financing; and via the manufacturer. "We don't do financing," said Scott, while adding that ECA financing couldn't be secured earlier than

Continued
on Page 30

WHO HAS THE CAPITAL TO INVEST IN A DOWNTURN? THOSE WHO INVESTED IN THE LAST ONE.

In an economic climate that causes the most hardened executive to second-guess his every move, take comfort in the fact that 70% of companies bold enough to invest in themselves will hold onto market gains when the economy recovers. For the clear-minded, aircraft ownership is more attractive today than ever. Interest rates are at historic lows. Tax advantages abound. And Cessna offers a myriad of options, from full ownership to partial ownership to lift-on-demand. But the most persuasive argument for considering an aircraft today is based on a simple strategy that has always separated winners from losers. Cessna will put you in your strongest position precisely at the time when your competition is at its weakest.

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18 months before planned delivery of aircraft.

The CSeries entry-into-service is planned for “late 2013”, said Scott, who couldn’t be more specific about timing. He did say, though, that the company planned to ramp up the production rate to 20 a month within three years of the first aircraft going to customers.

Bombardier is targeting the lessors partly because “they have better credit ratings than most airlines”, admitted Scott. However, he recognised that GE Commercial Aviation Services (GECAS), which had previously taken a keen interest in CRJ aircraft sales as they use GE CF34 engines, was less likely to acquire CSeries aircraft, which will have new Pratt & Whitney-gearbed turbofan engines.

He pointed out that “one of our first customers is a lessor – LCI”. The only other customer for the CSeries to date is Lufthansa – it has ordered 30 with 30 options, while LCI has ordered 20 with 20 options (an option being a right to order further aircraft on the same terms as the first order).

Best formula

Another reason Bombardier expects significant lessor interest in the CSeries is that it is basically the model that’s in the industry today. “Even the regional aircraft market is migrating that way. It’s really the best formula for airlines,” said Scott.

Boehm told Arabian Aerospace that the Middle East market had many routes and potential routes suited to the CSeries and that the region’s fast-developing low-cost sector could benefit from the aircraft, which will offer substantial economies over Airbus and Boeing narrowbodies.

In terms of lessors, Bombardier expects keen interest from the likes of Hong Kong International Group, which purchased AllCo Aviation last year, CIT and BCI Aircraft Leasing. It will also be wooing Middle East investors and banks – one of the main lessors in the Middle East is Alafco but there are others, including DAE Capital.

Nevertheless Scott recognises that airlines are still struggling. “They have done a good job managing their capacity,” he said. “We expect more orders this coming year but how many depends on how quickly the recovery goes. We’ll be in the best position as we have the only new technology airplane in our market.”

Scott predicted that order levels in 2010 would “roughly reflect the order levels in 2002”, the year after the 9/11 attacks, and also said that when Boeing launched the 787 in 2004 it was “the only new technology aircraft – and when the market came back, the orders took off”. He expects the CSeries to do the same.

He recognised, however, that because this downturn had been caused by a financial crisis rather than terrorist attacks, recovery could be slower – but also pointed out that the CSeries is still four years from first delivery, whereas in 2004 the 787 was only four years from planned first delivery at launch.

Bombardier has made no secret that it is taking a cautious approach compared with Boeing, which



Ben Boehm (left) and Gary Scott at the Dublin briefing.

has experienced significant delays with the 787. Said Boehm: “The biggest lesson we have learned from the 787 is having integrated test rigs and all the suppliers using the same software, for scheduling etc. They are all linked into the same web system.” Boehm also said that the CSeries had been allowed a longer development process, something that is “fundamental to our ability to deliver on time”.

Scott added: “Boeing’s challenges were already reflected in our plans and we’ve done some more tweaking.”

Boehm said a design freeze would occur during 2010, when the manufacturer was ready to start the detailed design phase. “At that point all systems will have been integrated and all performance of the systems and the airplane will be locked down. After that there will be a formal change management process in place.” He added that the design freeze could only occur after a whole-aircraft level “close out” involving all teams and suppliers and even customers, including some that are still in negotiations over orders.

Aircraft number one

One of the key elements of development is the Complete Integrated Aircraft System Test Area (CIASTA). At the end of the detailed design phase, everything will be tested in ‘Airplane Number One’, which is not a complete aircraft but has all the systems connected, even if in different rooms for safety reasons. The pilots will even be able to ‘fly’ this aircraft, said Boehm, including cycling the undercarriage, for example.

Scott called it the ‘Iron Bird Plus’ because it is so much more than previous ‘iron bird’ rigs used by Airbus and Boeing in the development of, for example, the A380 and 787. He admitted, however, that it was the first time Bombardier had created such a test area to help develop a new aircraft.

“CIASTA will basically go on for ever, for ongoing studies and development – but its main purpose will be completed before first flight.”

Production logistics are also in the planning stage. Boehm said, on current plans, the three sections of the fuselage would be shipped by sea from China, where they are being manufactured by Shenyang Aircraft Corporation. It has not

been decided whether the three sections will be separate or if two of the sections can be shipped already joined. In any case, they will go through the Panama Canal and up to New York using commercial shipping, to minimise cost, and then by road to Montreal.

Meanwhile, the wings will be shipped from Belfast direct to Montreal – a well-trodden route for Bombardier with its other aircraft types. At present the wing manufacturing and assembly building is being constructed at Bombardier’s Belfast site – the first wings will be required relatively early for testing purposes.

A seven-metre long test barrel (with a 3.7m diameter) was shipped in August to Montreal from Shenyang Aircraft but went by land from California to Quebec.

Fleet renewal

Many of the orders expected by Bombardier over the next 20 years will be to replace ageing aircraft such as DC9s, Fokker 100s and BAe 146s. “There’s a real need to replace those older airplanes – there’s a pent-up demand,” said Scott. “Some of those old dogs are running out of runway technically – and certainly economically too. They’ve kept going as there has been nothing to replace them.”

Poutissou said Bombardier’s forecast predicted that 52 per cent of the market would be for replacements, “and we want at least half of that market”.

On top of the replacements will be aircraft that will represent the tools of growth. Bombardier believes that it has a good window of opportunity – even if Boeing and Airbus re-engine the 737 and A320 product families respectively. “They still won’t change their relative position in the marketplace because they are not optimal for the 100-150 seat market and serve that market with downsized versions,” said Scott.

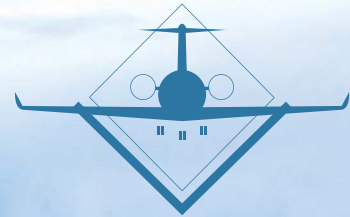
He estimated that the CSeries would have direct operating costs around 20 per cent lower than the current mainstream narrowbodies (taking the CS300 versus the A319 as an example), and as half of the advantage would come from the engine and half from the airframe, Airbus and Boeing would, at most, cut the advantage to 10 per cent.

Poutissou showed a demonstration which illustrated that, by the time Airbus and Boeing produced all-new narrowbody designs, there would be little, if any, advantage over the CSeries in its market (depending on various assumptions such as fuel cost) – partly because the cost of delaying the replacement of inefficient older aircraft is factored in.

Nevertheless, Scott acknowledged that many airlines are probably waiting to see what Boeing and Airbus decide to do. “Their choice is to go with the new Bombardier, re-engined Airbus or Boeings, or do nothing and wait for a new aircraft from Airbus or Boeing. It is creating a lot of debate among airlines – but we’re very happy with our timing,” said Scott.

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Felix Airways, the first privately-owned airline in Yemen, has not only to make money but also help boost the nation's transport infrastructure.

How Felix made a low-cost

ALAN DRON finds out why Felix's success is no happy accident.

Felix Arabia, the Ancient Romans called it. The southern fringe of the Arabian Peninsula was called 'happy' or 'fortunate' because, although little was known of it, it was already renowned as a source of precious substances – notably incense.

Today, that southern fringe is effectively split in two, with one side of the border arguably much happier than the other.

The southeast corner of the peninsula is modern-day Oman. Regarded as one of the most stable and quietly prosperous nations in the Arab world, it has compensated for relatively little oil beneath its territory with a careful, steady policy of economic expansion.

To the southwest is Yemen, which has received a less fortunate hand of cards in the game of nations. Like Oman, it has relatively small oil and gas reserves – and these are now in rapid decline. Unlike Oman, it has a vigorously independent tribal society that has periodically led to unrest with the central government in the capital, Sana'a.

It also suffered from its sympathies with Iraq during the First Gulf War in 1991, when Saudi Arabia, angered by Yemen's stance, cut its financial aid to Sana'a and expelled more than 800,000 expatriate Yemeni workers whose remittances had been an important source of

national income. Yemen today remains the poorest nation on the Arabian Peninsula.

It was partly in an attempt to improve the economy that Felix Airways materialised.

"The idea of Felix Airways was to open new domestic destinations and efficiently serve the Yemeni public – both business travellers and tourists," explained Mohammed Al-Arrasha, Felix's CEO. It was intended that the new airline should support the development of Yemen's transport infrastructure.

First privately-owned airline

Given the fact that it is the country's first privately-owned airline, it is perhaps ironic that it was the brainchild of the Yemen Government and the national carrier, Yemenia, which is itself owned 49 per cent by Yemen's Government and 51 per cent by its Saudi Arabian counterpart.

Yemenia, with its fleet of Boeing 737-800s, Airbus A310s and A330-200s, wanted to expand its international operations with these larger aircraft. Creating Felix was intended to introduce a new carrier that could take over Yemenia's domestic services and expand both national and regional services using smaller, more flexible aircraft. Furthermore, it was to be a low-cost carrier (LCC).



CEO Mohammed Al-Arrasha faces the press as another new destination is inaugurated.

airline work in Yemen...

Was positioning Felix as an LCC a risk? Arab passengers are known to regard budget airlines with some suspicion, as though their decision not to charge traditional fare levels means that in some way they are not 'proper airlines'.

"It's true the LCC concept is not within the Arab culture," admitted Al-Arrasha. While the LCC template has been used, however, Felix regards itself in other ways as a more 'traditional' regional operator – it serves in-flight catering on all journeys of more than an hour, for example. Despite this, an average ticket on Felix is just \$60 for an hour-long flight.

While it was always planned that Felix and Yemenis would act as mutual feeders for the other's services, Felix was set up as a completely separate carrier.

Yemenia retains 25 per cent of Felix's shares but the young airline retains full independence to determine its development, including the power to make agreements with foreign airlines if such alliances aid Felix and its aim of boosting the Yemeni economy.

The major shareholder is the Islamic Corporation of the Development of the Private Sector (ICD) whose shareholders are the Islamic Development Bank, 45 Islamic nations and five public financial institutions from these countries.

The ICD's role is to funnel finance to the private sector using the principles of Shari'a.

Felix's launch in October 2008 could hardly have been worse-timed, coinciding as it did with the onset of the global recession. Tourism to Yemen dropped as holidays were discarded from people's plans. However, even a worldwide economic crisis can have advantages, said the CEO. The Bombardier CRJ is a relatively rare bird in the Middle East, so the number of readily-available local pilots was small.

Blessing in disguise

"The global downturn was a blessing in disguise – it was never difficult to find pilots. Besides, our standards have always been very high, which was a motivating factor for all our expatriate US and Canadian pilots to come and work in Yemen.

"For the first year of operations, we contracted with Brookfield Aviation, which provided us with line captains, first officers and line trainers. Currently we have six pilots (all expatriate) and five first officers. All the first officers are local and were trained by Brookfield's line trainers." Of the total workforce of just under 200, 80 per cent are Yemenis.

Nevertheless, it has made an encouraging start. It carried almost 263,000 passengers in 2009, split around 60 per cent leisure travellers and 40

per cent business. It now serves nine domestic cities as well as five regional destinations – Salalah (Oman), Djibouti, Sharjah (UAE), Dammam and Medina (Saudi Arabia).

In the second or third quarter of this year, Felix intends to create a new hub at Dammam, which will serve 10 destinations, including Beirut, Mashad (Iran) and Alexandria. It also aims to start a small number of international routes from the Yemeni regional airports of Riyan and Hodeidah, going as far south as Zanzibar in Tanzania.

This expansion of the network will require an increase in the fleet. Joining the existing pairs of Bombardier 50-seat CRJ200s and 70-seat CRJ700s in late 2010 or early 2011 will be two of the larger 86-seat CRJ900s.

The biggest challenges to Felix? Within Yemen, getting the LCC concept and the private sector business model across to a domestic audience. Externally, the main challenge has been rivalry from foreign LCCs operating into Felix's domestic marketplace, which is both small and has low yields, said Al-Arrasha.

In terms of passenger numbers, the domestic market has provided more growth so far, he added. However, greater yields are to be found on international sectors, so Felix will continue to explore and expand in both market segments.

*The recent Iraqi elections were hailed as one of the best indications yet that the country was returning to a calmer existence. But, writes **Brendan Gallagher**, the green shoots of normality made their first appearance at Baghdad Airport several months earlier.*



Iraq fastens its seatbelt

Six months ago a group of British executives flew into Baghdad International. Of course they weren't the first foreigners to arrive in the Iraqi capital in search of post-war business. But they entered the history books as the first official trade mission from the UK to arrive by public air transport.

The delegation included Ray Stirton, business development manager for a company that provides specialist materials for construction of oil and gas wells. "The oil and gas sector in Iraq is enormous," he said. "There are proven oil reserves of 115 billion barrels, the third largest total in the world, and there could be more beneath the Western Desert. The Iraqis aim to triple production here by 2015. We wanted to get in early and make local companies aware of how we can help them."

Stirton is typical of the would-be vendors travelling to Iraq in increasing numbers, attracted by the opportunity and reassured by improving security and restoration of the infrastructure – electricity is now available 15 hours a day in urban areas, the banking system is working well, there's BlackBerry connectivity in the major cities, and the main airports are up, running and open for business.

One of the first carriers in the region to restore Iraq to its route structure was Gulf Air. Bahrain's national airline launched a five-times-weekly Airbus A320 service to Baghdad at the beginning of last September, with Najaf following at the end of the month and Erbil in Kurdistan added in October. The airline has also announced plans to serve the southern port city of Basra and one other destination.

"The inclusion of Iraq in our regional network makes absolute sense both geographically and economically," said chief executive Samer Majali. "There is a clear demand for a direct service from

Bahrain. We are creating a connection that is essential for the economic redevelopment of Iraq and which will enable us to take full advantage of the rapid growth the country will experience as global business and cultural links build up."

Many see the resumption of normal trade between Iraq and the rest of the world as the prime driver for the restoration of air services, with business-class traffic predominating. But other demographics could also contribute to the business case. Gulf Air expects to see its seats filled not only by business travellers from finance and investment companies, the oil and minerals industries, and security and construction but also, as the country becomes more accessible, by growing numbers of pilgrims and visiting friends and relations.

Post-war service

Starting in 1976, Gulf Air was the first GCC airline to ever to serve Iraq, and was the first to resume post-war service. Some of the big names in Western Europe, with Lufthansa in the lead, have also declared their readiness to take a bet on going back to the Iraqi capital. The trail was blazed for the German flag carrier by subsidiary Austrian Airlines, which became the first Western European airline to restart operations in Iraq when it launched a service to Erbil as long ago as 2007.

Another Lufthansa acquisition, bmi of the UK, last year announced that it was "ready and willing" to start London-Baghdad services as soon as it had authorisation. "It makes geographical and economic sense for us to add Iraq to our growing network of services to the region," said Nigel Turner, chief executive at the time and now deputy chairman. "Iraq is surrounded on four sides by countries that we already serve from Heathrow. We are carrying an

ever-increasing number of passengers who at the moment travel from Baghdad to Heathrow via our existing intermediate point of Amman."

Turner said the airline envisaged a daily service from Heathrow to Baghdad with an intermediate stop, probably at Amman, with traffic coming not only from business and government but also from visiting friends and families.

Now Lufthansa itself is getting ready to go to Erbil and also to push on south to Baghdad. Services via Frankfurt and Munich are due to launch this summer, as soon as traffic rights have been secured and additional infrastructure put in place. The airline positions the plan as part of a strategy to expand its network in the Middle East, which currently stands at 14 destinations in 11 countries.

The new services will bring Lufthansa back to Iraq after a 20-year absence that started when it withdrew from the country at the start of the First Gulf War.

In the meantime, Air France's consulting division is advising the renaissance Iraqi Airways on restoring its services to Paris following signature of a traffic agreement last autumn.

Iraq's national carrier currently operates a small fleet comprising four Boeing 737 Classics and a 767-200 to Amman, Beirut, Damascus, Dubai, Istanbul and Tehran. It also serves Stockholm via Athens and says that it secured British approval last year for flights to London. The carrier's emerging route development plans are backed by government-underwritten orders Boeing for 30 Boeing 737-800s and ten 787s.

Air transport normalisation in Iraq is still something of a tender young plant. But it's being carefully cultivated both inside the country and out, and if the present political progress continues there is a good chance that within the next five years Iraq will take its rightful place as part of the success story that is Middle Eastern aviation.



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RDY

The ubiquitous Dassault fighter has been at the heart of defence forces in the region.

Jon Lake looks at why the Mirage is the real thing.

Mirage sale may be no illusion

As the UAE stands on the brink of ordering new Rafale strike fighters to equip its rapidly modernising air force, it has been reported that one of the nation's requirements is that Dassault should buy back, or find a buyer for, its fleet of multi-role Mirage 2000-9 fighters.

But the Mirage 2000-9 is far from being obsolete or past its prime and it has been estimated that \$3.4 billion of the \$9.9 billion spent by the UAE has been used on the Mirage 2000-9 series (with \$6.5 billion spent on the Block 60 F-16). The UAE, therefore, naturally expects to realise a good price for these versatile, modern and highly capable strike fighters.

Though the UAE's first batch of 36 Mirage 2000s were purchased in 1986, 30 survivors have been extensively refurbished and then upgraded—bringing them to the same standard as the 32 new Mirage 2000-9s ordered in 1998 under the so-called Bader 21 purchase agreement and delivered from 2003. As such, all surviving UAE Air Force and Air Defence Mirage 2000s now share the same 21st Century 2000-9 configuration and, thus, represent the top of the Mirage 2000 evolutionary tree.

The Mirage 2000-9 incorporates state-of-the-art technologies and advanced capabilities that the basic Mirage 2000 lacks, many of which were incorporated as a direct result of experience gained by Dassault during the development of the Rafale, and which may be viewed as 'Rafale technology', with similar modular avionics, an LCD glass cockpit with full night vision goggles compatibility, and advanced sensors and systems.

At the core of the Mirage 2000-9's navigation and attack system is a Thales-and Dassault Aviation-developed modular data processing unit (MDPU) that is similar to that used by the Rafale. This serves as the mission computer, manages the navigation and attack system, controls the cockpit display system and generates symbology for the head-up display (HUD) and head-down displays (HDDs). As a result, the Mirage 2000-9 is claimed to enjoy a world-beating, highly intuitive man-machine interface.

Though the Mirage 2000-9 is externally very similar to the original Mirage 2000C fighter, it actually represents the culmination of several stages of technical advance. The Mirage 2000-5 was developed as a private venture multi-role update of the fighter Mirage 2000 with a new Thales RDY multimode radar, a wide-angle HUD, hands-on throttle and stick (HOTAS) controls, and with provision for a Thales TV/CT CLDP laser designator pod.

A two-seat Mirage 2000B was extensively upgraded and modified to serve as the first Mirage 2000-5 prototype, making its maiden flight on October 24 1990. Thirty-seven existing Armée de l'Air Mirage 2000s were upgraded to 2000-5F standards, becoming operational in 2000.

The aircraft was further upgraded for export customers as the Mirage 2000-5 Mark 2. This added RDY-2 radar with enhanced air-to-ground capabilities. The Mk 2 also gained a new Thales Totem 3000 ring laser gyro IN/GPS, an ICMS 2 countermeasures suite and a Samir DDM missile

warning system, higher resolution colour cockpit displays, and provision for a Topsight helmet-mounted display.

Compared to the Mirage 2000-5 Mk 2, the UAE's -9 variant incorporates what Dassault coyly refers to as "additional operating capabilities specified by the UAE AF & AD", and which include enhanced survivability and much-improved long-range stand-off air-to-ground capabilities.

With the USA unwilling to facilitate the integration of certain local weapons on aircraft that it supplies to the UAE, to avoid upsetting certain regional sensitivities, it has been the Mirage 2000 that has acted as the delivery platform for the UAE's Black Shaheen cruise missile (a derivative of the MBDA Apache/SCALP/Storm Shadow) and the MBDA Al Hakim family of rocket-boosted LGBs. The original UAE Mirage 2000EAD was equipped with a 'day-only' ATLAS II laser targeting pod, but the Mirage 2000-9 was provided with a new Shehab laser designation pod – with a Nahar navigation FLIR in the dedicated pylon used to attach the Shehab pod to the aircraft.

The Mirage 2000-9 has a unique new IMEWS electronic warfare and countermeasures system. IMEWS was designed and developed by Thales, Elettronica and MBDA to UAE Air Force and Air Defence requirements.

The aircraft also has a new Thales communication, navigation, identification (CNI) suite, with a frequency-agile Thomrad V/UHF

Continued
on Page 38

secure voice radio system, and an LU2 tactical datalink.

The Mirage 2000-9 is powered by the latest version of the SNECMA M53-P2 turbofan, incorporating FADEC and a sophisticated autothrottle (which provides automatic control of engine speed to maintain whatever speed is selected by the pilot).

Development of the Mirage 2000-9 was spread over five years and was divided into two distinct weapon delivery and navigation system standards, known as SAD91 and SAD92. Deliveries of 32 new-build aircraft to SAD91

standards began at the end of April 2003 and continued until early 2004.

Retrofitting of the UAE's surviving 30 Mirage 2000EAD/RAD/DADs to the new standard was jointly undertaken by French specialists based in Paris, and at the Istres Flight Test Centre and by UAE Air Force & Air Defence (AF & AD) staff at Al Dhafra.

The first two of these aircraft were upgraded in Istres, France, between 2001 and 2003, with the remaining 28 undergoing upgrade at Al Dhafra. The conversion consisted of a major overhaul and the avionics/equipment retrofit, undertaken

simultaneously. The programme ran until 2007.

The Mirage 2000-9 programme provided the UAE AF & AD with invaluable experience and allowed the UAE to establish in-country software development, weapon integration, test and evaluation capabilities.

If the country's planned Rafale purchase goes ahead, the UAE's surplus fleet of Mirage 2000-9s would represent an extremely potent fighter for any buyer, far more modern and far more capable than the simple Mirage 2000 name might suggest, and quite probably available at a bargain price.



Despite the ongoing acquisition of new F-16s to strengthen its fighter force, Morocco is pressing on with ambitious upgrades to its legacy types, which will remain in service for many years, augmenting the new aircraft.

Upgraded F-5s have already entered service and Morocco's MF2000 Mirage F1 upgrade is now flying in prototype form.

The Moroccan Mirage F1 upgrade was designed and is being integrated by the new Association Sagem Thales pour la Renovation d'Avions de Combat (ASTRAC) consortium. This is a joint venture between Thales and Sagem Défense Sécurité (SAFRAN) and was established in November 2005 at the request of the French Ministry of Defence.

ASTRAC aimed to provide an upgrade for remaining Mirage F1 export customers – principally Morocco – whose aircraft still enjoyed competitive performance characteristics but whose avionics were dated, and whose operational capabilities were somewhat limited.

Thales brought its experience of the Spanish Mirage F1M upgrade to the project, while SAFRAN has played a major role in a number of Mirage and other combat aircraft upgrades, including the upgrade of French Mirage F1C interceptors to multi-role F1CT fighter-bombers.

The ASTRAC consortium put together an upgrade (using the designation MF2000) which transforms the capabilities of the ageing Mirage F1 in both air-to-air and air-to-ground operations, providing a new multi-mode radar, a laser designation pod, new electronic warfare and self-protection systems and giving compatibility with a range of new weapons.

Much of the upgrade is based on technology developed for the latest Mirage 2000 versions (Mirage 2000-5 and 2000-9). The cockpit is transformed, becoming a modern, digital glass cockpit with two-colour multifunction displays

MIRAGE UPGRADE AUGMENTS NEW FIGHTER FORCE

replacing the analogue flight instruments and the old analogue Cyrano IV radar screen. The aircraft is also fitted with a new HUD with a broad panel up front control panel (UFCP) and features full HOTAS controls. The aircraft has two SAGEM mission computers interfaced with a MIL STD 1553B digital databus, and a hybrid Sigma IIR/GPS. The MF2000 has new secure voice radios, and the cockpit is compatible with a helmet mounted sighting system. Finally, the pilot sits on a modern zero-zero capable ejection seat.

The upgraded Mirage F1 is fitted with a Thales RC400 (RDY3) multi-mode pulse Doppler radar. This is based on the Mirage 2000-5's RDY radar, but with a smaller antenna giving shorter range.

The Mirage F1's electronic warfare capabilities are similarly enhanced, with a new digital radar warning receiver (RWR) and an external PAJ FA ECM pod designed to detect, classify and counter search, fire-control, and missile seeker radars. The aircraft is also fitted with Corail flare launchers and Phimat chaff dispensers.

The upgraded Mirages retain their internal 30-mm DEFA cannon with 135 rounds per gun, and augment these with a variety of externally carried weapons. For use in the air-to-air role, the MF2000 can carry AIM-9L/M Sidewinder, Magic 2 or IR MICA missiles with MICA EM available for BVR use.

For air-to-ground missions, the MF2000 can carry a wide range of guided and unguided munitions. Use of the Damocles day/night laser designation pod allows the carriage of a variety of laser-guided bombs, but perhaps the greatest expansion to air-to-ground capabilities is provided by the new AASM precision-guided, stand-off

rocket-boosted bomb, supported by a mission preparation system provided by Sagem Défense Sécurité and a debriefing system from Thales.

For more specialised missions, the MF2000 is compatible with the ARMAT anti-radiation missile, and with the MBDA AM39 Exocet anti-ship missile.

Though there have been proposals to re-engine the Mirage F1 (with South Africa successfully integrating a derivative of the MiG-29's RD-33 engine) the MF2000 retains the basic SNECMA ATAR 9K50 engine, though this is 'optimised' under the so-called ATAR Gratification programme, with a new compressor module, a redesigned HP turbine, a six per cent increase in mass flow and a 40 per cent increase in turbine entry temperatures combining to increase thrust from 7,200 kg to 7,500 kg.

In the case of the Moroccan upgrade, the first two aircraft (173 and one other) were upgraded at Charleroi, with the third (150) undergoing modifications in-country. The prototype made its maiden flight on October 19 2009, and flight tests and certification are expected to continue throughout the spring and summer of 2010, before activity transfers to Sidi Slimane.

Some 27 Mirage F1s (a mix of Mirage F1CH, F1EH and probe-equipped F1EH-200) will be upgraded to a common MF2000 standard under the 'F1 Renovation' programme, at an estimated cost of \$420m US.

It has been claimed that with RDY-3 radar and MICA missiles, the upgraded Mirage F1 enjoyed the same BVR air combat capabilities as the Mirage 2000-5, while the combination of Damocles and AASM transforms the aircraft into a 'pocket Rafale' in the air-to-ground role.

Though the Mirage F1 has been retired from service in Greece, Jordan, and will soon bow out of Armée de l'Air service, further upgrade opportunities may exist in Gabon, Libya and perhaps Ecuador.

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With versatility unlimited, and already in service with eight Middle Eastern and North African air forces, the Black Hawk looks set to enjoy further success in the region. Jon Lake reports on its progress.

BLACK'S MAGIC

With three decades of service, more than 2,600 examples built and at least two dozen military customers, Sikorsky's S-70 Black Hawk is a rugged, dependable support helicopter, right-sized for today's tactical requirements and versatile enough to encompass a variety of roles.

Already in service with eight Middle Eastern and North African air forces, the Black Hawk (which also uses the US DoD designation H-60) looks set to enjoy further success in the region. A number of operators have already placed orders for the up-engined and improved UH-60M.

Developed to meet a 1972 US Army requirement of a replacement for the famous Bell UH-1 Huey, the new UH-60 was designed to be able to carry 16-17 passengers, a squad of fully-armed 11 combat troops and their equipment, four litters (stretcher patients) with a medical officer for medical evacuation missions, 2,600-lb of cargo internally, or underslung loads of up to 9,000-lb – including, for example, a 155-mm howitzer.

The UH-60's internal fuel tanks have a capacity of 1,360 litres but this can be increased through the use of two internal auxiliary fuel tanks containing 1,400 litres and 1,740 litres in a pair of external tanks. The latter are carried on a stub wing system known as the External Stores Support System (ESSS), which can also be used to carry 10,000lb (4,500kg) of armament, including rocket pods, anti-tank guided missiles and gun pods. This has subsequently been upgraded to be able to carry two 230 US gal (870 litre) and two 450 US gal (1,700 litre) tanks, forming an external extended range fuel system (ERFS).

The basic UH-60 has spawned a huge family of sub-variants. Addition of a new automatic flight control system (AFCS), the more powerful -701C model of the GE T700 engine and a stronger gearbox to the basic transport

helicopter produced the UH-60L; while there have been dedicated search and rescue versions for the USAF (HH-60G), heavily-armed special forces support helicopters (AH-60L, MH-60K, and MH-60L), dedicated Casevac versions (UH-60Q), as well as the EH-60A/L Quick Fix EW and Elint platform and the EH-60C command post helicopter.

As a result, wherever the US Army fights, the H-60 is there in support – and often at the forefront of the action. The type played a prominent part during the US invasions of Grenada and Panama, and during Operation Desert Storm in 1991, forming the backbone of the largest air assault mission in US Army history.

The type also formed the basis of the navalised SH-60 SeaHawk, which has, in turn, produced a bewildering array of variants for ASW, ASuW, SAR and other naval roles, and the US Marine Corps' HMX-1 uses the VH-60N version of the Black Hawk as a presidential and VIP transport helicopter.

Parapublic operators

Exports have further increased the number of S-70 variants but, though the type has enjoyed some success with parapublic operators, it has not broken through as a civilian helicopter.

The Black Hawk has remained in production for more than 30 years and, though today's aircraft are visually hard to distinguish from the earliest examples, those now rolling off the production line are much more capable aircraft than their predecessors. Further improvements are in train, both for new-build examples and for retrofit to existing in-service machines, which are, thereby, gaining more power, more lift capability and state-of-the-art cockpits, instrumentation, avionics equipment and navigation systems.

The latest improved variant, the UH-60M, was

originally designed as an upgrade programme for 1,500 US Army Black Hawks, approved in April 2001. The US Army later decided to opt for the procurement of new-build helicopters to UH-60M standards, rather than upgrade its existing airframes, and a decision was made to authorize a multi-year contract. Subsequently, a decision was taken to upgrade 900 existing aircraft to UH-60M standards.

The new-build UH-60M prototype made its first flight in September 2003 and entered low-rate initial production (LRIP) in April 2005. After completing initial operational evaluation, the Army approved full-rate production and placed a five-year contract for 1,227 helicopters in December 2007.

Some 20 early aircraft are being delivered as HH-60M combat rescue helicopters, ordered in March 2008. The first of 22 LRIP UH-60Ms was delivered in July 2006, and the first upgraded aircraft is due to be delivered this year.

The UH-60M incorporates upgraded T700-GE-701D engines with an advanced new infrared suppression system. These drive new wide chord composite spar main rotor blades (which will provide 500lb more lift than the current UH-60L blade), via an improved durability gearbox, and the aircraft has a strengthened fuselage.

The variant has a new fly-by-wire flight control system and a four-axis fully-coupled autopilot. The glass cockpit incorporates a MIL STD 1553 bus-based avionics suite. The state-of-the-art-cockpit features four Rockwell Collins multi-function displays, and dual Canadian Marconi (CMC) electronic flight management systems. Honeywell provides dual embedded GPS inertial (EGI) navigation systems, with a digital moving map and Goodrich provides an integrated vehicle health management system (IHVMS) computer.

In the region, the Black Hawk is in

Black Hawk: In production for more than 30 years.



widespread service, with Turkey the largest operator, having received 12 S-70A-17s and 95 S-70A-28 (broadly equivalent to the UH-60A and UH-60L), which are used by the Turkish Army and Jandarma.

Jordan has five S-70-11 Black Hawks with the Royal Flight at King Abdullah AB / Amman-Marka. These were joined from June 2007 by eight UH-60Ls, which equip the Royal Jordanian Air Force's Special Operations Aviation Brigade.

Egypt received eight S-70-21 Black Hawks (broadly equivalent to the UH-60L) which today equips a squadron within 516 Transport Brigade at Cairo-East/Almaza. In September 2008 Egypt also requested the sale of four new UH-60M helicopters.

The biggest operator in the Arab world is the Kingdom of Saudi Arabia, whose 21 S-70A-1 Desert Hawks are broadly equivalent to the UH-60L. These aircraft are operated by the Royal Saudi Land Forces' 1 Aviation Battalion at King Khaled Military City.

Sixteen more Saudi Black Hawks are dedicated aeromedical evacuation versions, designated S-70A-L1, and these are used by the Saudi Armed Forces Medical Services at Riyadh's King Khaled Air Base.

In November 2007, the United Arab Emirates placed a direct commercial order for ten Sikorsky S-70A Black Hawk helicopters, and

these serve with the Special Operations Command's Group 18 at Sas Al Nakheel. In September 2008, the United Arab Emirates requested 14 UH-60M helicopters through the Foreign Military Sales framework, and it is anticipated that these would be armed versions, with Hellfire ATGMs, and comprehensive laser and radar warning systems.

First international customer

The Royal Bahraini Air Force operates two UH-60As and eight UH-60Ls with 9 Squadron at Rifa'a Air Base. In June 2007, the kingdom became the first international customer for the UH-60M, placing an order for nine of the new helicopters, the first of these being delivered in December 2009.

The final Black Hawk operator in the region is the Royal Moroccan Police Air Squadron, which received a pair of S-70-26 helicopters (equivalent to the UH-60L) for VIP transport duties.

One obstacle to selling the Black Hawk has been its relatively high price. To address this perceived disadvantage, Sikorsky has developed the 'International Black Hawk' or S-70i – intended as a less expensive multi-mission variant produced with Sikorsky's global partners and delivered from outside the United States.

The ten tonne S-70i will be priced competitively with smaller 6-8 tonne rivals. To facilitate this, Sikorsky designed the new type

as a modular platform with a key common core, but that can be configured to meet specific customer requirements. Common elements of all S-70i versions include a dual pilot IFR-capable digital glass cockpit.

To build the new version, Sikorsky acquired the PZL Mielec plant in Poland in March 2007. Mielec rolled out its first Black Hawk cabin two years later. The first S-70i is expected to be completed in 2011 and Mielec will eventually produce up to 36 aircraft per year.

Some of the new Black Hawks may be delivered in a more heavily armed configuration known to Sikorsky's marketing department as the Armed Black Hawk (ABH) or 'BattleHawk', with an advanced cockpit, helmet-mounted sighting systems, comprehensive defensive aids, and a chin-mounted EO turret and an undernose 20-mm gun. The company completed development testing of this variant (developed in association with Israel's Elbit) in November 2009.

In the longer term, there may be regional interest in the 'optionally manned' Black Hawk now being developed for US Army service from 2015-2016. This could be flown manned (with one or two pilots) or as an autonomous unmanned vehicle for use in the classic 'difficult, dirty, dull, and dangerous' missions for which unmanned platforms may be better suited.

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Enter the Dragon

How the modified GIII is being utilised as an airborne multi-laboratory and is demonstrating how Lockheed can optimise this class of platform for the ISR community.

A Gulfstream GIII emerges from the grey clouds hanging over Marrakech airport. As a busy business aviation airport, this is nothing surprising. But the staccato clicking of camera shutters from the hordes of photographers at the perimeter fence suggest this may be something special.

It is. The GIII is painted the same colours as the unseasonably drab skies of the Moroccan city, suggesting a special mission application. The welcoming committee from US defence giant, Lockheed Martin, confirms it.

The aircraft in question represents the latest intelligence, surveillance and reconnaissance (ISR) offering from Lockheed and the modified GIII, known as Dragon Star, is being utilised as an airborne multi-laboratory and is demonstrating how Lockheed can optimise this class of platform for the ISR community.

"This is the first time this platform has been seen outside of the United States," said Charles Gulledge, programme manager for LHM strategic programmes.

"We brought the aircraft to Morocco as we believe there could be a lot of interest in this part of the world. We are showing the art of the possible with this aircraft. We have taken a standard executive jet with a fully-appointed wet bar and very quickly, within a ten-month timeframe, we have turned it into a test platform with four-operator positions.

The airborne lab is optimised to be rapidly reconfigured, allowing Lockheed Martin to experiment with various sensors and different communication and software packages.

"The architecture we have developed to support software and sensor packages is platform agnostic," Gulledge said. "It can be scaled to suit turboprops or expanded for larger business jets. It is only limited by the capabilities of the platform that is chosen."

The AML aircraft was designed for operational testing and experimentation of the C4ISR capabilities. "It provides a platform for both advanced research and realistic testing and demonstration of emerging intelligence, communications, networking and sensor capabilities that can improve strategic and tactical responsiveness for military, strategic and homeland security forces," Gulledge said.

The platform will allow defence forces to prove the different ISR technologies coming through.

"We've designed it so that we can easily test a myriad of sensors to advance the science and art of correlating diverse types of intelligence – with the goal of rapidly providing high-quality data," said Jim Quinn, Lockheed Martin's vice president of C4ISR Systems.

A wide array of features on board the aircraft facilitates this experimentation, including a computing capability that supports most commercial operating systems, a ventral canoe on the belly of the aircraft with a large radome and ample volume for a range of sensors, and four workstations. In addition, the AML can process data both onboard and on the ground to accommodate a variety of experiments.

While it is equipped with a robust suite of sensors as well as wideband and narrowband data links, the intent is to rotate sensors as necessary to answer specific requirements. To achieve that goal, the AML incorporates an easily reconfigurable architecture designed to allow different sensors and equipment to be rapidly integrated into the aircraft's mission systems.

This architecture also allows for future testing of innovative techniques for multi-INT mission planning, intelligence gathering, processing, exploitation and dissemination for a wide variety of missions across the spectrum of operations.

"The benefits are clear: improved situational awareness, enhanced air-to-ground coordination and the ability to deliver critical battlefield information rapidly to tactical users," said Quinn.

The aircraft's appearance in Morocco almost certainly reflects the RMAF's requirement for a replacement for its secretive Falcon 20 ELINT/EW aircraft, which were delivered in 1968. This requirement could provide Lockheed (already providing Morocco with Advanced Block 52 F-16 fighters) with its first customer for an ISR-configured Gulfstream-class aircraft.

The Dragon Star aircraft will be shown at Farnborough in July. "We are interested where countries are looking for upgrades to ageing capabilities or looking for new ones," Gulledge said.

Let's Twist again...

Alan Peaford
*takes a look at
the trainer that
is making an
impact across
the region*

Patti Wagstaff is a woman who knows how to make an aircraft do impossible things. As a former world aerobatic champion, she can twist and turn with an aptitude that would leave many front-line fighter pilots in her wake.

American aircraft manufacturer Raytheon, which owned the Beechcraft stable, took the innovative step a few years back to give Wagstaff their basic trainer – the Beechcraft T6 Texan. It forms the backbone of the US Air Force training system.

The performance was startling and, as a result, she wowed crowds all over the world with spectacular proof that, in the right hands, this aircraft could outmaneuver its competitors.

These performances raised the profile of the US trainer and now the T6 – having gone through a series of owners – is in the hands of Hawker Beechcraft (HBC). The company has been working hard at converting those export prospects into firm orders and it is finding willing buyers in the MENA region.

The company has also expanded on the potential of the airframe and introduced to the region what it calls the AT-6, an armed version of the trainer.

In January, HBC brought both the T-6 and the AT-6 to Morocco for the AeroExpo show.

The Royal Moroccan Air Force (RMAF) was taking special interest in the displays as it has ordered 24 of the T-6C.

"This show not only provides us with an opportunity to exhibit the world's most successful primary trainer, the T-6, to a broad international audience, it allows us to do so at the home base of our first T-6C customer – the Royal Moroccan Air Force," said Jim Maslowski, president, US and international government business.

The T-6C model aircraft is an improved version of the T-6A Texan II. Like the T-6B for the US Navy, the T-6C features an integrated glass cockpit and advanced avionics suite that greatly expands advanced training opportunities.

Distinguishing it from the T-6B, the new T-6C features a hard point wing to allow for external fuel tanks. This equipment mirrors the systems and capabilities of today's front-line strike-fighter aircraft, while retaining all the inherent training and flying characteristics that have made the T-6A the most successful primary trainer in the world.

The integrated glass cockpit features an upgraded, integrated Esterline CMC Cockpit 4000 avionics suite and includes an

integrated avionics computer, a head-up display, up-front control panel, six multifunction displays, inertial reference unit, digital video recorder/data transfer system, radar altimeter and on-board synthetic training, such as no-drop bomb scoring.

These systems are integrated with a hands-on throttle and stick, providing the student pilot and instructor with an easy interface to the digital cockpit.

The CMC Cockpit 4000 avionics suite is the first in its class to incorporate a fully integrated and FAA-certified dual FMS/GPS navigation suite that meets the strictest required navigation performance standards of current and future national and worldwide airspace equipment requirements. The open architecture design of the Cockpit 4000 provides the flexibility to expand capabilities and continuously meet current and future training needs.

According to the RMAF, the T-6C will provide a single aircraft solution for training their fighter, transport and helicopter pilots. It will replace the RMAF's current T-34 basic trainer and Cessna T-37 jet trainers, reducing fuel requirements by 66 per cent. The advanced cockpit and systems will enable the RMAF to download training hours from their Alpha Jets, which will also dramatically lower operating costs.

Deliveries to Morocco will begin later in the year but, meanwhile, HBC has begun deliveries of the T-6A to the Iraqi Air Force.

The first four were delivered in February. The company was awarded a contract for eight T-6A trainer aircraft in August 2009 and an additional seven in September. Like the Moroccan deal, this contract represents a government-to-government agreement between the two countries and the United States.

The remaining Iraqi aircraft deliveries will occur by the end of the year.

"These aircraft will play a vital role in strengthening the Iraqi Air Force and providing training in support for the withdrawal of US troops from Iraq," Maslowski said.

The introduction of the structurally strengthened derivative of the T-6, the AT-6 Light Attack aircraft at AeroExpo was impressive.

"The AT-6 is designed to meet training, light attack and armed reconnaissance needs for irregular warfare and building partner capacity initiatives," Maslowski said.



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BUSINESS AVIATION

As the Middle East and Europe become more closely connected, the value of EBACE as the best venue to connect them becomes more apparent.

LIZ MOSCROP reports.

Why EBACE is the strongest link

Although last year dampened the spirits of many in the business aviation sector, some areas of the world continue to give hope to OEMs and other firms hoping to sell their services. According to regular EBACE exhibitors, the Middle East Business Aviation Association (MEBAA), the Middle Eastern market is set to expand 15-20 per cent each year for the next four years.

MEBAA reckons that there are around 500 aircraft in the region – the two largest markets are Saudi Arabia, with 114 aircraft and the United Arab Emirates (UAE), which has an installed fleet of 78 jets. Chairman Ali Al Naqbi will be helping to promote the Middle East Business Aviation show in November. He is bullish about regional prospects and said of the market: “Although there have been order cancellations worldwide, as far as I know none of those are from the Middle East.”

Several companies from the region are at EBACE. Dubai-based JetEx Flight Support, for example, has become a show stalwart. The company has operations centres in: Africa, Eastern Europe and the UAE. This year it will be flagging up its new FBO in Le Bourget, which it announced at last year’s Paris Air Show. Adel Mardini, chief executive said: “EBACE is an important show for us. We have two divisions – flight support for Middle East, African and European operators as well as an FBO in Paris. We are going to focus on the progression of our FBO at the show.” He added that the networking opportunities and sheer numbers of strong interested contacts make the exhibition a valuable event. He said: “EBACE and the Dubai Air Show are our most important industry shows.”

Fellow flight planners Hadid International Aviation Services has been in business since 1981. While the company also serves the commercial and cargo sectors of the industry, it derives most of its income from its VIP division. Hadid’s core offering to the private jet sector is obtaining over-flight and landing permits worldwide. The firm also settles navigation, fuel and handling charges on behalf of its clients and offers charter flights. Founder Baha Hadid



Ali Al Naqbi is bullish about Middle East prospects.

attributed the company’s success to the high quality of service it delivers. He said: “We take real pride in the high standards that govern every aspect of our operations...our success is rooted in the dedication of a highly-educated, highly-motivated global team.”

Dubai-based Palm Aviation has also taken a booth. In 2009 the company announced the first FBO at Dubai World Central (DWC) Aviation City, which will be home to the world’s largest MRO centre with an investment of around US\$11 million. The 80,000 square feet FBO facility will be built within the 140 square kilometre urban aviation project under construction at Jebel Ali, UAE. Palm Aviation will extend its existing global flight support operations centre to DWC Aviation City from its current location in Dubai Airport Free Zone – part of the company’s expansion strategy, set to see it grow by 35 per cent annually over the next five years across the region.

Airport developments are key to the aviation sector’s growth in the region. Exhibitor Jordanian Private Jets (JPJ) will likely be promoting its new VIP terminal at King Hussein International Airport in Aqaba with eight crew lounges, plus

parking space on the ramp for private jets. The nine-year-old company expects its airport development project to be complete at the end of this year. JPJ also offers ground-handling and aircraft charter and management services and has a Challenger 601 and 604 on its books as well as a Falcon 2000 and Hawker 800XP.

Another airport developer, Abu Dhabi Airports Company (ADAC), will have a great deal to talk about. Last June the UAE General Civil Aviation Authority awarded its managed entity, Al Bateen Executive Airport, full aerodrome certification, transforming it from a military airbase to an airfield serving ADAC’s fleet of managed private aircraft, as well as those of other operators. HE Khalifa Al Mazrouei, ADAC’s chairman, said: “ADAC plays a key role in actualising ‘Plan Abu Dhabi 2030’ and supporting the projected growth and diversification of the Emirate’s economy with the required air transport infrastructure. Business travellers and VIPs with time pressures will appreciate the fast security clearance, the total lack of queues and waiting time, and direct access to the aircraft.”

Last year’s EBACE saw Jordanian charter operator RayaJet make one of the few show orders with an announcement for the region’s first Beechcraft Premier II to service its joint venture with Ayla Aviation Academy to offer pilot training, business jet maintenance, ground-handling and aircraft charter. The Premier II is due for delivery in 2011. The Jordanian government is actively pushing the country as one of the Middle East’s key aviation hubs.

In addition to exhibitors, there will be other key industry players with established bases in the Gulf promoting their services to their European and Middle Eastern clients. ExecuJet, Jet Aviation, Signature Flight Support and VistaJet all have growing entities in the region.

Signature Flight Support, for example, was recently awarded the license for into-plane fuelling and pre-clearance services to the US at Shannon Airport. Patrick Sniffen, vice president flight support said: “Signature is confident that with Shannon now offering fuelling as well as pre-clearance, it will make it a perfect tech stop for

GENEVA SHOWCASE NOT TO BE MISSED

“We always enjoy the show. Geneva is a great place to network and meet our clients from the Middle East, as well as other areas of the world.”

Thomas Flohr

customers flying from the Middle East to an approved US airport. The constituency of people that attend EBACE rather than NBAA encompasses customers from the Middle and Far East, as well as those from Europe. We are feeling positive about this year’s show.”

VistaJet’s founder, Thomas Flohr, is also looking forward to this year’s show. He said: “We always enjoy the show. Geneva is a great place to network and meet our clients from the Middle East, as well as other areas of the world.”

The leading manufacturers will be at EBACE when the show takes place May 4-6 in Geneva.

Although it is the annual meeting place for the European business aviation community, the exhibition has been a major draw for business leaders, government officials, corporate aviation department personnel and others from across the Middle East and North Africa.

It takes place at the sprawling and state-of-the-art Geneva Palexpo, which covers more than 100,000 square meters distributed in seven halls. Just 10 minutes from the centre of Geneva and is immediately adjacent to Geneva International Airport, a railway station and a motorway.

This year EBACE showcases nearly 300 exhibiting companies from around the world and covers more than 36,000 square meters.

At nearby Geneva International Airport, more than 60 aircraft, including nearly every major business aircraft design in current production, will be on display in a special 18,000-square-meter Static Display area.

Hawker Beechcraft will be bringing its entire product line-up on static display – from the Hawker 4000 to the Beechcraft Bonanza.

On the turboprop side the King Air 350i and King Air C90GTx will be making their EBACE debuts. In the exhibition hall HBC will be showing how customers can sample the interior materials and use computer modelling to visualise their aircraft interior.

Meanwhile Cessna will also be offering a view of

its product line-up and expect some interest in the Citation Mustang from training schools who are considering using jets for training rather than the slower twin-pistons currently in use.

Gulfstream will be at the show in a bullish mood following successful completion of the aircraft’s first series of flight tests.

With flights up to 240 knots and reaching an altitude of 9,500 feet, engineering and flight operations teams monitored real-time data using a new telemetry system configured to downlink over 2,000 different parameters.

“The pilots’ reports indicate that flying qualities were outstanding,” said Pres Henne, senior vice president, programmes, engineering and test, Gulfstream. “The aircraft performed superbly and we look forward to certification in 2011.”

Rolls-Royce, meanwhile, has received type certification from the FAA for the G650’s BR725 engines following similar clearance from the European Aviation Safety Agency (EASA) in June 2009.

From an initial cruise altitude of 41,000 feet at 0.85 Mach, the G650 can climb to a ceiling of 51,000 feet to avoid traffic and weather problems. At maximum take-off weight, it can still operate from a 6,000-foot runway. It is also expected to be the fastest civilian aircraft in operation.

Brazilian operator Embraer will be focusing on the newly certificated Phenom 300 and its recent entry to service – meanwhile the early service reports of the smaller Phenom 100 will be available.

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One Bahrain-operator has ambitious plans for expansion.

LIZ MOSCROP reports.

MENA set to land new support for maintenance and parking

For all the hive of activity taking place in the Middle East aviation community today, one sector has been sadly lacking – aircraft owners wanting to install, repair or refurbish VIP interiors have had to fly their aircraft elsewhere. MENA Aerospace aims to change that.

The company is expected to announce a deal with a regional airport authority, which has agreed to release land which MENA can “develop into a support platform for the region’s general aviation sector and develop a facility dedicated to aircraft maintenance and parking.” Ralph Eisenschmid, acting chief executive said: “If you look to our partnership with CAF Aviation Group that will give you an indication of our thinking.”

Last November Bahrain-based MENA announced an alliance with Montreal-based CAF, which includes joint management of a corporate aircraft and VIP airliner interiors refurbishment and installation workshop, including training staff. The facility will be capable of installing or retrofitting interiors for VIP airliners and business jets. The real money, however, will come from maintenance. Eisenschmid said: “Interiors refurbishment will never be our major business line; we will also offer a multi-disciplinary maintenance centre.”

The CAF deal also includes provision of aircraft on ground and mobile repair personnel services for OEMs; as well as provision of outsourced nose-to-tail specialised technical resources. According to Eisenschmid, finding staff will not be the issue that it is in some other Middle East countries. “It is significantly easier to operate in Bahrain than in the UAE from an HR and business point of view,” he said. The company already has its own home-grown workforce staffing its EASA 147-approved maintenance division.

When MENA does hire ‘expats’, it chooses carefully. Eisenschmid said: “There are two types of western expat in my experience. Those that are mercenary; in it purely for the money and those that want to be part of a new market and want to make a difference. They are the kind of people we hire that will enjoy the lifestyle here. Good customer-facing means having respect and knowledge for local cultures and sensitivities.”

Bahrain’s location is ideal, given its wealthy Saudi, Kuwaiti and Qatari neighbours. “The market here is small but the real attraction is our proximity to the Saudi market, along with access to Qatar, Iran, Iraq and Pakistan,” explained Eisenschmid. “Organisations attempting to get an AOC in Saudi demand aircraft maintenance and there are not enough facilities to support them. We run our maintenance and management divisions 100 per cent to



Ralph Eisenschmid: “We have survived through the recession thanks to the totality of services we offer.”

Western standards.” Bahrain Airport does not charge for landing or parking, so operating costs are lower than they are in Dubai, for example.

Eisenschmid attributes MENA’s success to the fact that it operates several businesses, such as a line maintenance organisation and a parts support centre for airlines. The company received its Bahraini air operator’s certificate (AOC) in January 2009 and flies a Bombardier Challenger 300 as well as a Boeing 737 freighter. “We have survived through the recession thanks to the totality of services we offer,” he said.

MENA’s foray into cargo proved to be a huge success, as did adding a training division, which has helped supplement its business aircraft charter division during the downturn. He added: “It is difficult for companies to make a go of it with just one or two business lines, unless they diversify or can change their model quickly. Several operators ended up buying their business and accrued debt. Our CFO has 25 years experience in aviation travel in the UK and was able to develop innovative financial models. This has saved us tons of money.”

One such model is to offer owners an hourly rate for managing their aircraft. MENA does not charge a fixed fee, beyond the costs of keeping the plane airworthy. “If the aircraft is available to a third party, we don’t guarantee charter hours. No one can deliver on those guarantees. If we don’t sell time then we don’t get paid. This is a realistic and honest position where we are acting as a partner and the owner is not penalised.” Other sophisticated financial models prevail throughout the company, permitting it to expand and invest in new business lines.

The Middle East is still a fledgling market in terms of business aviation. The global industry is still only 25 years old and the region’s oldest operator, Bexair, has only been around for a decade. This means that several of the newer companies do not have experience in delivering service standards that regular users of private aviation have come to expect. Horror stories abound, like passengers left stranded at immigration because an operator had not arranged the correct paperwork.

MENA’s crews all do safety management courses and the company is IOSA audited, which comes at a cost. Eisenschmid said: “If an operator chooses to take the philosophy that it is more cost-effective not to train crews properly, than they will get what they pay for. Crews will deliver service to extent of their ability.”

Since MENA’s philosophy is to develop those abilities, its new hangar facility is bound to be a valuable addition to the Arabian aviation landscape.



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Airbus at the ready as VIP market rebounds

*Even the Middle East's top travellers had to tighten their belts slightly in this recession. But, writes **Brendan Gallagher**, the signs are that the region is leading the VVIP transport sector out of the doldrums.*

Throughout the global downturn, Airbus has insisted the market for VVIPs will remain strong. It has now projected sales of between five and ten VVIP jetliners in the region over the next few years.

Along with Boeing Business Jets, the European manufacturer dominates the global market for VIP airliner conversions. It sold its first VIP aircraft, a converted widebody, to a Middle East customer in the mid-1980s and has since chalked up sales of more than 160 units from its corporate jet family. This comprises the A318 Elite, A319-based ACJ and A320 Prestige – known collectively as the Airbus Corporate Jetliners (ACJs) – and VIP versions of the A330, A340, A350 and A380.

Middle Eastern ACJ customers include Abu Dhabi-based Al Jaber Aviation, Kuwait's Al Kharafi Group, National Air Services and SAAD Air of Saudi Arabia, Qatar Airways and the Saudi Red Crescent Authority, along with the governments of Oman and the UAE.

The Middle East is now the world's largest market for large corporate jets, with private customers and governments currently operating more than 200 of them. In March, John Leahy, Airbus' chief operating officer for customers, revealed the importance of the region to the continuing success of the ACJ line. "We have a strong presence there, with more than 50 Airbus corporate jets in service," he said.

The Airbus forecasters see up to ten aircraft a year – the majority in Saudi Arabia – being needed to replace existing aircraft and provide for growth. And they expect the company to win at least half of the market.

Zurich-headquartered VIP charter operator Comlux is Airbus' biggest corporate jet customer, having ordered a total of ten aircraft – four A318 Elites, three ACJs, two A320 Prestiges and an A330-200 Prestige. Earlier this year the

company expressed its confidence in the region by announcing the creation of Comlux Middle East in partnership with management and consulting specialist MAZ Aviation. Operations will begin with an A318 Elite and an ACJ based in Bahrain, with a new A320 Prestige to join the fleet by the end of the year.

Comlux president Richard Gaona joined the company from Airbus, where he was VP of corporate jet sales – now he's putting his faith in the product as a customer. "A presence in the Middle East is strategic to our VIP aircraft operations," he said.

Comlux announced its latest order for an Airbus corporate jet last November. The aircraft, the company's third ACJ and the one destined for the Bahrain operation, is now receiving its VIP interior – an all-Comlux effort designed by the Zurich-based Creatives arm and being installed by Comlux Completions USA in Indianapolis. Middle Eastern travellers will thus be among the first to benefit from a spread of capabilities that is unusual in the industry.

This Indianapolis investment could lead to Comlux providing an interior for one of its prime competitors in the Middle East. Al Jaber Aviation (AJA) based at Al Bateen Executive Airport in Abu Dhabi. AJA currently operates a pair of Embraer Legacy 600 13-seat business jets and has an Airbus A318 Elite in the hands of Lufthansa Technik-owned Bizjet International in Tulsa for completion and delivery in the middle of this year. It plans to acquire a further three Elites and a pair of ACJs, along with a total of eight Embraer 450 and 500 light jets and five 19-seat Embraer Lineage 1000s.

The company has an in-house design team that has already come up with interiors for the Legacies, Lineages and Elites. "Now we've started work on the ACJ design," said chief operating officer Dr Mark Pierotti. "It will be the culmination of the process we started with the smaller types."

Al Jaber's A318 Elite interior features 19 armchair-style and a private bedroom. "We're deciding now on what to put into the ACJs," said Pierotti. "How many seats do we need? What sort of inflight entertainment and passenger communications? Should we add a shower? In the end we want something that's cutting-edge and appealing to our customers, while also being completely cost-effective".

Over the last couple of years much of the talk about the top end of the Airbus corporate jet range has tended to focus on the fabulous prospect of a VIP A380. Saudi Prince Alwaleed became the first to order one in 2007 and since then speculation has swirled about the identity of the chosen completions provider.

And although the A350 long-haul twinjet isn't scheduled make its first flight until 2012 it has already attracted orders from customers planning to operate it in a VIP configuration. MAZ Aviation has signed up for six aircraft. The deal is the largest ever single commitment for Airbus corporate jets. "The kind of private customer who buys a VIP widebody wants the very best, and that's exactly what they will get with the Airbus A350 Prestige," said MAZ Aviation chairman Mohammed Al Zeer. "With more cabin space, more range and a more modern design, the A350 is the VIP widebody of the future."



Comlux's Stephen Laven with a new base in Bahrain to promote the ACJ into Saudi. Right: the impressive interior



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Morgan's a free man thanks to the SJ30

The SJ30 light jet has been knocked about since its inception in 1986 but the programme finally flew last year when Emirates' investment arm, Emivest, took the aircraft under its wing. Now even Hollywood superstars are flying it.

Liz Moscrop
reports.

There's nothing like a bit of Hollywood glamour to attract publicity. When veteran Oscar winner Morgan Freeman took delivery of Emivest Aerospace's SJ30 Sn010 last November the world sat up.

As a private pilot who flies many hours a year, Freeman was a discerning customer. He told Emivest: "I've had my eye on the SJ30 for a while. It's fast, economical to run and will allow me to undertake long flights without having to stop for fuel. I have been extremely pleased with its overall performance. The sea-level cabin is really comfortable, which is an added bonus whenever I travel."

Freeman also has a twin-engine Cessna 414 and Cessna Citation 501 SP. The actor obtained his PPL aged 65 and has been flying his own aircraft since 2002. He now holds instrument and multi-engine ratings.

According to Anthony Power, Emivest's chief executive, the star was also attracted by the single pilot certification and low acquisition and operating costs.

Power said: "When he first started looking for a new jet he looked at the Eclipse and the Cessna Citation Mustang. He realized that they couldn't provide the combination of range and speed that he wanted. With his SJ30 he can fly non-stop on trips that used to take one and sometimes two stops in his Citation."

The aircraft has a range of up to 2,500nm and the highest cruise speed in the light jet sector of Mach 0.83. According to the Pocket Guide to Business Aircraft, its 2010 list price is \$7.25 million.

Freeman's jet promotes his blues clubs in Memphis, Tennessee and Clarksdale, Mississippi. The Ground Zero Blues Club logo is emblazoned on the tail and the aircraft is painted with a complementing colour scheme.

The SJ30 is designed for comfort, given that it is likely to

be used on longer hops. The cabin layout is luxurious with seating for five with a forward lav and club seating in the aft cabin. The forward lav means that there is extra legroom, since there is no need for an aisle to access an aft toilet. The rear seats are almost as wide as first class seats in an airline and can be almost fully reclined if necessary.

Although selling an aircraft to a film star is a coup, the investment into the SJ30 represents a serious stake for the Emivest Investment Development Company (EIDC). Power said: "Our entry into the aviation sector is a further demonstration of the ambition and vision of the chairman, Mr Buti Saeed Al Ghandi, and the board of directors for the next phase of our ambitious growth plans in different markets where attractive dynamics exist."

Development is an integral part of EIDC's core business. This has been successfully applied to industry sectors as diverse as manufacturing, financial, service, aviation, telecoms, construction and real estate.

Power continued: "We see the SJ30 as an aircraft that provides exactly what the market needs; a performance leader in the light jet arena and a lower-cost alternative to mid-size business jets that can still provide the speed and range that those customers demand." The SJ30 is also fuel efficient, minimizing direct operating costs and carbon emissions.

The delivery ceremony in Dubai in December fuelled interest in the aircraft in the Middle East. Power attributes this to the fact that the SJ30 can fly for as long as many of its mid-sized competitors. He said: "As the only light jet with the ability to reach Europe in a single stop, the SJ30 offers the perfect fit for businesses that need access to major financial centres in Europe and Asia."

There has also been interest in converting the type to an air ambulance.

Power said the downturn has not affected Emivest's order book. Perhaps a greater issue for the company has been its former issues with its suppliers. According to Power, relationships are now amicable. He said: "Emivest's supply chain management is continuously working with suppliers to develop a strategy to provide the highest quality product and the latest applications available that will exceed our customers' expectations."

A further eight to ten aircraft are due to roll off the production line this year.

Emivest is in discussion with several service centres in the US and internationally, and says it will have a factory-managed independent service centre network in place to support the customer fleet as it grows. The firm already has a Part 145 factory service centre in operation at its San Antonio base.

After so many troubled years the SJ30 programme is now stable. Happy customers like Freeman must surely thank its redemption.



Seal of approval for the SJ30 programme. Morgan Freeman with his aircraft.



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Photo courtesy of Dassault



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Qatar's Executive goes from strength to strength

Not many airlines feature in the EBACE story line up. However Qatar Airways is one of the few exceptions. Last June, at the Paris Air Show, the carrier confounded the general gloom surrounding the aviation industry with a huge aircraft order and massive expansion news. Also announced was the launch of the airline's new charter division Qatar Executive with an initial fleet of two 11-seat Challenger 605s and an eight-seat Challenger 300. Less than 12 months later, the airline's charter operation has paid dividends, established a solid base of clientele, and is pushing ahead with plans to grow the fledgling business further.

Earlier this year at the Bahrain Airshow, Qatar Airways chief executive Officer Akbar Al Baker, who also presides over Qatar Executive said that the new division has received great response from customers: "We have experienced a steady stream of bookings and have, within the short time span we have been operating, already established a strong client base. Private jet travel is all about convenience, saving time and money, especially in the Middle East where economic activity is at an all-time high."

The reasons for this early success is that Qatar Executive, following the standards of its parent 5-star airline, sought to establish a benchmark in providing its customers with an exclusively premium travel experience, one of the best available in private jet market. Qatar Executive travellers can book an aircraft as fast as four hours before departure, 24/7 and check-in as little as 15 minutes prior to take-off.

The airline caters not only towards government officials, businessmen, bankers and politicians who are focused on time and economic efficiency, but also to well-healed families who desire luxury, privacy and a homely atmosphere while travelling right from the time they arrive at the airport.

The market for Qatar Executive unsurprisingly focuses on Qatar, but business comes from across the GCC as well as the wider Middle East region. Qatar Executive said it is already developing a reputation among elite travellers for extremely high levels of service and professionalism in the competitive European market, particularly in Russia, France and the UK.

The company has pledged to build the fleet as the market

grows. The airline says that there has been a 20% growth in executive travel in the Middle East over the past seven years, and it predicts further growth until at least 2012. The sector has more than doubled in value.

Qatar says it will continue to develop. "This will refer to all business activities fleet size and structure, business model, product and services as well as geographical coverage," Al Baker said. "Even as the travel industry faces the continued pressure of a challenging global economic climate, there remains a strong need for the corporate world to conduct face to face business meetings in the shortest possible time."

The carrier has invested solidly in aircraft and infrastructure since its start-up in 1997 and has more than US\$40 billion worth of aircraft on order. Qatar has also made its own additions to Doha International Airport such as the Premium Terminal to cope with its astonishing growth, as the airline waits to take possession of its new home when the US\$14.5 billion New Doha International Airport opens in 2011.

Falcon predicts strong three-year growth

Having delivered 21 large-cabin aircraft to Middle East customers in the last three years and grown its regional fleet by 60 per cent, Dassault Falcon is also predicting strong levels of business going forward.

With a significant order backlog in the region, it expects to increase its fleet by a further 50 per cent in the next three years.

"The level of pre-owned Falcon aircraft inventories has started to decrease," said John Rosanvallon, president and CEO of Dassault Falcon. "While some areas of the world have yet to show signs of recovery, the Middle East, as well as Asia and South America, is becoming more active."

The Falcon 7X, with its near-6,000nm range, makes up around 40 per cent of Dassault's recent sales in the region. It is the only long-range business jet that can be operated into and out of London City Airport, linking the heart of

the world's largest financial centre with non-stop access to the Middle East. Notable city pairs include Dubai to New York, Jeddah to Recife or Riyadh to Perth.

Dassault's growing presence in the Middle East led to the company's decision to establish a dedicated parts distribution centre and sales office in Dubai. The regional inventory is worth more than US\$1.5 million and includes most high-cost replacement items.

"Dubai is unique, not only because of the expanding Falcon fleet, but because it is also a popular stop-over point for transiting aircraft flying between Asia Pacific and Europe. We're currently evaluating several authorised service centres based in the Middle East to expand our network, which already comprises 29 Falcon ASCs," said Jacques Chauvet, senior vice president, customer S service.

The Sky's



*Morocco is now a player in the aerospace global market with a rapidly growing manufacturing base, a vibrant tourism industry and a defence force that is prepared to try new ideas. Arabian Aerospace team **ALAN PEAFORD, MARCELLE NETHERSOLE and JON LAKE** look at what the country is achieving. Pictures are by **IAN BILLINGHURST.***

The success Mexico has experienced manufacturing aerospace materials and structures for American OEMs is a matter of record. But now Morocco is attempting to do the same for the European manufacturers by introducing lower cost and high-quality facilities and services – and all indications are that it is succeeding.

At the heart of the initiative is the Moroccan Space and Aeronautical Industries Group (GIMAS), the country's aerospace industry association.

As the industry came together in the last days of January, GIMAS chairman Hamid Benbrahim El Andaloussi was tearing from meeting to meeting.

Andaloussi said he is delighted with the development of the sector, feeling that it could not be more competitive. "Morocco has very quickly realised the potential of the fledgling industry that is aeronautics, identifying it as a top-priority strategic sector in its emergence plan," he said.

Andaloussi is responsible for managing the expectation of his membership as well as promoting the Moroccan industry to the world.

"We have a growing group of members totalling 90 companies today. There were just 60, two years ago. They are providing the expertise and the knowledge in different areas and between them they cover the whole palette of activities from production to services, from engineering and research and development," Andaloussi said.

The aerospace sector has certainly witnessed an unprecedented growth in Morocco over the past few years. The need for the aerospace global industry to reduce costs led a number of companies to explore Morocco as a production platform. This has increased from a handful in 2000 more than 100 today.

Aerospace activity

Prestigious companies such as Labinal, Teuchos, Aircelle, DL Aerotechnologie, Safran Group, DAHER, EADS, Creuzet etc, have set up production units in Morocco.

The aerospace activity is mainly located in Casablanca and Tangier with the Casablanca hub at the international airport called "Aeronautic

City". The industry in Tangier Free Zone is also expanding rapidly.

In financial terms, the importance of the aerospace activities is confirmed by its sales turnover – 3.5 billion dirhams (\$425 million) and growing.

More than 7,000 highly experienced employees are already involved and GIMAS is estimating that figure could increase to 11,000 by 2012 – a development of 30 per cent per annum.

By 2015, the aeronautic industry in Morocco should create 17,000 jobs and an additional sales turnover of about \$1.1bn.

Minister of Trade, Industry and New Technologies Ahmed Reda Chami visited the showcase of the Moroccan industry at AeroExpo Marrakech, where a number of agreements were signed.

Typical of these was a contract with Zodiac Aerospace Maroc to begin research and production of aeronautical equipment. Chami said that one deal with Zodiac confirmed Morocco's calling to be a platform for investment in aeronautical trades. The Minister added that this agreement would





the limit...



Hamid Benbrahim El Andaloussi - confident about Morocco's role in a global aerospace industry

allow the creation of 250 direct jobs, a large number of which will be engineering posts.

“A strong presence in national engineering through this great project shows that Morocco has taken another step in the field of aeronautics, which will not stop simply at construction, but will also include engineering and design.”

Seven major areas employ about 75 per cent of those currently working in the aerospace sector: cabling, middle management, composites, mechatronics, sheet metals, fitting and machining. Most of these industries are EN9100 certified

“The rapid development has been carried forward by benchmark operators in the sector, such as EADS, Boeing and SAFRAN, who have given Morocco credibility as a destination,” said Chami.

Andaloussi added that although Morocco is seen as ‘a player’ there are still challenges. He sees the threat to Morocco’s success as coming from eastern Europe and China – but he remains confident that the business will continue to grow.

“Morocco is now a global player. We are

competing today with the East Europe. But since East Europe has joined the European community the prices are going very high,” Andaloussi said.

“Today, there are many coming from France, from Spain, and I was in UK recently and it was clear they too look at Morocco as being the new Mexico for Europe. In our business, there are a lot of things that cannot be done in China, or in India, because sales are small and there is a lot of changes. As a result we have not really suffered from the crisis because the companies are more competitive here than in Europe. We found that when the companies have to cut, they cut the less competitive.

Going out of crisis

“The second point is that companies in Morocco have good quality. And finally we are expecting that companies going out of the crisis will more and more turn to Morocco.

“That doesn’t mean they will be throwing away what they have in Europe to come to Morocco but instead they will be developing their business in

Europe and having another location in a country like Morocco.”

Andaloussi is positive about the future. “We have been increasing the last few years at the rate of 25 per cent. But I believe after the crisis, possibly by next year, there will be a big push to Morocco, not only in quantity but also in quality.”

In order to achieve the right quality, the country is investing more in education and Chami and Andaloussi were able to reach agreement at Marrakech for a new training initiative that will see a new college being opened to bring more young people into the aerospace industry – particularly as engineers.

“Education and training and providing competencies is very important for the sector,” Andaloussi said. “The State is helping to address this question. “There are a lot of young people in the country and we are in a process today of establishing a new Institute of Aeronautical Technology – this is an innovative partnership between Government and private industry.”

FOCUS ON

MOROCCO

Boasting Mediterranean and Atlantic coastlines, tourist hotspot Morocco is a stunning gateway to Africa, Europe and the Middle East and its bohemian city of Marrakech is fast becoming a business hub. Marcelle Nethersole reports.

Atlas country is well and truly on the map



The Kingdom of Morocco is visually stunning. It has everything from beaches and vast tracts of the Saharan Desert to breathtaking mountains rising from the Rif into the Middle Atlas and on into the incredible contours of the High Atlas.

Its cities are a sensory overload, particularly when you visit one of its preserved medinas. Wander the narrow medieval streets and alleys and dodge motorcycles, donkeys and locals going about their business as you pass little houses, tightly packed together.

Morocco has a long history. The Berbers, the ancient tribes of Morocco, settled in the area thousands of years ago and at one time controlled an empire between Morocco and Egypt.

France became colonial ruler in the 19th Century before independence was gained by Morocco in 1956. The population of Morocco is now a mix of Islamic, Arab, African, Berber and French cultures.

The country's economy is boosted by its ports. The cities of Agadir, Safi and Tan Tan are the top sardine ports in the world. And Casablanca is home to North Africa's largest port.

Morocco is also the largest phosphate producer on the globe with 75 per cent of the world's phosphate reserves. But it's the country's tourism that really boosts its economy. Fez, Agadir and Tangier are popular spots but there is one city in particular on everyone's lips – Marrakech – and not just as a tourist destination.

"Imperial Marrakech is one of the most colorful cities in Morocco and I would say the world," said Khalid Tijani, president of the Regional Council of Tourism of Marrakech. "It is a city of art and culture with invaluable heritage, a garden city steeped in charm, from the pristine Palm Grove to the bustling Jamma el-Fna Square, from the Cyber Park to the Red City."

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MOROCCO



CONTINUED FROM PAGE 59

The city's famous square, Jamma el-Fna, is usually the first place visitors head to and an experience you will take home with you. It is almost like a mini circus; there are snake charmers, people trying to put monkeys on your shoulder for money, you can buy delicious pastries at one of the many huge sweet stalls or find a cross-legged woman on the floor insisting you buy a tortoise.

At night the square turns in to an open-air restaurant. Outdoor kitchens open up with tables and chairs filling the square as chefs get to work on delicious dishes like traditional tajines – favourites being chicken cooked with olives and lemons, and lamb or beef cooked with prunes and almonds.

Surrounding the square is the huge souk where you can get lost for a few hours. Walk through the alleys and find hoards of stalls where the locals sell fruits and brightly coloured spices like jasmine and cumin.

The odours waft through the air. There are craftsmen shouting to you to look at their

woodcrafts, paintings and leather goods – you will need to have your best haggling skills to hand.

“There is a lot to do in and close to Marrakech, too, which is why it is a popular tourist destination,” said Tijani. It is based at the foot of the Haut Atlas, the highest mountainous barrier in North Africa with Mount Toubkal being the highest peak in the country. Half-day walks or two-weekly treks can be arranged. This is land custom-built for trekking, as you follow quiet mountain trails amid Berber villages and fields of beautiful flowers.

There are also eco-friendly regions. Al Haouz, for example, has a prestigious natural resource with the Haut-Atlas mountains.

You can ski in Oukaimeden, which lies 46 miles south of Marrakech, or you can head to beautiful Essaouira, situated on the Atlantic coast for stunning beaches.

Morocco is also a paradise for golfers with many fabulous links. Marrakech is home to the Royal Golf of Marrakech, the oldest course in the country, which opened in 1923.

The well-being is also an integral part of Moroccan life. “We have fabulous spas and a visitor really should experience a traditional hammam,” said Tijani.

In 2009 Marrakech received a million tourists. Most come from France, followed by national visitors from Rabat and Casablanca, then tourists from Spain, the UK and Italy. It is hoping to attract more visitors from the Middle East.

“We do have visitors from Abu Dhabi and Dubai but they mainly go to Morocco’s economic centre, which is Casablanca,” explained Tijani.

“At the moment there is a lack of information about Morocco in the Middle East, particularly for the tourist, which is a shame as we have quite a few flights coming from these regions.

“In May we will be attending the Middle East Travel Market in Dubai in order to meet tour operators and make our mark in this part of the world.”

Most capital cities are popular tourist spots and although Rabat is very relaxed, well kept and



Clockwise from left: Brightly colored hanging lights at Marrakech souk: Happy locals selling goods: A local sheltering from the sun: One of the intricate towers in the 'Red City': A snake charmer in Jamma el-Fna Square: Mr Tijani, President of the Regional Council of Tourism for Marrakech: One of the many colorful fruit stalls in Jamma el-Fna Square: A local man.

cosmopolitan with a European feel, it is not a popular destination for many travellers.

"Rabat has between 4000-5000 beds and Marrakech has 45,000 beds to give you an idea," said Tijani. "In 2004 we had 25,000 beds in Marrakech and in 2014 we plan to have 75,000.

"We plan to have a new luxury collection of five-star hotels. Our problem at the moment is how to fill all those beds with the current economy crises. Right now we need to attract at least another million tourists within the next three years."

Marrakech is not just attractive to the holidaymaker and many of its visitors are now arriving for business purposes. Casablanca is the largest city in Morocco. It has an ultra-modern city life and surfer-friendly beaches as well as been considered the economic capital of Morocco, with headquarters and main industrial facilities for the leading Maroc and international companies based there. But Marrakech has gone one better.

"Marrakech has exceeded Casablanca as a business hub by the scale of its commercial activities," said Tijani. "It now attracts more than 60 per cent of business tourism, taking advantage of the idyllic surroundings. Lounges give way to congresses, which in turn give way to conferences, symposiums and other meetings for the public. Marrakech has equipped itself with rooms and its premises are equipped with state-of-the-art technology.

Meetings, incentives, conferences and exhibitions (MICE) account for more than 15 per cent of the number of arrivals recorded in Marrakech, with a concentration in the months of October, November and January."

Morocco has both local and international airports that operate throughout the country. All of Morocco's airports are under the care of the Office National Des Aéroports (ONDA). Surprisingly, Rabat-Salé is a small airport and serves only direct flights to Paris with Royal Air Maroc and Air France. Casablanca's main airport

is Mohammed V International – the busiest in the country. It serves many Middle Eastern airlines including Libyan Airways, Egypt Air, Royal Jordanian, Saudi Airlines and Air Algérie, as well as European carriers.

Another major airport is Menara International based in Marrakech. In 2009 it received two million passengers. It handles flights to a number of destinations such as Brussels, Milan, London-Gatwick, Lyon, Geneva and Paris.

"There are talks between Morocco and Turkey in order to have a direct flight from Istanbul to Casablanca and Marrakech, and hopefully new routes to the Middle East," said Tijani.

"Marrakech, along with Casablanca airport, also provides for business customers and we have good business lounges.

"It is also easy to fly domestically. National airlines operating include Royal Air Maroc, Jet4you, Air Atlas Express, Atlas Blue, Regional Air Lines and Mondair. There is basically no excuse not to visit Morocco."



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Flag carrier raises the standard

Royal Air Maroc is facing the challenge set by Open Skies. Ian Goold takes a look at how the airline is responding.

THE planned introduction of Boeing 787-8 and ATR 42-600 and ATR72-600 equipment next year graphically illustrates continuing investment by Royal Air Maroc (RAM) as it works to compete in a recently liberalised market.

The airline, which was established in 1957, has undertaken major expansion in the past six years, increasing its fleet from 23 to 54 aircraft. It is launch customer for the latest ATR regional turboprops and will be among the earliest operators of the new Boeing twin-aisle twinjet.

RAM is very much Morocco's flag-carrier, with a global route network flying to over 70 destinations throughout Africa, Europe, the Maghreb region, the Middle East, and North America. It serves additional destinations via code-share agreements with 10 airline partners, including US carrier Delta Airlines, the Gulf's Emirates Airline and Etihad Airways, and Spanish operator Iberia.

Centred on its hub at Casablanca's Mohamed V International Airport, the operator's expansion has created thousands of jobs and trained thousands of employees, according to chairman Dris Benhima, speaking at January's high-level colloquium on regional air transport. The event, part of the Marrakech Aero Expo, was arranged by the country's Ministry of Equipment and Transport in conjunction with RAM. Benhima describes Morocco as being a bridge between Europe and Africa, and says the airline is ready to help other African carriers to grow and develop.

RAM, which carried almost six million passengers last year, has seen an average 15% annual growth since 2004 as it has worked to fulfil the Moroccan government's long-term plan to increase international traffic. Liberalisation (or deregulation) policies introduced three years ago have changed the local air-transport regulatory framework: Morocco established an "Open Skies" agreement with the European Union, stimulating the emergence of low-cost airlines in the region.

The introduction of such competition "exerted significant pressure on RAM", whose international market share fell

from 56% in 2000 to 48% two years ago, according to the Moroccan government. In response, the flag-carrier's business strategy has been to develop medium and long-haul routes from the Casablanca hub.

The airline has structured its activities around business models involving three basic elements: long-haul flights from Casablanca, point-to-point services between EU markets and Moroccan regional centres, and a domestic and regional network provided by a new "Royal Air Maroc Express" regional operation.

To provide a catalyst complementing these elements, RAM has enhanced connections among its short, medium and long-haul flights by creating a new transit lounge in Casablanca's Terminal 3.

In the past four years, the airline has added two or three new aircraft a year to support its international network. Acquisition of a younger, more-efficient fleet is enabling it to increase passenger comfort, reduce operating costs, and improve its environmental performance.

In 2009, the carrier introduced Boeing 767-300ERs, bringing its total to five and complementing its single Boeing 747-400 on long-haul operations. RAM also leased four ATR 72-200s from the manufacturer to provide interim short-haul capacity while it awaits the new ATR 42- and 72-600 equipment.

Medium-haul capacity is currently provided by 36 Boeing 757s (another seven are on order), a pair of Boeing 757s, and four Airbus A321s (previously operated by RAM's Atlas Blue low-cost subsidiary that was closed down last year). Further, it has obtained a Boeing 737-300SF cargo aircraft, since it actively supports Morocco's international trade, carrying up to 150,000 tonnes of air freight annually.

To facilitate RAM's continuing development through enhanced efficiency and increased capacity, the government wants to institute operational and infrastructure improvements at the Casablanca hub. It has identified requirements for better punctuality, baggage- and ground-handling, and passenger processing, for which an "operations optimisation programme" is planned.

An air arm with five decades of pedigree

On November 19 1956, soon after Morocco gained its independence from France, an air arm was established as the Aviation Royale Chérifienne.

It was initially equipped with six Morane-Saulnier MS500 Criquets, three Max Holste MH.1521 Broussard transport aircraft, two Beech E50 Twin Bonanzas, and single examples of the de Havilland DH114 Heron and Bell 47G helicopter, most of them gifted from France.

The new force also inherited a number of well-developed airfields from the colonial French forces and would eventually take over three even more modern bases built by the US at Ben Guerir, Sidi Slimane and Nouacer (Nouasseur), completed in 1953 and briefly used by Strategic Air Command to allow for the rapid deployment of nuclear-armed B-47 Stratojet bombers. They had full operational sites for nuclear weapons storage.

The government of Mohammed V asked the US Air Force to pull out of its bases in Morocco following the American intervention in Lebanon in 1958. Agreement was reached in December 1959, and the bases closed in 1963.

The Aviation Royale Chérifienne changed its name to the Force Aérienne Royale Marocaine (Royal Moroccan Air Force) in 1961, and invested in 24 Fouga Magister jet training aircraft. The growing rift with France soon prompted Morocco to turn elsewhere for weapons. The air force, therefore, obtained 12 MiG-17 fighters, two MiG-15UTI 'Midget' trainers and four Ilyushin Il-28 bombers from the Soviet Union.

But the Kingdom of Morocco and the USSR were never natural bedfellows and when a border conflict erupted in 1963, the Russians took Algeria's side. Morocco, thereafter, turned to the West for its aircraft and weapons, standardising on the Northrop F-5A Freedom Fighter as the main frontline fighter for the Royal Moroccan Air Force (RMAF).

The first F-5A squadron (F-5) was dissolved after the coup of August 16 1972, some of its pilots having been involved in an attempt to shoot down the Royal Air Maroc Boeing 727 carrying the king back from a visit to France.

The Moroccan F-5As saw action in the 1973 Yom Kippur war; one squadron deploying to Egypt where it flew combat air patrols to augment Egypt's own air defences.



The RMAF has developed robust air-to-air refueling systems and effective medevac through a well-trained force.

The long running war in Western Sahara began in 1974, when Spain finally withdrew from what had been Spanish Sahara, and the Polisario (Frente Popular de Liberación de Saguía el Hamra y Río de Oro) guerrilla movement resisted Moroccan and Mauritanian claims over the territory, backed by Algeria.

This conflict has shaped the posture and procurement of the RMAF, not least by the development of a robust air-to-air refuelling capability to support fighter bomber operations deep in the vast wastes of the Sahara desert, and by the growing importance of the air base at Laayoune, the largest city in Western Sahara and capital of the Moroccan region of Laâyoune-Boujdour-Sakia El Hamra (though the city is also claimed by the Polisario-backed Sahrawi Arab Democratic Republic as its capital!)

Today, the Royal Moroccan Air Force consists of five main Wings. Fighters are based at Sidi Slimane (Mirage F1) and Meknes (F-5 and Alpha Jet), with transports and tankers at Kenitra, helicopters and VIP aircraft at Rabat Salé, and trainers at Marrakech.

A modernisation programme is now under way across the air force, with legacy types like the Mirage F1 and F-5 undergoing upgrade programmes and some major procurements bringing new aircraft types into service. The ageing C-130 Hercules is being augmented by CASA CN235s, while the training machine is being recapitalised, with Beech T-6Bs about to replace the T-34C and T-37, and with Chinese K-8 trainers apparently ordered to replace the Alpha Jet.

But most important is the recent order for 24



Lockheed Martin Block 52 F-16C/Ds, which will augment and eventually replace the legacy fighter fleet. Four examples of the Goodrich Corporation DB-110 electro-optical airborne reconnaissance system (already in use by Polish and Greek F-16s) will be acquired to equip the new F-16s, together with appropriate data links and ground stations, allowing them to take on an all-weather real-time reconnaissance role. The F-16 was selected after a long evaluation against the Dassault Rafale.

The Royal Moroccan Navy's infant naval air arm, established in 2004, has a trio of AS565MB Panther helicopters, and these are based at Casablanca when not forward deployed aboard the Floréal-class frigates Mohammed V and Hassan II.

The Escadron Aérien Gendarmerie Royal (Royal Police Squadron) operates detachments at several airfields, but is primarily based at Rabat Souissi (helicopters) and Rabat Sale (fixed-wing). The paramilitary fleet now includes ten Ayres S2R T-34 Turbo Thrush 660 dedicated fire-fighting aircraft, 20 ULM Titan Tornado II microlights, and 14 BN-2T Defenders (the latter operated on behalf of the Ministry of Fisheries).

These fixed-wing types are augmented by four Aérospatiale Gazelles, and two Eurocopter Ecureuils for fire-fighting and search and rescue, seven Eurocopter Pumas, three Aérospatiale Lamas, one Aérospatiale Alouette II, one Super Puma and two UH-60 Blackhawks.

Air Order of Battle

1eme base aeriennes - Rabat Salé

Escadre Hélicoptère

Groupement d'Intervention Hélicoptères	Special Forces support	SA330 Puma, SA342L Gazelle
Escadron Hélicoptère*	Heavy lift	CH-47C(M)
Escadron Hélicoptère*	Support Helicopter	Bell 212, Agusta Bell 212, AB205
Escadron Hélicoptère*	Liaison	AB206A, AB206B
L'Ecole de Spécialisation Hélicoptères	Helicopter Training	AB206A, AB206B, AB205A, SA342L
VIP Escadrille	VIP Transport	Beech 200C, Beech 300, Cessna 560, Gulfstream IIT, Gulfstream III, Falcon 50

Défense Aérienne du Territoire AD HQ No assigned aircraft

* It is assumed that the Escadre Hélicoptère is split into constituent squadrons, though the exact allocation of aircraft within such squadrons is partly speculative.

2eme base aeriennes - Meknes - Mezergues

Escadre de Chasse 'Tigre'

Escadron de Chasse Borak	CAS/BAI	F-5E/F Tiger III
Escadron de Chasse Chahine	Fighter	F-5E/F Tiger III
Escadron de Chasse ERIGE*	Recce/EW	F-5E/F Tiger III

Centre d'Instruction Pilotes Combat

Escadron d'Entraînement Avancé	Advanced Training	Alpha Jet H
Escadron d'Instruction Sol	Ground attack training	Alpha Jet H
Ecole de Chasse Christian Martel	Fighter Training	Alpha Jet H

* Escadron de Reconnaissance, d'Interprétation et de Guerre Electronique

3eme base aeriennes - Kenitra

Escadre de Transport 3

Escadron de Transport*	Transport/tanker	C-130H, KC-130H, CN235M-100
Escadron*	EIint/EW	EC-130H, Dassault Falcon 20 ECM
Escadron?*	Liaison	King Air 100, Super King Air 200, 300 and 350
Ecole Bimoteurs	Multi engine training	King Air 100
Ecole de Transport	Conversion	C-130H, CN235M-100**

** It is assumed that the Escadre Transport is split into constituent squadrons, though the exact allocation of aircraft within such squadrons is partly speculative.

** Borrowed from Escadron de Transport?

4eme base aeriennes - Laayoune (El Aaiún) - Hassan I

Maritime Patrol Flight	Maritime patrol	Do28D2
Escadre de Chasse (det)	Fighter/CAS/BAI	F-5E/Mirage F1

5eme base aeriennes - Sidi Slimane

Escadre de Chasse Sarab

Escadron de Chasse Assad	Fighter/OCU	Mirage F1CH
Escadron de Chasse Atlas	Fighter	Mirage F1EH, EH200
Escadron de Chasse Iguider	Recce/EW	Mirage F1EH, EH200, Falcon 20 ECM

Base des Ecoles des FRA - Marrakech - Menara

Ecole de Pilotage	Flying training	AS-202 Bravo, Beech T-34C-1, T-37B
Patrouille Acrobatique Maroc 'March Verte'		Display Mudry CAP 232

Casablanca Nouasseur – Mohammed V Airport

Flotille 11 (Royal Moroccan Navy)	ASW/Maritime patrol	AS565MB*
Atelier Magasin Général	Maintenance Unit	No assigned aircraft

* also embarked on former French Floreal class frigates Mohammed V and Hassan II

Other airfields in use by Morocco's armed forces include:

Agadir Besergao (Agadir's former civil airport, closed to civilian traffic since December 1991), Benguerir (also known as Benslimane), Boucraâ, Dahkla, Errachidia, Goulmime (Guelmim), Guelta Zemmour, Khouribga, Ouarzazate, Nador, Smara and Tan Tan (Taza).

The paramilitary Gendarmerie Royale operate from a number of airfields, but primarily from Rabat Souissi (helicopters) and Rabat Sale (fixed wing).

Escadre – Wing

Escadron – Squadron

Escadrille – Flight

MOROCCO



By global standards the AeroExpo Morocco held at Manera Airport in Marrakech was small – but the passion and enthusiasm the host showed for a growing aerospace industry suggests that it is here to stay – and likely to be bigger in the future,

The show was focusing on the creation opportunities for aerospace professionals to interact, find new buyers and potential partners.

It attracted international exhibitors from Europe and the USA – but with a strong French influence. It had government backing and delegations from Angola, Benin, Burkina Faso, Cameroun, Central African Republic, Chad, Congo, Democratic Republic Congo, Cote d’Ivoire, Ethiopia, Egypt, Gabon, Ghana, Guinea, Kenya, Mali, Malawi, Mauritania, Niger, Nigeria, Senegal, and Togo in attendance.



Check out this gyro

Morocco is embracing aviation in all shapes and sizes and one performer at this year’s AeroExpo in Marrakech that caught a lot of people’s imagination was the Cougar from the Spanish gyrocopter manufacturer ELA.

As well as looking at the options for a Moroccan agent for the company, founder Emilio Lopez Alemany and his family were in North Africa to show off the aircraft’s tactical capability as well as its leisure options.

According to Alemany the gyrocopter has a number of applications that could support government functions across north Africa and the Levant.

Already police forces are using the two-seater aircraft instead of helicopters because of those many advantages such as flight speeds from as low as 25mph (40kph) through to 110mph (176kph) with ultra short take off and landing and no stall or spin. It has great manoeuvrability, can be taken by trailer and has both low acquisition cost and low maintenance cost. The operational costs are around 42 Euros per hour including fuel and maintenance.

Why MENA expansion could be a life-saver

UK-based company Martin-Baker, the worlds’ longest-established manufacturer of ejection seats is already well known within Morocco but came to AeroExpo to generate further interest.

“We are here to re-enforce our relationship with the RMAF,” said senior after-sales executive Michael Cameron at the show. “To our knowledge, 14 Moroccan pilots have been saved by using our ejection seats. They are fitted to the RMAF Alpha Jet and Mirage aircraft and the RMAF is buying 24 Hawker Beechcraft T-6 aircraft, which is fitted with our latest seat, the Mk 16L.”

The company’s headquarters is in Denham, UK and it also has locations in France, Italy and the United States. But it is North Africa and the Middle East that the company has its eye on as it hopes to open up a facility within the region.

“We have 80 per cent of the western market but we know that North Africa and the Middle East is booming business,” said Cameron. “Many of these customers are buying new aircraft or upgrading existing fleets, so competition in these markets is fierce. Therefore these customers can be very selective in their choices of equipment or aircraft.

“Such an investment puts more emphasis on aircrew safety. It is important that customers are correctly advised on the solution to their aircrew safety problem, which is why we try and be with the customers in person so they can make an informed choice.”

Cameron added the company would like to establish a centre of excellence maintenance facility



in the region and would welcome discussions from suitable interested parties.

The company boasts saving more than 7,290 aircrew lives in more than 93 Air Forces. So what sets it apart from its competitors?

“For the past 60 years Martin-Baker has concentrated solely on aircrew safety. We are the only company that can offer a fully-integrated escape system that offers the very latest in pilot operational capability and safety standards,” said Cameron.

“We understand that our equipment may represent the crew members’ last chance to survive and that there can be no compromise. Every facet of the safety system – from initiation, escape path clearance, ejection sequencing, stabilisation, life support and parachute descent to final rescue – must work perfectly to safeguard a precious life.”

Helisud makes its mark in preparation for Heliconia

A new helicopter company is developing a great reputation from its base at Marrakech Menara Airport. Helisud Maroc has gone through a complete fleet renewal programme and has even added two fixed wing aircraft to its fleet of six helicopters.

The company has employed an impressive team of experienced pilots and is offering both VIP transport and general operations to customers throughout Morocco.

During the Marrakech Airshow, the company also displayed its heavy lift capabilities, which had used recently to deliver a piece of equipment for the courtyard of a royal palace because it was too large to pass through the doors.

The company has two Ecureuil AS350 B2 and one B3. It has an Ecureuil 130 and two Robinson R44s. For fixed wing transportation it has a Cessna Grand Caravan and a Beechcraft King Air 350.

The company is supporting the top level tourism requirements through its aerial sightseeing and transportation from the deserts to the Atlas Mountains

Helisud is the only private helicopter operation in Morocco and was founded in 2000 but taken over in 2008 by Daniel Sigaud and Aurelie Giraud. The company is being rebranded and later this year will become known as Heliconia in line with the opening of the Heliconia Air Park on the edge of Marrakech with its own garden and VIP facility. The Airpark will have three new hangars and the company's offices.



New dealer aims to bring light touch to North Africa

Italian manufacturer Tecnam has launched a dealership to cover the whole of North Africa for its range of single and twin light aircraft.

Tecnam Aviafric was announced at the Moroccan show with a P2006T on display.

General manager of the Casablanca-based dealership, Nourane Bakkali, said there is a growing interest in private aviation and flight training in the North African country.

"Generally the weather is good and Morocco is a beautiful country with mountains and great scenery. Because of that, a twin-engined aircraft is ideal and the P2006T is perfect. It is robust enough for flying schools and we are seeing growing interest in that area as more people invest in the concept. But there is also a growing number of people interested in flying for leisure."

The Tecnam P2006T was certificated by EASA last year. With its two Rotax 912S engines of 100hp (73kW) each it uses just 30 litres of fuel per hour for both engines – comparable with many piston singles. It can use both Mogas and Avgas.

The aircraft has a range of 620nm and cruises at 140knots at a maximum altitude of 15000 feet. It has a take-off run of just 274 metres.

"We are looking across the whole of North Africa for this aircraft," Bakkali said. "There has already been a great response in France, Spain and Italy and although it is early days for this market, we see huge potential."

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MAFFS blaze a flexible trail

With three in service, Morocco is now the largest user of Aero Union's legacy Modular Airborne Fire Fighting System (MAFFS), the US Forest service having converted to the new MAFFS 2 system last year.

Morocco took delivery of its three systems (SN007 to SN009) between April and June 2002, joining Greece, Italy, Portugal, Tunisia, Turkey and Thailand as operators – a list subsequently extended to include Brazil.

But while Morocco is a relative newcomer to MAFFS operations, it has embraced the system with great enthusiasm and has led the way in fully exploiting its flexibility and versatility.

Britt Gourley, Aero Union's energetic new CEO told Arabian Aerospace: "The system doesn't care what it's spraying." He highlighted Morocco's use of the MAFFS for 'bug spraying' (combating locusts), using a specialized Aero Union attachment for delivering a mist of insecticide, instead of a torrent of retardant. He also emphasised the system's potential for drug eradication and oil dispersion, given suitable attachments for spray nozzles.

But the *raison d'être* of MAFFS is fire-fighting. It is a self-contained, reusable, pneumatically-powered, roll-on/roll-off modular aerial fluid dispersal system that can be installed in any C-130-E or -H equipped with the USAF's standard 463L cargo-handling system.

The system consists of five tank modules, with a total capacity of 2,700 gallons, each one containing a pressure tank where compressed air is stored at 1200psi. This is used to 'pump' the retardant from the tanks. The system also includes control and dissemination modules. The whole 11,000-lb system is pallet-mounted, allowing a standard Hercules transport to be re-rolled as a fire-fighting 'air tanker' in less than two hours.

The tanks are filled on the ground and the pressure tanks are recharged using a compressor module that stays at the air base during operations.

The role of the air tanker is not normally to drop water or retardant directly on a fire, as this is seldom effective, though such direct action can be undertaken if the fire threatens something important. Instead, the primary purpose is to check the spread of the fire and to control its direction, laying down retardant ahead of the blaze or at its edges to prevent or slow its spread.

The tanks can be filled with water or, more usually, with a fire-retardant chemical mixed with water. This works by creating a chemical reaction so that wood or vegetation in the path of the flames will no longer support the fire.

It is made of 80 to 85 per cent water, 10 to 15 per cent ammonium sulphate (a gelling agent), and a bright red colouring. The bright colour helps pilots to see where they have dropped

previous loads and to monitor the accuracy of their drops. The retardant breaks down within days into a growth-promoting fertilizer and, thus, doubles as a post-fire reforestation fertilizer.

The retardant is dispersed through two large pipes, which fold down and exit over the ramp, discharging the chemical alternately from a series of tanks to keep the aircraft's centre of gravity within limits. Various flow rates can be pre-selected at the control module, allowing a variety of coverage patterns to be used. At maximum flow rate, a MAFFS-equipped Hercules can discharge its entire load of retardant over a pre-determined drop zone in as little as five seconds, or alternatively, the aircraft can make a number of smaller or less dense drops.

The new MAFFS 2 system differs from the legacy design in having a single tank and a single dispersal nozzle that exits through the port para door instead of over the ramp. This allows the aircraft to remain pressurized throughout the flight.

MAFFS 2 has a capacity of up to 3,400 gallons and allows a greater number of coverage rate options, while the new nozzle prevents retardant from hitting the tail and rear fuselage, reducing the amount of time and money that has to be allocated to cleaning the corrosive retardant from the aircraft. The new system also has an on-board compressor, allowing the tank to be charged en route to the fire, rather than on the ground. This



on fire-fighting

reduces both the requirement for ground support personnel and turnaround times, thereby allowing more missions to be flown in any particular time period.

The new-generation MAFFS unit was declared fully operational in February 2009 and Aero Union is now actively marketing the system to Australia and several European countries, as well as existing MAFFS customers, including Morocco. This represents as big a market as the current US domestic user base. Interestingly, Aero Union is in active discussions with Marshall Aerospace in Cambridge.

But the biggest market for MAFFS 2 may be in the USA. The nine systems delivered equip four Air National Guard and Air Force Reserve Hercules airlift wings, and these are used as a 'back stop'. The C-130s provide emergency capability to supplement the existing commercial air tanker capacity, and can only be called into action when the civilian contract air tankers are committed or are otherwise unable to meet requests for air operations.

With growing concerns surrounding the operation of many of the ex-military aircraft types that have hitherto formed the backbone of the US fire-fighting fleet, a drive is underway to embrace a new approach, and to introduce new aircraft types.

Britt Gourley said: "There is a need for a new

platform and the industry is moving towards the C-130 model. We hope to migrate customers to the C-130 and MAFFS II."

It is less clear who would operate these new aircraft and Gourley admits that: "Arguments for nationalization are being marshalled."

He said the industry needed to be more sophisticated, with a more professional approach and with no place for any kind of "cowboy" approach, with an end to deferred maintenance and the use of what he called "hair brained platforms" (cheap vintage ex-military aircraft of questionable airworthiness). That era ended with the much-publicised accidents in 2003.

He believes that the private contracting model remains viable in the longer term. Though capital costs are huge, the US Government could provide long-term contracts and relatively cheap credit, while the maintenance costs of more modern aircraft will be lower.

Moreover, the versatility of the Hercules and the roll-on/roll-off nature of the MAFFS would allow companies to earn more money during that season by flying utility and support missions as well as air tanker missions and to earn revenue outside the 'fire season', compensating for the higher capital cost by branching out into other tasks and roles – including bug spraying, narcotics eradication, oil dispersion and freight hauling.

Air Force stands ready to liquidate the locust threat

Though *Dociostaurus Maroccanus* (the Moroccan locust) has not been responsible for the levels of economic damage that it once caused, with fewer outbreaks in recent years, it remains a potentially dangerous threat.

The Royal Moroccan Air Force is always on stand-by to deal with the problem, as it demonstrated during the recent Expo in Marrakech.

Agricultural developments have very different effects on the locust, with deforestation and overgrazing creating perfect conditions for their colonization, while conversion of grassland into arable crop areas has the opposite effect, since females prefer to lay their eggs into undisturbed soil.

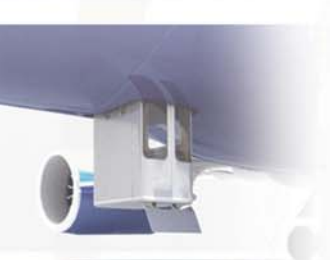
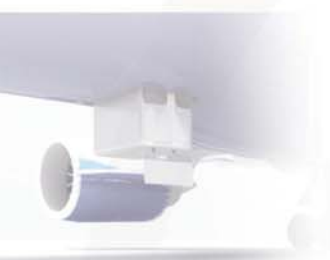
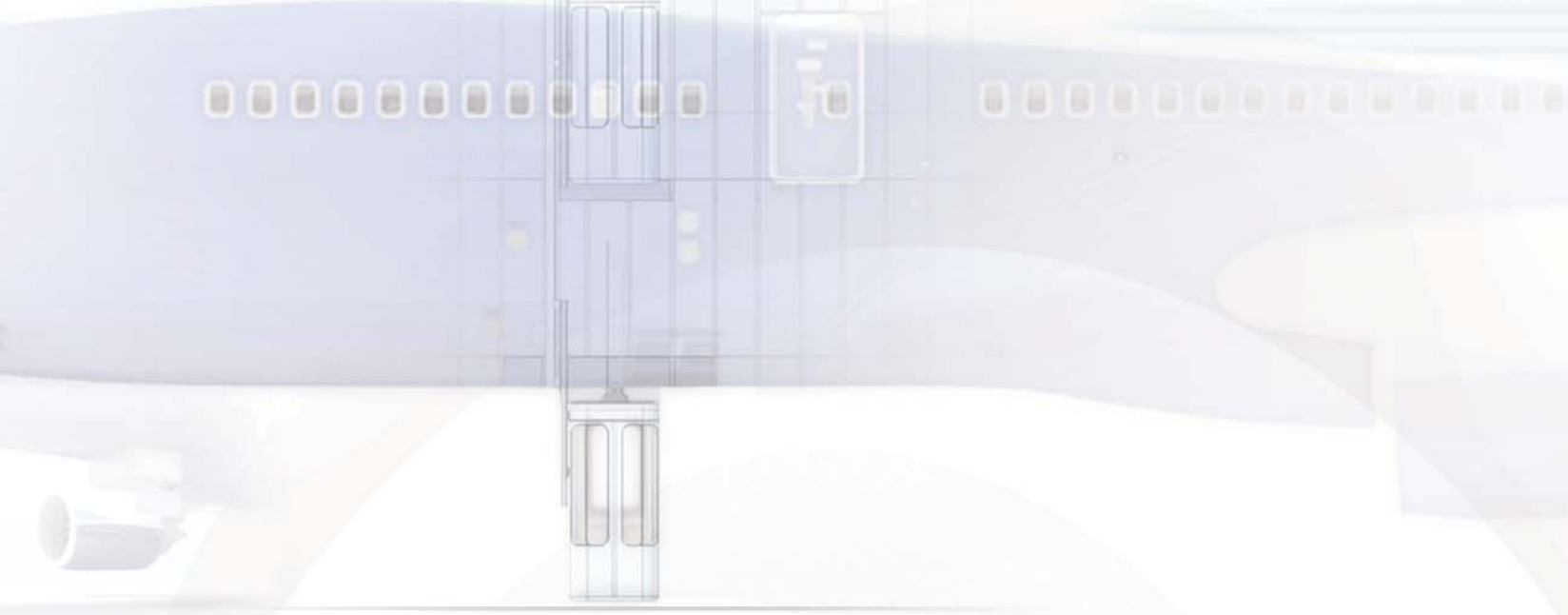
But while these factors are usually 'in balance' it can take only small changes to allow locust breeding to explode and for swarms of these insects to rapidly threaten millions of people with starvation and ruin. Rainfall at the wrong time of year, in the wrong area, can have a disastrous effect, and the difficulties inherent in controlling the locust in areas of conflict (for example in the areas contested by the Polisario) can allow things to get out of hand very quickly.

These difficulties were starkly illustrated during 1988, when the Polisario fired SAM-7 surface-to-air missiles at two crop-spraying civilian DC-7s belonging to T&G Aviation, downing one (with the loss of its five-man crew) and damaging the other – mistaking the aircraft for Royal Moroccan Air Force C-130 Hercules.

But this places an even higher premium on the speed of reaction afforded by aerial spraying and the RMAF retains a robust anti-locust capability.

The air force showed an Agusta Bell 205 equipped with siomplex tanks in the cabin and outrigger spray bars in the static display at the recent Marrakech show, and flew a spray-equipped C-130H in the flying display – soaking the visiting USAF F-16 on at least one occasion. These and other aircraft stand ready to combat the menace posed by swarms of locusts.





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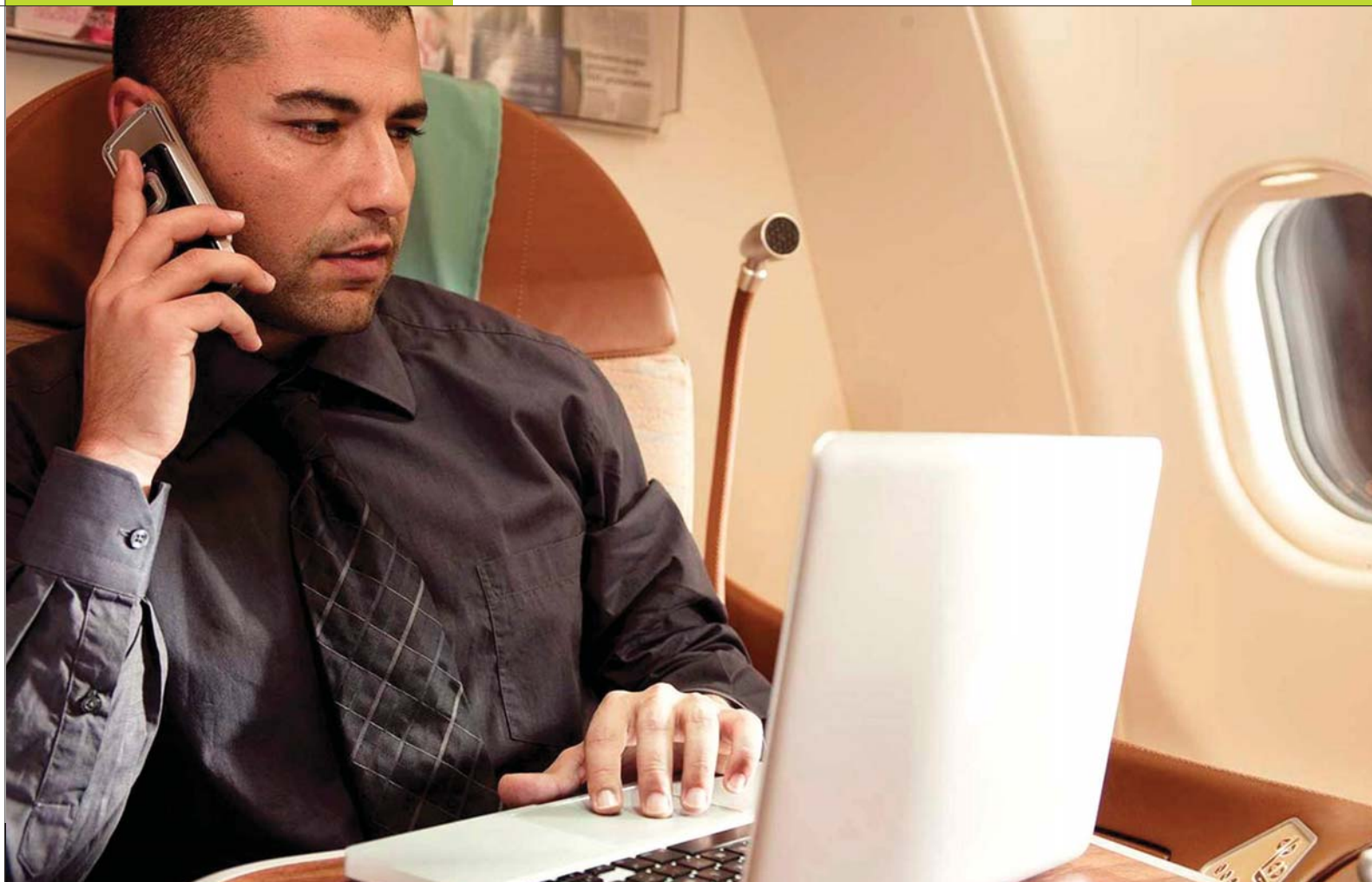


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WELCOME TO THE CABIN CASBAH

Passengers have voted three Middle East carriers into the global Top Ten and Emirates has doubled the frequency with which it offers the world's most luxurious airline product to London-bound passengers. Little wonder that the cabin vendors beat a path to this year's Aircraft Interiors Middle East (AIME) show in Dubai,
writes Brendan Gallagher

The latest passenger survey from respected monitoring company Skytrax ranks Qatar Airways, Emirates and Etihad among the best in the world for service quality, with the big names from Europe and North America nowhere to be seen.

And Emirates continues to roll out a unique offering, recently introducing its first-class showers on a second daily A380 frequency from Dubai to London.

The Middle East now sets the service standard for the rest of the air transport industry to follow and the world's cabin system and product suppliers are keen to rise to the challenge. Nearly 50 of them came to Dubai in February for the second edition of Aircraft Interiors Middle East to show off the best they have to offer in the

way of in-flight entertainment, connectivity, seating, interiors and furnishings.

Setting the tone was Emirates IFE/connectivity guru Patrick Brannelly, keynote speaker at the show's first-day workshop. "The Middle East is a very good opportunity for vendors and events like this are a very good showcase," he said. "I shall be looking for suppliers with a passion for innovation and excellence."

When it comes to innovation, Emirates corporate communications VP Brannelly knows what he's talking about. In his previous job as passenger communications and visual services VP he drove many of the new amenities enjoyed by the airline's customers, including the industry-leading ICE in-flight entertainment service and the

Continued
on Page 72

CONTINUED FROM PAGE 71

world's first onboard mobile phone service. Introduced in March 2008, phone capability is now available on more than 70 Emirates aircraft and is being rolled out to the rest of the fleet.

In just under two years 1.6 million passengers have logged on to the service, which has been offered on more than 55,000 flights. Around a quarter-of-a-million text messages have been sent from Emirates aircraft this year alone. "Sooner or later the whole debate over connectivity in aircraft will be over," Brannelly said. "The only question is when, not if."

He looked forward to the imminent addition of BlackBerry connectivity to the service, asserting that hard times were no reason for a company to back off from innovation. "There are real, pressing reasons for innovation," he declared. "To begin with, the passenger goes 'Wow' at the latest offering. Then as time passes it becomes ordinary and people want something newer and better. For example, today's business-class traveller wants more than was offered in first-class ten years ago."

Among the innovators who caught the eye at AIME were seat makers EADS Sogerma, Recaro and Aviointeriors, two new-generation IFE system suppliers – AlsterAero of Hamburg, and Californian-based The IMS Company – and IFE market leader and emerging connectivity player Panasonic.

"We decided it was time we offered a first-class suite of the highest quality," said EADS Sogerma sales and marketing VP Jeff Forsbrey. The result is Ultimate 17, which made its public debut at the French seat maker's stand.

Quality and comfort

"We unveiled it here because the Middle Eastern market is very important to us," Forsbrey said. "We have several existing and potential customers in the region and they all value the highest possible levels of quality and comfort. This seat is designed to meet those needs in full."

Ultimate 17 is now in series production at Sogerma's facility in Rochefort, south-west France, against orders from several airline customers.

The wraps will come off further new developments from Sogerma at Aircraft Interiors Expo in Hamburg later this year. "We plan to show our Ultimate Sleeper – Ultimate 17 plus a plug-in bed module," Forsbrey said. "And visitors are welcome to come and see us about other new products that we're working on."

Ultimate Sleeper is the result of a collaboration between Sogerma and Lufthansa Technik. The Hamburg-based MRO and cabin systems provider came up with the original concept for an add-on bed and partnered with Sogerma to industrialise it and carry out series production.

To date Germany's Recaro has focused successfully on the economy and business markets. "Now, as some carriers withdraw from the first-class market, we're turning our attention to developing a design that will appeal to the two-



"We decided it was time we offered a first-class suite of the highest quality."

Jeff Forsbrey



"Sooner or later the whole debate over connectivity in aircraft will be over."

Patrick Brannelly

class operators," said regional sales director Kay Follath. "It will be a hybrid business/first-class seat combining fully lie-flat capability with more features than are usually found in a conventional first-class product."

The company, which received a Crystal Cabin Award in 2009, was making its first appearance at AIME. "We're at this show because in this region there's a constant need to be present," said Follath. "But we're already strong in the Middle East and have negotiations under way with potential new customers."

Existing Recaro clients in the region include FlyDubai, Qatar Airways, Saudi Arabian Airlines, Etihad and Gulf Air.

Low-fare operator FlyDubai has ordered the company's BL3510 lightweight economy seat for the six Boeing 737-800s it has in service, with three more due to arrive by June.

Qatar Airways is the launch customer for the revolutionary new CL3620, designed to ease the pain of long-haul flights in economy. Derived from the established CL3610, it weighs less and offers what the company describes as exceptional legroom. Like its predecessor, it is based on a single-beam structure designed to replace the two support beams of conventional designs and so provide extra space for the passenger.

"The Comfort Line 3620 sets new standards in ergonomics," said chief executive Axel Kahnsnitz. "It offers passengers exceptional comfort in the economy class. It is based on the unique single-beam principle that gives the seat a much leaner profile. This significantly increases legroom and lets passengers enjoy maximum living space – even with a relatively short seat pitch. Features like the flexible material in the headrest, the foot net, the ultra-thin backrest and other innovations add up to an exceptionally comfortable experience for passengers."

Business product

Qatar has ordered the seat, along with the CL4420 business product, for 20 new Airbus A320s and four A321s. Qantas and V-Australia have also ordered the CL3620.

Saudi Arabian Airlines has ordered CL4420 along with the CL3510 economy product for eight new Airbus A330-300s, while Etihad plans to retrofit the same combination to a total of ten A319s and A320s. Gulf Air has selected CL3510 and the CL4400 business unit for 15 A320s, with further aircraft on option.

Appealing to the very top end of the market was Aviointeriors. The Italian company showcased "beyond first-class" comfort in the form of its



“We’re developing a design that will appeal to the two-class operators.”

Kay Follath



“The first aircraft for our eXConnect customers will be delivered by 2011.”

David Bruner

completely enclosed Sky Suite. “It’s a personal space where passengers can feel like they are in a luxury hotel suite,” said sales manager Christian Battisti.

With a pair of VIP installations already to its credit, Hamburg-based IFE system provider AlsterAero was at AIME to talk to completions centres and the airlines. “Our combined IFE/communications system is installed, certificated and flying in an Airbus A318 and an A319,” said managing director sales Bettina Mühlenberg-Lange. “And we’re talking to a number of full-service airlines about retrofits in their existing fleets.”

The brainchild of some former Lufthansa Technik employees, AlsterAero has a staff of just 15 people. This small team has come up with a package that has attracted the praise of Airbus cabin specialists for its combination of versatility, performance and compactness.

The complete AlsterAero offering comprises passenger communications and IFE sub-systems and a cabin management capability. Customers can opt for all three, or for one or two of them. The data backbone is ethernet arranged in a tree structure designed to minimise cable runs. Flexible connection schemes and power transmission via the data cabling further simplify

installation and have allowed the elimination of traditional seat electronic boxes.

The passenger communications capability is based on the all-digital IPTCU (IP cabin telecommunications unit) server and the ethernet switch, which together can support Inmarsat and other satellite bearer systems and applications such as wired and wireless Internet and VPN access, VoIP to cordless handsets, and ISDN data.

Digital network

The IFE sub-system centres on a cluster of 2MCU servers, each capable of delivering audio, video, moving-map, games and other content to up to 50 seats. The AlsterAero architecture also makes possible less ambitious installations based on a DVD drive distributing its content over the same digital network. Any subsequent upgrade to a server-based arrangement is straightforward, according to the company.

The IMS company is also looking to break the IFE mould and came to Dubai with a product designed to solve the problems that have bedevilled audio/video-on-demand systems over the years.

“Our Reliable Audio Video Entertainment (RAVE) does away with all the snags and bottlenecks typical of conventional AVOD architectures,” said Neil Morgan, the company’s

director of sales for Europe, the Middle East and Africa. “It speeds and simplifies content loading, and is far more failure-tolerant – very important when passengers can judge a big part of their travel experience by the quality of the IFE.”

Announced last year and due for commercial availability in the next few months, the RAVE in-seat unit slots into the seatback, where it receives power and content via aircraft systems, and can be removed only by the cabin staff. Loaded with its full content set from a small (4MCU) head-end by a combination of cable and wireless, the unit is fully autonomous. If it fails, it can be replaced by a cabin attendant while normal service continues at every other seat.

RAVE comprises just two types of box – the seat display unit (SDU), which can also be configured as a crew control panel, and the head-end server (System Control Unit, SCU).

Wireless ports

The SDU has an input for power and wired gigabit ethernet and wireless ports. The SCU, which acts as the aircraft interface as well as supplying content, is based on IMS’s successful Terminal Data Loader (TDL). The two units incorporate highly reliable solid-state storage, expandable from four to 12 terabytes, and there will be a choice of 8.5in, 10.6in, 12.1in and 15.4in screens.

AlsterAero and IMS are among the pack of young dogs snapping at the heels of Panasonic Avionics, represented at AIME by global communications services VP David Bruner. Panasonic effectively dominates the mainstream AVOD market with Thales Avionics and is now making a bid for similar pre-eminence in the passenger broadband connectivity arena.

The Californian-based company’s eXConnect Ku-band satellite service has been in development for a number of years but could now be close to its operational debut. “The first aircraft for our five eXConnect customers will be delivered by the end of the year,” said Bruner. “And you should look out for an announcement any time now from Lufthansa, our launch customer.”

According to Bruner, the German carrier plans to equip a significant number of aircraft before marketing the service, a successor to the pioneering Connexion by Boeing, to its passengers. “We will launch on the North Atlantic,” he said. “When we do, travellers on Lufthansa’s Europe-USA routes will be able to count on having it whenever they fly.”

Panasonic announced recently that eXConnect, along with the GSM phone and in-flight television elements of its Global Communications Suite, would be made available on the new Airbus A350. Bruner confirmed that offerability on the rest of the Airbus range was on its way.

AIME 2010 provided plenty of evidence that the Middle East’s appetite for cabin innovation has been little affected by the recession, while the vendors are only too happy to serve up the tastiest dishes they can prepare. This year’s event was a hearty meal – AIME 2012 could be a banquet.



< How to make a military jet Happy and bright...

One company making a colourful impact at AIME was Happy Design Studio.

The French company has the creative ability to make an aircraft stand out from the rest visually. And Saudi-based aircraft engineering consultancy Arabian Jets plans just that as it signed an exclusive agreement with Happy to work on unique designs for military jets.

The French company was set up by Didier Wolff eight years ago. He started off designing surf boards until he decided to combine his creative skills with his passion for aviation a year back.

"In 1998 I learnt how to fly a single-engine aircraft so, being able to personalise and customise aircraft with my design skills is a great joy for me," said Wolff.

"I can customise commercial airlines, private and military aircraft. The external decoration of a private jet is dependent on the owner's desire to reveal an aspect of his personality or to impose his company's character or image. Customer can leave the design ideas to me or have their own ideas but, either way, I always have a good understanding with them."

Wolff works alongside engineering company Aeroconseil to ensure that EASA rules are applied to the engineering drawings and certification dossier.

Wolff was at AIME following the success of his launch at the Dubai Air Show last year.

Kydex boosts interiors > with injection of science

A new injection molding resin was unveiled at AIME by thermoplastic sheet producers KYDEX.

"The KYDEX FST-IM is an injection molding resin designed to work with KYDEX thermoplastic sheet on any parts that would typically be injection molded," explained international business manager Ronn Court. "The advantage to getting both from KYDEX is that you can precisely match colours and textures. Typically, when you're using injection molding and thermoplastic sheet together, the colours will not match. The secondary advantage is the opportunity for single-sourcing through KYDEX."

The FST-IM is available in small production runs of 25kg or more and is compliant to Airbus ABD0031 and Boeing D6-51377 requirements.

Thermoplastic sheets specifically produced for aircraft interiors by the US-based company include the Kydex 6787 LT.

"This was developed in direct response to the commercial seating suppliers that have contracts for the Boeing 787 Dreamliner 'catalog seat' programme," said Cort. "There was a need to supply these companies with a compliant material that could be produced in very small runs of custom colours. The 6787 was developed for these customers. It is a proprietary acrylic/PVC blend that can be thermoformed into complex shapes with very low tooling and fabrication costs. With a price and performance index similar to our popular Kydex 6565 material, it is a step up in compliance without any significant costs increase."

The sheet meets with Boeing toxicity requirements for cabin interior components like seating, tray tables and literature pockets.

"The KYDEX FST sheet is our most popular sheet for modern aircraft interiors and is available in the emerging colours and finishes, including a brushed metal texture, required for Airbus A350, Airbus A380 and Boeing 787 applications," said Cort.

"All our thermoplastic sheets are suited to applications requiring such properties as fire retardation, chemical resistance, formability and high-impact resistance."

KYDEX customers include B/E Aerospace, Contour Premium Aircraft Seating, Sicma, Recaro, Weber and Geven.



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Loom at the

The Middle East aviation market is booming so exhibiting at Aircraft Interiors Middle East (AIME) is vital. This year saw many textile companies – from seat cover manufacturers to carpet manufacturers – displaying their wares. Marcelle Nethersole reports.

Irish textile company Botany Weaving had a very significant reason for being at the show – to sign an exclusive seven-year contract with Air Arabia. The family-run company will supply seat fabric, curtains, and carpeting after successfully meeting the strict design durability and competitive cost requirements of the UAE's first low-cost airline.

“Botany Weaving and Air Arabia are two companies with the same high-quality, low-cost philosophy to give unparalleled value to their customers while maintaining the highest level of service and commitment,” said Botany Weaving CEO Jonathan Hackett. “We are not simply about supplying customers with materials they need, but also about creating innovative products that make aircraft more attractive, comfortable and economical.”

The company has recently launched a range of durable lightweight flat woven fabrics in modern designs and vibrant colours.

“These fabrics are 15 per cent lighter than standard aircraft upholstery constructions and all manufactured in our purpose-built facility in Dublin. We also have a new lightweight 100 per cent nylon carpet, which weighs only 1200 grams per square meter,” said Hackett.

To meet its increased carpet production, the company took delivery of a new Schonherr weaving machine for its recently completed and purpose-built third manufacturing facility in Ireland.

“This came on-line in November and represents a substantial investment by us. Our facility will also house five moquette looms and combined with our existing facilities in Dublin and Kilcar will future-proof production demands. No longer do airlines have to pay high prices for excellent design and service,” he added.

Besides the new Air Arabia deal, customers within the region include Etihad, Saudi Airlines, Syria Air and Iran Air.

One company exhibiting at the show believes it has the answer to the future of aircraft seat covers. “We design, cut and sew seat covers in fabric and leather,” said Paymen Sabeti, director of Sabeti Wain. “But we specialise in a unique type of seat where the fabric and leather is laminated to a foam-backing giving the same look as luxury car seat covers.

“This latest innovation is shaped and designed to replace the back foam on the seat, therefore



Top: Myles Hobbs, sales manager, and Jonathan Hackett, CEO of Botany Weaving.
Above: Paymen Sabeti, director of Sabeti Wain.

giving a unique shape to the cover and laminating it with a thin layer of foam. By doing away with the back foam you save weight and costs.”

The UK-based company says lamination is the future of aircraft seats.

“We specialise in lamination. It definitely gives the best results as it enhances the look of the seat covers and it allows designers to realise their designed shape from rendering into sharp, crisp,

fresh looking seat covers,” explained Sabeti. “Designing the cover at the same time as the back and bottom foams can lead to a reduction in the foams while retaining comfort and saving weight, as well as cutting costs and maximising image. It is unlike others on the market.”

The company believes it's the only one with in-house lamination facilities within the aerospace industry. Its lamination is in use on Emirates across all classes, Fly Dubai and Etihad Business and First Class covers, Qantas across all classes, Jet Airways, and British Airways Business Class.

It has a manufacturing facility in the UK but, due to demand, Sabeti opened a second facility in Dubai in 2007 based at the Airport Free Zone.

Two companies attending AIME have brought their textile skills together, seeing positive results.

German carpet manufacturers Anker-Teppichboden was at the show to meet new potential clients in the region along with its partner Rohi, which specialises in seating fabrics that can be matched to Anker's carpets.

“We produce contract carpets, both woven and tufted, with a fully-integrated production line which includes spinning, dyeing, weaving/tufting and finishing for aircraft,” said sales director

top!

Alexander v.Fuchs-Nordhoff for Anker. "Our carpets can be made of wool and nylon and we can produce and design in any colour in accordance to our customer requirements. We use raw materials to make high-quality eco-friendly carpet, which is fully durable so it doesn't need to be changed so frequently."

Anker's customers include Emirates, Gulf Air, Thai Airways and Lufthansa.

Rohi displayed examples of its seat covers currently used on board Oman Air A330, Gulf Air, Singapore Airlines and Emirates.

"We also provide complete interior textile solutions for the whole aircraft cabin, including all relevant soft materials; curtain and antimacassar fabrics, leather and carpets," said sales director Thomas Kaminsky. "Customers can choose from established collections or use one of our eight expert designers for their own individual solutions within a defined timeframe."

"Working along with Anker-Teppichboden, we ensure perfect harmonised fabrics and carpets," added Kaminsky.



Alexander v Fuchs-Nordhoff from Anker and Rohi's Thomas Kaminsky have it covered.

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AMAC is a complete success...

Swiss firm's expansion going like clockwork.

A relatively new brand in the completions business has made a firm mark in the sand when it comes to future prospects – particularly with Middle Eastern customers.

The company is AMAC, based in Basel, Switzerland. But it is no new boy.

AMAC was founded in 2007 by former Jet Aviation head Heinz Köhli, with partners Kadri Muhiddin, Bernd Schramm and Mauro Grossi. The company is located at EuroAirport Basel-Mulhouse-Freiburg and currently employs more than 200 people.

It offers high-quality aviation services for corporate and private aircraft, including maintenance, refurbishment and completion, aircraft management and chartering. And it has already delivered its first completion to a Middle Eastern head of state.

The aircraft has been equipped in full VIP configuration, including 48 seats, a bedroom, shower and state-of-the-art cabin entertainment system, including audio and video on demand, wireless LAN and SATCOM.

The total completion time was nine months and the company delivered it on time and in budget.

The design for the 320 came from Francis Munch of Studio Emotion of Mulhouse and Altair Aero Projects Ltd, Cyprus, performed project management.

The as yet unnamed client has also signed a flight support agreement with AMAC's dedicated operation team. After delivery of this first success, AMAC has started work on its next completion project, an Airbus 319.

Chief Executive Köhli is confident about the company's prospects. "We are pleased that we have

been able to continue expanding as planned, despite the difficult economic situation. Market developments and the positive long-term orders situation are enabling us to keep growing. We are positioning ourselves in a specific niche, but have been able to establish ourselves effectively in the market in recent years," he said.

Interestingly, the company is continuing to expand its facilities to create a hangar large enough to handle an aircraft the size of the A380. There is much speculation in the industry about which completion centre will take up the challenge of the superjumbo in its first VIP configuration.

AMAC's facility has already grown. The initial construction phase, which began at the end of March 2008, involved building a double hangar at EuroAirport with floor space of 4,200 m², workshops and technical offices totalling 1,800 m² and the company's own 20,000 m² tarmac area. This was completed on schedule at the end of September 2008.

The second phase of construction due to complete soon saw an investment in a wide-body hangar with floor space of around 8,400 m², along with further workshops and offices. The AMAC hangars will then comfortably accommodate multiple wide-body aircraft such as Boeing B747s, B787s, Airbus A330s, as well as smaller business jets of every type. Furthermore one AMAC hangar can easily be extended to host the new Airbus A380.



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*The collision of trends evident at this year's MRO Middle East show in Dubai is lending a sense of urgency to the relationship-building efforts of big names in the maintenance, repair and overhaul industry, writes **Brendan Gallagher.***

With its start-up airlines, fleet renewal and expansion programmes, and vast infrastructure developments, the Middle East is still the land of opportunity for MRO providers.

What's more, the region's carriers are as enthusiastic as any about outsourcing MRO so they can focus on flying aircraft and pleasing passengers.

But, for the European giants of the industry, this rosy picture is dimmed a little by the growing reality of competition from indigenous providers. Speaking at MRO Middle East at the beginning of March, Christophe Bernardini, chief executive of Paris-headquartered Sabena Technics, summed up the problem faced by the traditional suppliers.

"Emirates, for instance, has an excellent MRO operation. In the short term it faces problems finding enough suitably qualified local managers and engineers locally, and that creates a window of opportunity for external expertise," he said. "But how long will that last? And how long will it be before we find Middle Eastern suppliers looking for business on our home turf?"

For Sabena Technics, and at least one other major European supplier, the answer lies in partnerships designed to tie them into the region for the long haul and to smooth out the bumps of a volatile, increasingly commoditised market. "I want to partner with customers with the strategic intent of achieving longer-term stability in a competitive market where customers tend to switch suppliers very quickly," Bernardini said. "By that I mean joint ventures, set up to serve third parties and share the profit and loss."

Sabena Technics has already put this theory into practice in the form of the X-Air Services joint venture with Belgian freight company TNT Airways, and one with Tunisian charter operator Nouvelair, with a fleet of 19 Airbus A320s and Boeing 737s. "One of our criteria for the selection of suitable partners is geographical," said Bernardini. "We want to start with one per region. We have our partners in Europe and North Africa – now we're receiving expressions of interest from airlines in the Middle East."

As Lufthansa Technik's newly-appointed general manager for the Gulf, Ziad al Hazmi is responsible for the supply of MRO services to some of the top airlines in the region. His customers include Gulf Air, Oman Air, Qatar Airways and Saudia, and he's confident of adding to the list in the next few years.

"The growth that's happening makes us feel quite positive that there is plenty of further potential," said this Sharjah and London-educated aeronautical engineer. "Our business here is definitely growing, thanks to the fleet renewal that is going on and to the carriers' desire

How long can this window of opportunity remain open?



Christophe Bernardini: "How long will it be before we find Middle Eastern suppliers looking for business on our home turf?"

for long-term MRO solutions that save them money and allow them to focus on the core business of running the airline."

Helping to shape the German company's global strategy is Walter Heerdt, senior VP for marketing and sales. He echoed the Sabena Technics view of the challenge now faced in the Middle East by external MRO providers. "Though the recession has certainly left its traces, this region is prospering," he said. "The aviation market here is one of the fastest-growing in the



Alicia Morales: "We don't have anywhere near enough of our third-party business in this region – we want to improve on that."

world and there's a real depth of MRO capability already in place."

Like its competitor, Lufthansa Technik sees strategic partnering as the way to secure a future in the region. Last November the company announced a joint venture with Oman Air covering technical support for the airline and third-party customers. The partners plan to build a new hangar at Muscat International that will be able to handle up to two narrow-bodies and a similar number of wide-bodies simultaneously from 2012.



Abdelrahim Mohamed Khair: "This is a good opportunity to advance our business by seeing the future through the eyes of others."

Heerdt suggested that the Oman relationship might not be the only one of its kind. "Extra capacity is being created here and in other regions, with the momentum coming from start-up airlines and new MROs," he observed. "The best way for them to move forward without making big mistakes is to partner with established performers like Lufthansa Technik. We are receiving offers from the region, and are active in making offers of our own."

Any further partnerships that might emerge



Carlos Ruivo: "We're here now to expand our engine business – that's our prime focus in the Middle East."

could take a variety of forms, Heerdt indicated. "At present we see MROs teaming with airlines," he said. "But there no reason why one MRO shouldn't form a joint venture with another, or an MRO get together with an investment house."

While Lufthansa Technik is firmly implanted in the Middle East, two other major European airline-owned providers – TAP Maintenance and Engineering, and Iberia Maintenance – are knocking at the door.

"We have enjoyed some business in this region

Rebecca Flick: "Around 500 companies use us in the Middle East at present – we expect that number to double in the next couple of years."

– A320 D-checks for Syrian Arab Airlines, for instance," said Carlos Ruivo, the Portuguese company's marketing and sales VP. "We're here now to expand our engine business – that's our prime focus in the Middle East. At this event we have had a lot of visits from potential customers interested in finding an alternative to the OEM for engine support."

TAP also offers integrated airframe/engine/components packages and Ruivo sees this capability as another promising way into the Middle Eastern market. "I think we can differentiate ourselves through what we offer in this domain," he said. "We have been talking here about our total care capabilities with some very big operators."

Iberia Maintenance area manager Alicia Morales was frank about the company's ambitions. "At present we do about 55 per cent of our business with the parent airline and 45 per cent with third parties," she said. "We don't have anywhere

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near enough of our third-party business in this region – we want to improve on that.”

The Spanish company faces two particular challenges, according to Morales. “This market can be very complex, with a different way of doing business,” she remarked. “And we need to tell people here who we are, what we can do, and how good we are. At present they know about the airline but they still don’t understand that we offer service to third parties, that we are a serious alternative to in-house organisations and other MROs.”

The show also attracted two companies which provide vital IT and logistics support for the MRO business as a whole – US-based parts supply chain specialists AeroXchange and PartsBase.

“We’re well established in North America and Europe, and developing in Asia-Pacific,” said Kris Conrad, Asia-Pacific sales director for AeroXchange. “Now we’re turning our attention to the Middle East.”

The Texas-based company is riding high following two recent major deals – with Airbus for support of the aircraft manufacturer’s Flight Hour Services logistics and maintenance package, and with Ameco Beijing, which has signed up for the AeroBuy procurement offering. “We want to repeat that kind of success here and are now talking to several airlines and an MRO provider,” said Conrad.

As well as AeroBuy, the AeroXchange portfolio of software systems covers repair management, product and service sourcing, supply chain services, inventory management and component support. Said Conrad: “In a world where the airlines are increasingly focused on their core competence of operating aircraft, we do what other people don’t want to.”

While AeroXchange is airline-owned, PartsBase is completely neutral, according to strategic development VP Rebecca Flick. “People value the neutrality we offer,” she said. “We have no vested interest in the transactions that happen on our system. Around 500 companies use us in the Middle East at present – we expect that number to double in the next couple of years.”

Not all of the exhibitors were seasoned mainstream MRO players. Attending for the first time was Sudan’s Safat Aviation Complex, which specialises in the support of legacy Russian helicopters and fixed-wing aircraft.

“This is a good opportunity to advance our business by seeing the future through the eyes of others,” said technical sales manager Abdelrahim Mohamed Khair. “We’re here not only to show our capabilities but also to learn from the other vendors. We’re working on the Russian types now but we do want to transition towards modern Western-built aircraft in the next ten years.”

Ranging from seasoned performers aiming to cement their position in the region to ambitious newcomers with an eye on the first division, the vendors at MRO Middle East 2010 provided ample testimony to an industry that could see itself transformed in the decade ahead.

Fujairah shows off its potential

Fujairah International Airport is counting down to the opening of its new \$25 million MRO facility and has been presenting its potential to both MRO and aircraft interiors manufacturers and service providers.

Predictions that the MRO market will grow by 7.6 per cent year-on-year in the region and that aircraft interiors purchases from the rapidly growing commercial and business aviation sectors in the MENA countries will continue to lead the world, mean that many players are looking for bases throughout the Gulf.

Fujairah has already been prepared to invest. The new facility is being built in a partnership with airframe MRO company Europe Aviation. The latter aims to attract business not just from the Middle East but also from India.

The new hangar under construction will be capable of receiving one long-range and two single-aisle aircraft or four single-aisle aircraft at one time.

The airport has enjoyed robust growth, from the early days when it handled two flights per week to the current average of 60 flights per day, mainly cargo flights. Despite the recession-induced slump in airfreight in the last year, Fujairah’s traffic held up well. The airport also has a strategy to attract up to ten per cent of the UAE’s thriving business jet market.

Avtrade teams with Arabian Jets

Commercial aircraft component supplier Avtrade has signed a partnership deal with Arabian Jets, the Saudi Arabian-based aviation consultancy firm.

The deal comes less than a year after Avtrade opened its Dubai office to serve the regional market. “The new partnership with Arabian Jets will help Avtrade build on its reputation in the Middle East as one of the leading global component service providers to the aviation industry and help focus its strategy to enhance the Avtrade brand in the region,” said Jamie Brooks, sales director Middle East and Africa.

Avtrade opened a logistics centre of excellence in March at the Dubai Airport Free Zone to provide component support for B737, B767 and A320 aircraft.

Brooks is confident that “The partnership between Avtrade and Arabian Jets will compliment Avtrade’s expansion into the large Saudi Arabian market and Middle East Region.”

Arabian Jets has offices in Jeddah, Amman and Beirut and offers aircraft management, engineering and maintenance services, together with pilot training management and human capital building.



Turkish bullish over MRO plans

Turkish Technic is preparing to break ground on an approximately \$500 million expansion of its MRO business and is very firmly planting itself in the heart of the region’s thinking.

In addition, it has just launched a new engine repair facility in a joint venture with Pratt & Whitney (P&W) and aims to set up other deals with OEMs in areas that include landing gear and thrust reversers.

The company’s expansion is on the back of parent company Turkish Airlines’ ongoing profitability and growth plans that include a fleet expansion of 105 aircraft.

“We have very important expansion plans that reflect our confidence in the future,” said Turkish Technic purchasing manager Omer Saruhanlioglu.

“Our MRO bases are at the crossroads of a huge region, with markets that are very important to us, including the Middle East, the CIS countries and Eastern Europe.”

Just two months ago, the Turkish Engine Centre

was launched under the joint venture with P&W. It will focus on the CFM-56 and V2500 engines.

Next in line is a massive expansion of Turkish Technic’s MRO capacity with the launch of nearly \$500 million Habom project to be built at the newly-established Sabiha Gokcen international airport at Istanbul. The first phase of the facility is scheduled for completion in the third quarter of 2011 and will feature a three-hangar complex capable of taking three twin-aisle and up to 12 single-aisle aircraft. The third hangar will be a state-of-the-art paint shop.

“This is a very significant project to be undertaking in an economic crisis,” said Saruhanlioglu. “It shows our confidence in the future.”

He added that customer priorities had shifted during the recent economic crisis.

“In the last year, the most important issue for the customer was pricing,” he said. “Prior to that, priority for the customer was turn-around time. We were able to adapt to this new situation.”

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*An international consortium is expanding its success story across the region, **Martin Johnson** takes a look at the IAE growth plan.*

V2500 drives MENA growth



Last year International Aero Engines (IAE) took time out to celebrate the V2500's two decades in service, but it remains focused on managing its established fleet and identifying new growth opportunities.

On both counts, the four-nation consortium is quick to point towards Middle East/North Africa as a region of strategic importance, forecasting concerted growth both in sales of new equipment and aftermarket services.

With more than 6,000 engines in service, plus an order backlog of a further 2,000, the V2500 continues to be a mainstay in the mid-size market on the Airbus A320 series for IAE's senior partners Pratt & Whitney and Rolls-Royce, and their fellow shareholders, MTU and the Japanese Aero Engines Corporation.

While China and the Far East dominate the profile of close to 200 V2500 customers worldwide (the engine has won more than 70 per cent of total business in the big, block A320 orders in China) IAE is highly optimistic about its prospects in MENA. It already has a solid base of 21 customers, with nearly 200 V2500-powered aircraft either operating or on order in the region.

Bruce Blythe, senior VP, aftermarket and commercial, said: "IAE's section of the market here is on the move. It's not yet the biggest region, but it's growing pretty well and while we've not seen the mega-growth that's been evident in the large aircraft sector, the mid-size market in MENA is beginning to come through. We're taking more than half the engine orders on the A320 against CFM and we're competing hard to win business where we can."

New build standard

Prospects have been improved with the introduction of a new build standard, V2500 SelectOne (the hot-end upgrades to the -A5 version of the engine can also be retrofitted during scheduled shop visits) which delivers a one per cent fuel burn improvement and increases time on-wing by up to 20 per cent.

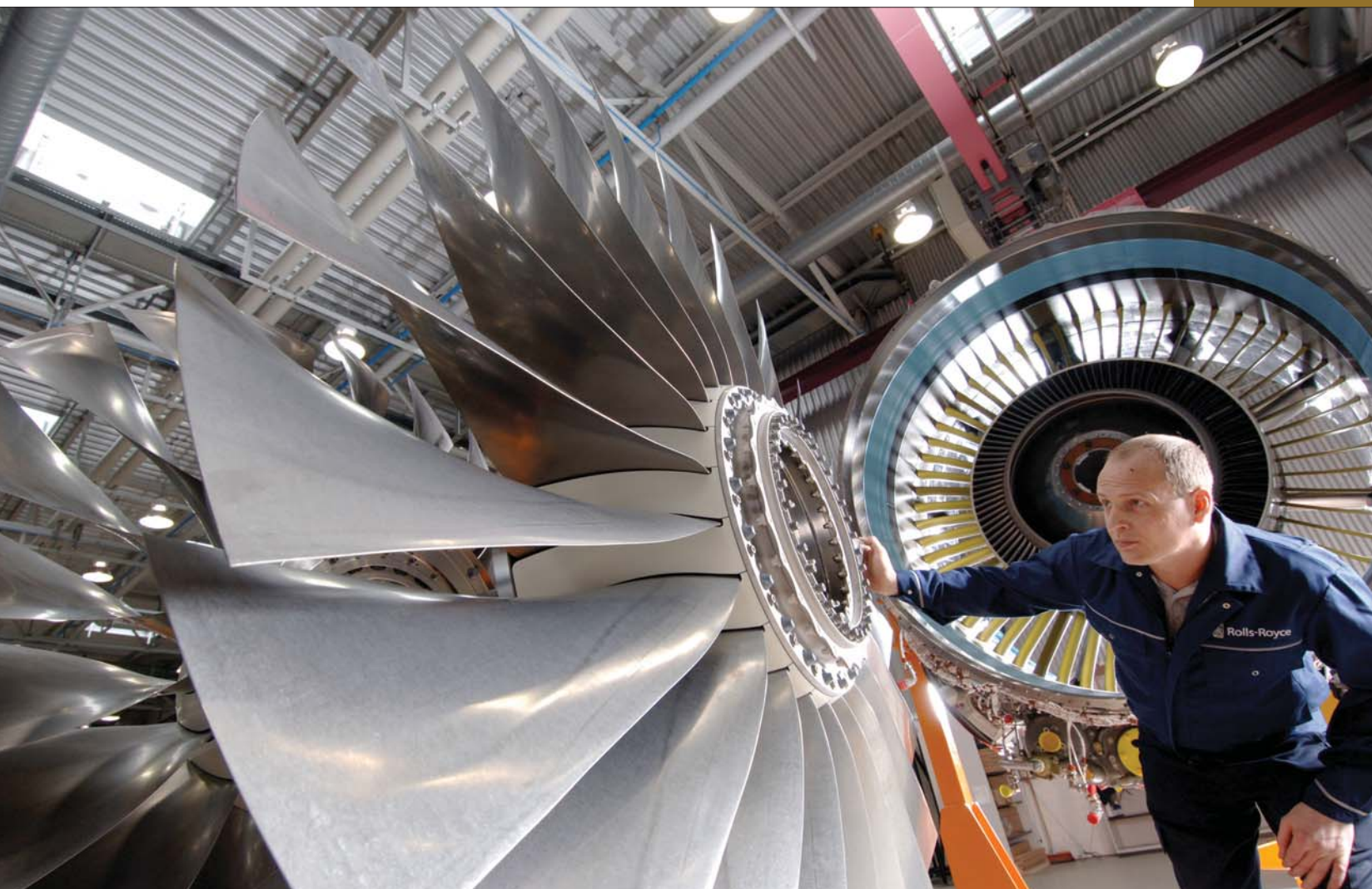
Qatar Airways, which already operated a fleet of 19 V2500-powered A320s, was quick to cite the SelectOne factor in last year's follow-on engine selection for an additional 20 A320s and four A321s, highlighting the resulting lower emissions as vital to its corporate social

responsibility programme. CEO Akbar Al Baker also described the V2500 at the time as "the most reliable option for the harsh conditions in which we operate".

IAE's regional fleet is a mix of long-standing customers such as Saudia, which operates the V2500 on its MD-90s, and more recent additions including Qatar and Etihad, who have demonstrated strong appetites for growth. Also among what Blythe calls the "double digit" fleets are Royal Jordanian, Middle East Airlines and Egyptair.

Etihad has certainly shown a willingness to come to the party with IAE on a number of fronts, including a vote of confidence in placing a repeat order, and buying into the long-term relationship through two separately negotiated Fleet Hour Agreements (FHAs).

Within the space of six months last year, Etihad first chose the V2500 for an additional fleet of 20 A320 series aircraft, accompanied by an FHA, then followed up with news that it had agreed a retrospective services package for 30 installed and spare engines powering its existing, in-service fleet of 14 aircraft.



As Blythe explained: “Once we agreed an FHA to accompany the engine order for their 20 new aircraft, it became clear that a similar services package for the V2500s already in-service was the way to go. Because their original A320s came from various directions at different times – some new aircraft, some leased, and some from other operators – we’d simply not got round to discussing an OEM services contract. Now we’ll see real benefits through a consistent arrangement across the Etihad fleet.”

Recent orders have included engines for 20 A320s being acquired by DAE Capital, the leasing arm of Dubai Aerospace Enterprise, which will potentially help spread the V2500’s presence through new operators and raise its regional market share above the current 50 per cent mark.

At present, lessors are not demanding portable FHAs. IAE says if a pay-by-the-hour contract is required, it is normally the end operator that makes its own arrangements direct with the engine maker, although it points out that service contracts are more easily applied to the longer lease periods which typically come with larger, widebody aircraft.

Nevertheless, around 80 per cent of V2500 sales are now accompanied by a fleet hour contract – a figure which is set to rise as the backlog is delivered and FHAs become almost the default option. Close to half of all IAE’s current operations are managed through such services agreements – a remarkable figure when it’s remembered that the organisation’s focus on tying in long-term aftermarket revenues is a relatively recent development.

Aftermarket potential

One of the most interesting – and challenging – scenarios for IAE is how the organisation interacts with other major service providers in the region to ensure it maximises its share of the V2500’s aftermarket potential. Saudia and Egyptair are an established presence with their own V2500-capable shops, but it is the emergence of Mubadala’s plans centred around Abu Dhabi Aircraft Technologies (ADAT) that is singled out by IAE as a potential game changer.

“It will change the face of short-haul maintenance in the Middle East,” predicted Blythe. “They are setting themselves up to

overhaul many engine types, including the V2500, and we are working closely with ADAT, providing support for them to do that. I believe they could be V2500-capable by 2011.”

IAE’s traditional preference has been to steer customers towards its partner company shops using a mechanism whereby overhauls are “allocated out” as close as possible to the operator’s home base.

Whatever route the services regime takes, there is no doubt that the V2500 fleet will reach new peaks of demand over the next few years.

“Historically we may have got off to a slow start but boy is it big now! The kind of services offerings, and the network we’ve put in place, have become a massive part of our growth,” said Blythe.

“We have been delivering 300-plus V2500-A5s a year for the last five to seven years. These are now starting to hit the overhaul shops and there are a lot more out there still to come in for their first shop visit. We believe we’ve got a product that’s hitting the button for customers and it’s a pretty exciting future being in IAE with that level of growth coming forward.”

New tests are a giant leap-x forward for CFM

CFM International is embarking on two new series of tests to validate critical technologies in its LEAP-X programme.

After successfully completing an initial phase of testing last year, the heavily instrumented first core is set for more running at GE Aviation's specialist facilities in Evendale, Ohio.

With the capability of measuring around 2,000 different parameters, eCore 1 will perform beyond the extremes of normal operations, both at ground level and in simulated altitude conditions.

LEAP-X is the new centreline engine being developed to power the next generation of short-to-medium range aircraft, and could be certified by 2016. Its targets include reducing the engine contribution to aircraft fuel burn by up to 16 per cent compared with current CFM56 tech insertion engines and cutting NOx by 50-60 per cent against the present ICAO CAEP 6 limits.

The latest tests focus on aerodynamic performance parameters – the aeromechanical properties of the blades and how they respond to vibration and natural frequencies; and operability, to ensure the engine maintains CFM's reputation for stall-free operations.

All data will feed into eCore 2, which will feature a

two-stage turbine, and is on schedule to begin ground tests in mid 2011.

Last year's core testing began in June and totalled 35 running hours, concentrating on the performance of the combustor and high-pressure turbine. "We couldn't be happier. The hardware met all our expectations, and then some. Now we're going to focus on the high-pressure compressor," said LEAP programme director Ron Klapproth.

"Our engines operate an average eight to ten cycles per day and, in that environment, reliability simply cannot be compromised. That is why we'll be running multiple core tests over the next few years and will complete them well in advance of entry into service."

Meanwhile, a separate LEAP-X initiative, the full-size Moteur a Aubes de Soufflante en Composite Taille (MASCOT) engine, is beginning a gruelling 5,000-cycle endurance test at Snecma's Villaroche facilities in France.

This vehicle features the 3-D woven resin transfer moulding (RTM) composite fan and case. The Snecma proprietary technology has been under development for several years and is claimed to have the dual benefit of weight reduction and added durability.

Early last year CFM began ground testing of a full-scale RTM fan married to a CFM56-5C engine, which successfully completed performance work at Villaroche before undergoing extensive crosswind and acoustics testing at GE's Peebles site.

CFM will continue to evaluate various blade designs ahead of the first run of the LEAP-X demonstrator planned for 2012. The LEAP-X fan assembly will contain 18 blades, a 50 per cent reduction on the CFM56-5C and 25 per cent fewer than the -7B.

• Commercial Aircraft Corporation of China (COMAC) has selected CFM as the sole western engine supplier for its next-generation single-aisle programme, the C919.

The decision marks the commercial launch of the LEAP-X1C engine. COMAC is forecasting a potential market of 2,000 aircraft in the 20 years following the C919's entry into service.

China has chosen a complete integrated propulsion system for the C919 from General Electric and SAFRAN. CFM will produce the engines, with Nexcelle delivering the nacelle and thrust reverser. Nexcelle is a 50/50 joint venture between GE's Middle River Aircraft Systems and SAFRAN Group's Aircelle.



^ Core! what a milestone for P&W

Pratt & Whitney has announced a major milestone in the development of its future PurePower family of engines by launching tests of a full-scale core.

Designed jointly by P&W and MTU Aero Engines, the core consists of high-pressure compressor, low-emissions combustor and an all-new high-pressure turbine.

The PurePower series is being developed for the next generation of narrowbody jets, including large bizjets and regional aircraft.

"This family of engines shares a common advanced core across the PW800 and PW1000G geared turbofans," said Bob Saia, vice president next generation product family. "The engine core testing, combined with hundreds of hours of ground and flight testing accumulated on the PW1000G geared turbofan demonstrator, advances the maturity of this technology and brings us significantly closer to final validation and certification."

The core testing includes measuring more than 1,200 individual parameters, evaluating engine

performance, operability and structural design characteristics.

The PW1000G has been selected exclusively for the Bombardier CSeries aircraft and Mitsubishi Regional Jet scheduled to enter service in 2013 and 2014 respectively. The engine was also recently chosen for Russia's new 150-210 seat airliner, the Irkut MC-21, which will be available in 2016.

PurePower engines are predicted to deliver double digit reductions in fuel burn, emissions and engine noise.

Meanwhile, Singapore's SIA Engineering Company (SIAEC) has signed up as a risk and revenue sharing partner (RRSP) for the PurePower series. SIAEC will take a three per cent stake in the PW1500G engine for Bombardier, plus a one per cent share in the Mitsubishi engine variant.

As part of the agreement, Pratt & Whitney will designate Eagle Services (Asia) – a joint venture between SIAEC and P&W – as the first engine centre in the global RRSP MRO network for the PW1500G.

GP7200 record still flawless

Emirates says the GP7200 engines on its A380s are living up to expectations with no in-flight shutdowns recorded across the worldwide fleet as the Engine Alliance celebrates the milestone of 100,000 revenue flight hours.

Emirates began operating the aircraft on August 1 2008 and received its seventh A380 at the end of last year. "We're delighted to be one of the main GP7200 operators," said executive vice president of engineering & operations Adel Al Redha. "The in-service experience of the engine is meeting the performance and reliability expectations set by the manufacturers."

Air France began flying the Engine Alliance-powered A380 in November 2009. Other GP7200 customers include Etihad, Korean Air and International Lease Finance Corporation.



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Emissions controversy rages as airlines miss the boat

As IATA director general

Giovanni

Bisignani

warns that

Europe's

proposed

Emissions

Trading Scheme

is illegal and

airlines begin a

legal challenge

IAN SHEPPARD

looks at the

situation facing

operators both

large and

small.

The European Commission's Emissions Trading System (ETS) is likely to become increasingly controversial, as some operators have effectively 'missed the boat'.

While most larger airlines have it all in hand, many smaller operators, both inside and outside the EU, have no monitoring plans in place, which they need to be running through the 2010 'benchmarking year' in order to get a share of the free allowances for 2011-2020.

Meanwhile, there is confusion over verification – third-party verifiers are required to ensure that the figures produced by operators are accurate but verifiers say that although monitoring plans are approved by the EC, the wide variety of approaches has meant this means little. There is little aviation expertise among ETS personnel at the EC, which has failed to stress that verification groundwork should effectively have started on January 1 this year – to ensure that monitoring schemes are collecting and processing the data correctly.

Addressing mistakes after the monitoring year will be extremely difficult – while for those who haven't even started to monitor, much of the level of data required could be extremely expensive to pull together at a later date.

Many operators have decided to forgo their free allowances, however, as they do not believe (or have been advised) that the costs will outweigh the value of anything they can receive back.

What has to be considered, however, is that the level of free allowances established through monitoring in the 2010 benchmarking year will be set until 2020, so the cost of missing the boat could be far greater. As the industry is likely to be in an upswing of renewed growth from 2011, any excess will have to be paid for by purchasing emissions credits from other airlines or other industries – and nobody knows whether the cost of carbon will increase significantly or not.

Air transport IT specialist SITA is gaining useful insight into the Middle East region after it signed a deal with the Arab Air Carriers Organization for its Aircraft Emissions Manager tool to be used by AACO airlines – with around 11 AACO member airlines also utilising SITA's advisory service. (See story Page 104)

Frederic Felise, SITA environment programme director, says that AACA "was more proactive than other associations, which spent most of their time fighting against the scheme." He adds that there are "big differences between these airlines and other carriers", many of which have woken up late in the day.

"The clock is ticking and there is no grace period – we are already three months in," he said. Seventy per cent of SITA client operators were ready by January 1 2010 – and it only reached 100 per cent in mid-March. "The data had been collected anyway so we're safe and it can now be 100 per cent processed," he said. "But we are worried about airlines that are contacting us now. Airlines have underestimated the requirements – and often lack a single point of contact to manage EU ETS work."

Felise added: "We have discovered recently that operators are worried they've missed the boat and that they won't get their fare share of the carbon cake, which will be distributed by the EC."

The truth is that carriers may miss out for the next nine years, which also favours those that are in the scheme – as they will get a greater share of the allowances (a total based on estimated on 2004-6 average annual emissions). "I can see some battles coming because of the EU implementing rules and how they are being executed," warned Felise.

Felise also believes that there is a danger that the entire scheme will be contested – there are already signs that more smaller operators may be ruled out because the EC has realised the administrative

burden is huge, and US carriers have already mounted a legal challenge under the Chicago Convention.

So what is the cost?

"We ran a predictive model for some airlines to cost it out," said Felise. "Even for one very small airline – doing 13 flights a day to Europe – it would cost them 2 million, which is small compared to their fuel costs, but still significant. Then, through 2013, it becomes far more expensive – for this airline by 2020 it is 8 million for the year. So if they'd missed the boat it would have been very expensive for them."

To get special extra allowances as a 'fast grower' airlines need growth of 18 per cent per annum – but it is still not clear if that means overall growth or growth on specific routes (e.g. the ones into Europe).

David Parsons, business development manager at c:sense – part of GASTEC at CRE, a consultancy based at the former UK Coal Research Establishment in Cheltenham, UK – said: "Benchmarking t-km data is not worth doing for many but it's the only chance they'll get to join. Then it's like musical chairs – the chairs will be removed year-on-year as allowances are reduced."

Parsons stressed the need to prepare early, not after the monitoring year but during it. "It is very important to have an EU ETS strategy," he said.

"Airlines have underestimated the requirements – and often lack a single point of contact to manage EU ETS work."

Frederic Felise

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Creative finance – it's not all about money!

The world of aviation finance is worth a lot more to the aerospace industry than just access to cash. Innovative financing deals have helped governments use offset finance to provide aid to neighbouring allies in the form of support for national airlines, and some companies even get involved in assisting a nation to train its people in aviation management to ensure a next generation will be controlling airlines and airspace.

One company achieving all this and more is Blenheim Capital, which is establishing a regional head office in Bahrain and will be applying for a banking licence in the kingdom to support the growth of aerospace and defence investment throughout the Middle East and North Africa.

Blenheim has operated in the Gulf for more than 20 years providing offset advisory, transaction and education services to governments and corporations alike. Chief executive, Grant Rogan said: "With the global economy putting pressure on many important projects, Blenheim's ability to work with governments and equipment manufacturers to provide innovative and efficient procurement, offset and financing structures is more important than ever to ensure the delivery of low-cost, long-term funds for strategic investments."

Rogan said: "We act differently to the traditional larger investment and commercial banks. We work in partnership with government procurement policy, the vendors of assets and the ultimate operators. We leverage areas of opportunity that each one can make for an overall financial package that is less than it would cost the government if it went to the market."

Blenheim is working on a number of aerospace-related finance deals and was heavily involved in the setting up of a new Kuwaiti-owned feeder airline and on training Arab nationals into the top-end aviation finance methods.

Rogan said: "Worldwide economic challenges are forcing our clients, both corporate and government, to rethink their approach to planning, acquiring and financing in the aerospace sector but we believe we have a range of solutions that can help deliver real economic value."

The feeder airline start-up is Blenheim's second offset transaction in Kuwait and meets all three strategic goals of the Kuwait Offset Programme (KOP).

The transaction involved support for a newly-created Kuwaiti aircraft leasing business, The Essence Group, in the form of transfer of aircraft assets by Raytheon Company and training for Kuwaiti government officials and business community members in airline strategic management, operations and related areas.

In line with KOP criteria to create high-value jobs and transfer valuable technology to Kuwait, Blenheim and Raytheon used offset funding to support the creation of the new Kuwaiti-owned business focused on the turboprop market to provide feeder aircraft for the GCC region's distribution and passenger markets.

The new company, Essence, acquired four Beechcraft 1900C aircraft and entered into leases of those aircraft, which will operate across the region, serving existing and future aviation and distribution hubs for major national and international carriers.

As part of the transaction, Blenheim is also developing the

business plan for Essence to provide a path for its continued expansion and growth. In addition, working with TASC aviation, Blenheim will deliver a training programme for up to 50 Kuwaiti nationals selected by the National Offset Company (NOC), which manages and administers the KOP, in line with knowledge transfer criteria.

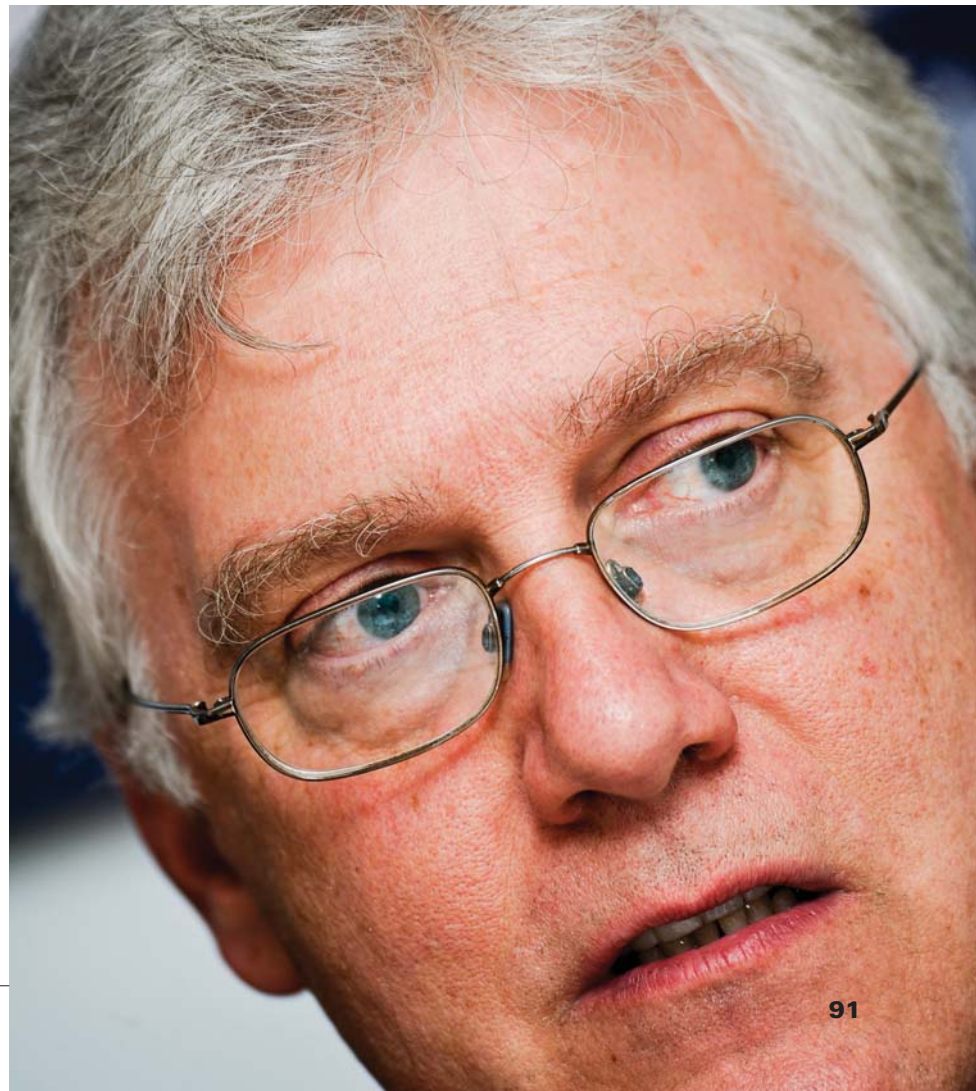
The 10-month training programme is accredited by IATA and covers international business, aviation and legal issues.

Rogan said: "This transaction brings a unique combination of advisory services, drawing on Blenheim's extensive aerospace background and corporate client assets to support the development of a sustainable aerospace sector in the country. Partnering with our corporate client, we were able to design an offset project that addressed the objectives desired by the Kuwaiti government, positioned the Kuwaiti start-up for success, and enabled our corporate client to generate significant offset credits against all three of the KOP's strategic criteria and contribute to the economic development of its very important customer."

Blenheim is firmly committed to the MENA region and Rogan said airlines in the region are now looking differently at innovative financing.

"Worldwide economic challenges are forcing our clients, both corporate and government, to rethink their approach to planning, acquiring and financing in the aerospace sector."

Grant Rogan



Francois Vltti and Antoine Succar (right) in joint venture for French engineering. Far right: Chronalloy's Ben Story - responding to the call for involvement as well as investment.

The numbers of businesses moving to the Gulf to be part of the burgeoning aerospace industry is growing. Alan Peaford meets some of the companies taking up the Free Zone opportunities.

When Sheikh Ahmed bin Saeed al Maktoum opened the second MRO Middle East and Aircraft Interiors Middle East conferences and exhibitions, there was a clear message to exhibitors and visitors who were still planning smash-and-grab visits to the region in search of work.

“The days of waiting for repair or having to ferry aircraft half way across the world for maintenance are thankfully now in the past. There are opportunities for MRO providers here,” the Emirates chairman said.

And many more companies are responding and basing regional centres or even manufacturing businesses in the region.

Dubai Airport Free Zone (DAFZ) recorded remarkable growth rates in 2009 compared to the previous year with the revenue rising by 30 per cent. The increase came as a result of considerable expansion in office space by major European and American companies based there.

Sheikh Ahmed is also chairman of DAFZ and said the zone’s contribution to GDP for Dubai had exceeded 2.2 per cent in 2007, assuring the importance of free zones to attract foreign investment and boost the local economy.

Sheikh Ahmed also said: “The 2009 results give a positive indication about the Emirate’s ability to achieve good results during the coming period and show increasing willingness of foreign firms to operate from Dubai.

“It is no doubt that the global financial crisis has affected the world economic activities but free zones around the world and, in particular, DAFZ,



FREE VIEW

has benefited a great deal from these exceptional circumstances and turned them into positive opportunities by opening doors to foreign companies seeking to expand their markets to distribute their products in the Middle East and beyond.”

DAFZ is expanding its capacity due to increasing demand – already there are close to 1500 aerospace companies registered at the zone.

And several more businesses have announced plans to settle in the UAE. American company Chronalloy, a French joint venture between Air

France Industries and Safran called AMES, and French seat manufacturer Recaro all used the AIME and MRO Middle East shows to announce their intentions.

Chronalloy is opening a new sales and marketing office in Dubai to provide the region’s gas turbine engine operators – including aviation, marine and industrial gas turbine operators – with a lower-cost alternative for parts and services.

EMEA sales director Ben Story said: “We are growing our engine aftermarket business to offer



the region's turbine operators with parts, repairs and other services that deliver significant cost savings over OEM pricing. We are trying to partner with our customers rather than just fly in and fly out. We see a need to establish ourselves in the region and work full time with our customers."

Story said the Middle East has been growing in importance. "The region has been on the radar for a long time. In a declining global market, it is still growing. The less bad news is the new good news. Here slightly good news is great news. We think the Middle East will continue to grow."

Chromalloy has signed up with DAFZ and the company has already made inroads into the region. Last year it partnered with Saudi Arabia Airlines in a new service centre in Jeddah.

Recaro aircraft seating is expanding its presence with a new customer service facility. Operable since the beginning of the year, the Recaro centre will be serving customers from Afghanistan to Libya and from Lebanon to Yemen. Chief executive Axel Kahsnitz said: "Without time zone differences or language barriers, the members of the service centre team can respond immediately to requests from customers. Along with the procurement of spare parts, the scope of services includes trouble shooting of technical problems and training programs for cabin crews and for maintenance personnel."

The French joint venture, Aerostructures Middle East Services (AMES) formally inaugurated its new facility in Dubai in March. It

"Free zones around the world and, in particular, DAFZ, has benefited a great deal from these exceptional circumstances and turned them into positive opportunities by opening doors to foreign companies seeking to expand their markets."

Sheikh Ahmed

aims to bring highly competitive jet engine nacelle repair capabilities to airline operators throughout the region.

Located in the Jebel Ali Free Zone, this 2,200-square-metre installation provides repair and overhaul services that benefit from the expertise of AMES' two parent companies – Air France Industries KLM Engineering & Maintenance, and Aircelle of the Safran Group.

"AMES was created to support the Middle East's jetliner fleets of Airbus A320s, A330s,

A340s and A380s; Boeing 747s, 767s and 777s, along with McDonnell Douglas MD-11s and Embraer 170/175s. More than 390 of these aircraft currently are in the active inventories of the area's airlines, with some 200 additional jetliners on order," said AMES general manager Antoine Succar.

"AMES provides a unique commercial and industrial offer that is backed by Air France Industries as a top provider of MRO services, along with Aircelle's capabilities as a leading original equipment manufacturer of small, medium and large engine nacelles," Succar added.

The AMES operation in Dubai is being certified to EASA Part 145 airworthiness standards and it has already initiated industrial activity with the repair of Rolls-Royce Trent 700 thrust reverser doors for a large Middle East airline's Airbus A330 fleet. Preparations are also underway for the introduction of repair and overhaul services on CFM International CFM56 engines.

Sheikh Ahmed said he was pleased with the way international companies were responding to the call to do business in the region. "DAFZ plays a vital and strategic role in attracting international companies that support our drive for knowledge-based economy," he said.

European companies in the Free zone represent 34 per cent of the operating companies in various sectors, while US firms represent eight per cent Japanese companies showed remarkable presence during 2009, increasing their number by 130 per cent.

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Transition begins as Bahrain goes private

International Airport aims to become a global hub as well as one of the world's leading airports.

Bahrain's international airport has begun the transition that sees it move from being run by the country's department of Civil Aviation Affairs to operate as private business with greater transparency and wider opportunities for international contractors and service providers.

As the region's Airport Show opens in neighbouring Dubai, many exhibitors will be looking for visitors from Bahrain Airport Company, with an aim to get a place on the shopping list of the new owners.

The new management – backed by the country's sovereign wealth fund, Mumtalakat – aims to create an aviation hub. It will be responsible for managing many departments, including airport operations, engineering & planning, information & communication technology, commercial & investments, human capital & support services, finance, and branding & communications.

The CAA will continue to manage and have responsibility for traditional safety issues and operations and provision of ATC.

According to the company, transition action plans have been implemented and are, so far, a success. As part of this transition, more than 400 staff members from the Civil Aviation Affairs (CAA), which include the departments of airport operations and engineering & maintenance, have recently received the invitation to renew their employment under the management of the Bahrain Airport Company. The acceptance of offers was high.

"This move has been long in the making and there's an air of optimism around the new prospects it brings," said Kamal Ahmed, acting chairman of Bahrain Airport Company. "The new management structure is designed to create streamlined processes in order to deliver a comfortable airport environment to all users and partners of the Bahrain International Airport.

"With operational excellence, we aim to transform Bahrain International Airport into a global aviation hub as well as one of the world's leading airports. This is the vision which we aspire to achieve."

Chief executive, Dr Osama Alali, added: "There has been a large amount of press about the airport's development plans and the reality of it is beginning to take shape, starting with this new influx of staff. A comprehensive action plan has been set for Bahrain International Airport, including

modernisation and expansion of the airport infrastructure as well as the optimisation of operations efficiencies. This will create an unparalleled airport experience for both the end-user as well as Bahrain Airport Company partners."

Mumtalakat has estimated a BD1.8bn (\$5bn) expansion programme to meet the demands of the next 30 years – this is to meet projected passenger figures of 27 million – three times what the airport serves today.

Two new terminals will be built over the next four years. According to Dr Alali, the first – Terminal 2 – will be commissioned in 2012 and Terminal 1A will follow a year later.

"All modern facilities, including recreation and leisure areas, shopping centres, hotels and anything else that a modern traveller needs, will be incorporated into the new development," Dr Alali said.

The current main terminal at the airport is scheduled to be demolished in 2014 to be replaced with a new larger Terminal 1.

According to BAC, the architects will be appointed later this year and the main contractors appointed next year. "The expansion will ultimately create 110 aircraft stands, including 87 with airbridge gates.

Cargo is also being increased from the current 350,000 cubic metres to 1.5 million.

Germany's Munich Airport has been helping the Bahrainis with ground handling plans to help the airport manage the transition while new systems are being put in place.

"We are working at giving the airport an overall new look in the meantime," Dr Alali said. "We are working in partnership with other companies to improve people skills and general cleanliness."

New technologies at the airport will see an end to the pre check-in screening.

In the meantime a new joint venture has been formed between German airport services company Hochtief Facility Management and BAC for the facility management of the airport.

The new venture will initially employ around 170 people who will be involved in the operation of all technical systems and the airport infrastructure.

The contract will run for six years and is worth roughly \$115 million for the first six years.

Munich Airport keen to expand consultancy in Middle East

Munich Airport is looking to further build its consultancy business in the Middle East through its extensive experience as the company operating Germany's second largest airport.

Head of airport consulting Reinhard Zeiler said that the company could help Middle Eastern airports with a variety of issues. For example, he highlighted the fact that because Munich's Terminal 2 is a key Lufthansa and Star Alliance hub, both companies developed and operate a dedicated hub control centre. He said: "We have a special know-how when

it comes to hubs from our Terminal 2 experience and this is something that we are keen to show other airports."

But it isn't just the hub and spoke that Zeiler believes his company can help with. He said: "We are also specialists when it comes to passenger and baggage handling. There are always issues with baggage handling and it's a crucial point for any airport's operations team. If you don't have the bags, you have unhappy passengers."

For Zeiler, though, the region holds promise based

on its experience with Abu Dhabi's Terminal 3, Bahrain and the New Doha Airport.

"We are very interested in the future of the region. We want to be more involved and can see our operational and technical expertise being of great value.

"Naturally we can handle airport management contracts, too, if the customers want this. For example, in Bahrain we are helping to optimise the airport's operation as well as increase the rating of the services."

Small firm making a big impact at Dubai

Dubai International Airport may be one of the fastest-growing and largest in the world but a relatively small company – UFIS Airport Solutions – is playing a major part in its success.

Since March 2000 UFIS, supported by its local partner Dubai Technology Partners, has been providing Dubai Airport and the Department of Civil Aviation (DCA) with products that lie at the heart of a successful operation.

The UFIS airport operational database (AODB), flight information processing (FIPS), and flight information display systems (FIDS) have been in continuous operation in Terminals 1 and 2 for the past nine years. Additional modules, such as a web-based staff information system and data changes, a data auditing tool, have been added over the years. When Terminal 3 opened in 2009, DCA extended the use of the AODB and FIPS to manage the flight schedules and to plan and allocate the resources needed for the terminal.

The UFIS AODB is the heart of the airport's IT system and provides a state-of-the-art, fully-scalable solution, combining the highest level of security with real-time performance. The most important function of the AODB is to provide a data integration platform for all IT systems at the airport, as well as the off-airport systems. Information from UFIS and other systems is stored in the AODB and is made available to authorised applications and systems.

The apron management application enables planners and dispatchers to produce an up-to-the-minute plan for gate, stand, check-in counter and baggage belt assignment to individual aircraft.

Flight information is displayed to the public in the concourses, check-in areas, gates and baggage claim areas on more than 700 flat-screen monitors in Terminals 1 and 2.



Vestergaard's Beta model in action.

Vestergaard looking to clean up...

Denmark-based Vestergaard believes it has the perfect suite of products to capitalise on the rising demand in the Middle East for water and toilet service vehicles, but also for its combination de-icing/washing trucks and will be at the Airport Show in Dubai to prove it.

The company's main presence in the region is its toilet service trucks. And it says it was the first manufacturer to introduce a vacuum toilet truck. Put simply the system generates a vacuum in the toilet system to create a fast and effective high-pressure flow cleaning system.

However, it is keen to expand sales of its other vehicles. Lars Barsøe, Sales Manager, explained: "We're the best in the northern hemisphere at what we do. We are very strong in many parts of the world and now we're looking to make strong inroads into the Middle East and Africa."

And for Barsøe he said there is demand because every airport in the region needs toilet and water service trucks.

Barsøe said the company is also looking to add more of its de-icing trucks in the region and is targeting the countries that have the potential for frost. It already has de-icing trucks in Jordan and Kuwait.

It isn't just de-icing that the company's trucks can do.

According to Barsøe: "Our open basket de-icing trucks can easily be used for aircraft washing too. We built in a few systems, such as different nozzle settings and water heaters that mean our trucks are suited to a combo role. And there has been a lot of interest in the washing side and we have a lot of requests so far. Sure in theory any de-icing truck can do washing but ours have this as a design feature," he said.



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Airport**



Why French lessons could be learnt in Dubai

French companies will be out in force at the Airport Show in Dubai in May, bringing innovative solutions to many of the challenges facing ground and materials handling operators at the region's airports.

One company, Deschamps, is ready to help airports prepare for when the worst happens. As the major player in the field of tactical mobility, it offers a global range of equipment and services devoted to the recovery of civil and military aircraft.

The products allow for the quick, safe movement of an aircraft that has left the runway. They cover temporary access ways, recovery cushions, deployment systems, lifting beams to other equipment for towing and tethering.

Deschamps will be showing several types of equipment that are required to move a damaged aircraft quickly and in complete safety. In order to familiarise users with its products, Deschamps organises training courses at the Aircraft Recovery Training & Competence Centre (ARTCC) at Stansted Airport in the UK where, following theoretical study, trainees handle different items of equipment in real situations.

Another company offering a specialist training opportunity is Acreos, which has developed an innovative instructional solution: a platform for learning to operate machinery through simulation. This single platform can simulate three types of public works equipment; a hydraulic excavator, a dumper truck or articulated wheel loader and two types of lifting equipment; a mobile crane or a tower crane.

The prime aim of the ACREOS simulator is to enable novices to learn the automatism of machine operation serenely and in complete safety, and thereby acquire the necessary reflexes. The learner sits on an adjustable seat and finds himself immersed in a realistic environment, using controls identical to those found on the real equipment. The simulation is viewed on a large high-definition screen or video projector. A robust but upgradeable chassis and

adapted computer, multimedia and electronic racks complete the system. A touch-screen provides a user-friendly interface that requires no particular computing skills.

Language skills are not required to use the ACREOS simulator. All functions are performed via the touch-screen, driven by software specially designed with the user in mind.

Meanwhile, specialist in handling and lifting equipment, Réel, will present its docking and access systems for the maintenance of wide-body jetliners and medium-range airliners at the show.

Qatar Airways has already selected Réel for the handling and maintenance equipment for its Doha-based fleet. This includes two heavy-duty maintenance stations compatible with Airbus and Boeing jetliners, including the A380. Another heavy-duty maintenance station, but compatible with aircraft in the A320 family, will also be delivered. The docking systems will also feature all the light maintenance accesses for the entire fleet.

Software is also on display from the French. XOPS is a software solution for real-time control of mobile equipment in the warehouse and on the ramp. It relies on a tight network of communication between the airlines, the airport operations companies and the ground systems and is made to ensure the right ground system equipment is in place, on time, with no waste.

From a central monitor, XOPS keeps visual control of vehicles and is able to instruct drivers with real-time data such as an aircraft's late arrival or change of gate or the positioning of ramp handling equipment.

Another French company at the Airport Show is Usimat Sermées which mainly offers towed equipment. Apart from tow bars, the company designs and manufactures aircraft servicing equipment, trolleys for airport handling and special equipment.

With a concern for reducing CO2 emissions at airports the company has equipped its entire range of servicing, toilet waste disposal and drinking water trolleys with electric engines. Fitted with batteries and chargers, they can handle aircraft independently as efficiently as trolleys with combustion engines. It has also developed toilet waste disposal and drinking water trolleys for level-3 aircraft. Their compact stainless steel tanks allow easy close access and the aircraft can be drained by gravity from their low drain outlet.



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The skies above the region are the subject of greater focus. Mike Martin reports.

There is a huge prize in economic and environmental terms to be gained from making more efficient use of airspace across the Middle East, although the complex geopolitical nature of the region makes the goal a challenging one. Despite that, the Civil Air Navigation Services Organisation (CANSO), whose members are responsible for supporting some 85 per cent of world air traffic, has pledged itself to work towards that end.

In a landmark agreement – dubbed the ‘Middle East Declaration’ – key stakeholders from across the region signed a document committing themselves to radically improve air traffic management in the region.

It was signed at the second CANSO Middle East Conference held in Dubai.

A three-year timeframe for delivering improvements has been set, according to Ashley Smout, CANSO chairman and chief executive of Air New Zealand. “We would expect to see significant change in that time. The way we will go about it is to sit down and proactively develop a business case for it,” he said.

Optimised routes

CANSO groups are developing theoretical optimised routes to demonstrate potential savings on fuel burn and emissions before taking the case to civil aviation authorities and governments, he added. “It’s a route-based approach but also a regionally-based approach because only by looking at the region as a whole can you begin to see where the real prizes are. We are talking about lifting the performance of the whole region.”

Some have pointed to the disputatious nature of the Middle East region as a barrier to rationalising the airspace above it. Graham Lake, CANSO director General, disagreed.

“CANSO is pragmatic and about the ‘how’ we improve the use of airspace,” he said. “There are significant operational difficulties (in the region) and issues over charges. We are about getting people to work together for the benefit of everybody.”

“The Middle East is no different to the rest of the world. Its air services are part of a global system, but when it comes to areas like co-operation between states and issues of, say, the separation of military and civil airspace, it is really the same issues that you find in any region of the world.”

He added: “In fact, given the length of time that CANSO has been formally operating in the Middle East, the progress has been remarkable and I am very confident we have just seen the beginning of what can be done.”



Airspace – the ‘final frontier’ for efficiency

The second CANSO Middle East conference came less than a year since the chapter was formed in the region.

Under the Middle East Declaration a strategy covering seven areas has been established – safety enhancement, airspace management, customer consultation, regional human resources development, CNS/ATM improvement, institutional transformation and performance-based ANS.

In addition, four workgroups have been created to deal with specific issues. They are ME strategic co-operation committee, ME safety workgroup, CNS/ATM infrastructure improvement workgroup and the ME airspace planning co-ordination workgroup.

The launch of the agreement for the region was underpinned by case studies delivered to delegates from air navigation service providers (ANSPs), regulatory authorities, airlines, ICAO and IATA.

Said Smout: “The Middle East group is still

fairly new but when you see the enthusiasm of, say, Saudi Arabia, it’s just fantastic. They have already done a lot and are keen to achieve more.”

For the airlines present, particularly those operating from the Arabian Gulf, the issue of making more efficient use of airspace will become increasingly critical to their smooth running, particularly as they expand.

That was the message from Captain Alan Stealey, divisional senior vice president, flight operations for Emirates who addressed delegates.

“Emirates is expanding at roughly 15 – 18 per cent a year and so doubles in size every five years,” he told the conference.

“Therefore, we study very closely the issues that we may face in that time frame. In previous times there were terminal capacity constraints here (in Dubai). We now have Emirates Terminal 3, which is a state-of-the-art facility. Runway capacity has been expanded and that gives us more movements.

“Air traffic control and airspace capacity we now

How atg airports is lighting up Middle East

The UK-based atg airports has been casting its light across the Middle East and North Africa, continuing to expand its global reach with its range of lighting products and services.

The company has won a number of the recent airport development contracts, including new deals in Sudan, Libya and Iran

"These latest contracts confirm the company's capabilities as a complete solutions provider able to meet the developing needs of airports worldwide," said managing director Antonio Garrido.

A virtual showroom of atg's portfolio can be found at Ghat Airport in Libya, which adopted a one-stop-shop specification and took up atg airports' entire portfolio of luminaires, CCRs, signs and AGL control systems, plus floodlights and distribution boards, cable, supervision and training.

"Our work ranges from everything at Ghat through to the sole installation of lighting and systems at Merowe Airport in Sudan. These recent contracts clearly demonstrate our ability to provide global solutions to airports at all levels," Garrido said

The company has also provided a range of bespoke solutions involving the specification and installation of a cross-section of its expansive product portfolio at Benghazi Airport in Libya,

Khartoum International Airport in Sudan and for the Iranian Airport Authority.

Garrido said: "We have an ambitious growth strategy to expand a worldwide presence and position the company firmly at the forefront of airfield ground lighting, products and control systems. These latest orders are testimony to the company's advanced design and manufacturing capabilities in providing customised solutions for any airport at any location in the world, whilst recognising the critical and growing importance of the Middle Eastern and African markets."

The atg portfolio includes approach, taxiway, and runway lighting fittings, clearway airfield guidance signs, a broad range of fully-integrated AGL control systems, the thyristor or sinewave output micro range of CCRs. The company also differentiates itself by offering and providing complete airfield lighting installation and maintenance services around the globe.

recognise are the areas that we need to concentrate on for the future. The focal point of (world) aviation has moved to the Middle East. That brings its own challenge in terms of airspace capacity. There will have to be a regional solution to this. It will have to done in a collaborative approach. We have to increase the airspace. That is critical."

Making better use of airspace has the potential to offer airlines more efficient routing of aircraft and thus major savings on fuel consumption, faster sector times and dramatic cuts in emissions.

Among the obstacles to improving the use of airspace in the Middle East are differing air traffic management policies and systems across the region and large areas of restricted airspace controlled by the military.

But they are not insurmountable, said Stealey.

"It requires a lot of work, a lot of co-operation between air navigation service providers, civil aviation authorities, governments and airlines, but progress is possible and the rewards are considerable," he said.

He added: "That Emirates and other airlines were invited to the CANSO conference is an excellent gesture because we are the customers of the air navigation service providers and what they do is critical to us."

Stealey said that Emirates has benefited from an example of where a large area of airspace in the UAE, controlled by the military, had been released for civilian use at certain times. The result was that in one month Emirates operated 468 flights over the area with resulting savings of 156,000kgs of fuel and a cut in emissions of 492,960kgs.



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A new approach to air traffic management will be a key discussion point at this year's Airport Show. Steve Nichols finds out how German exhibitors have proved their case.

Teamwork is the key to improving air traffic management

More efficient air traffic management and airport processes go beyond implementing modern systems and infrastructures. Highly-coordinated processes and collaboration by everyone involved – even beyond borders – can help ease existing problems.

However, this often involves rethinking cultural views. This is what is happening in the Middle East. Everyone knows its time to adopt new ideas, but finding the right way forward means a lot of thought and discussion.

Munich Airport (Flughafen München GmbH) and the German air navigation service provider DFS Deutsche Flugsicherung GmbH are now supporting other organisations with their experience in introducing an efficient way to use the existing capacity and resources of an airport and the surrounding airspace. Their approach for this is called Airport Collaborative Decision Making (A-CDM).

The German companies have experienced considerable operational and financial benefits from A-CDM, which they introduced at Munich Airport in 2007.

The key word is “collaboration” between all parties involved, including airlines, airport operators, air traffic control and ground handlers. In short, the air transport community as a whole.

Franz Sammueller, project member at Munich Airport, says: “The A-CDM process is based on optimal high-quality information sharing. In the beginning this may cause resentment with some of the partners.

“We experienced this in the beginning in Munich. However, as soon as everybody understood their own advantages the process was accepted”.

In order to achieve understanding and collaboration, a cultural change process is necessary, combined with focused communication and regular working group meetings. Sammueller adds: “The challenge is to talk to the various partners, for example the several ground handling companies that might be working at an airport, and bring them together”.

A-CDM in Munich is based on the European Airport CDM by Eurocontrol, the European Organisation for the Safety of Air Navigation.

Inbound and outbound information is improved and a pre-departure sequence is provided. This coherent process spans flight planning and landing to the subsequent turn-round process on the ground before the next take-off. It helps to fully use all available capacities and operational resources. By using more accurate taxi times and sharing data, the process can optimise the sequencing of flights.

“During peak hours, we have even experienced a higher throughput at Munich Airport,” says Sammueller.

“Since 2007, waiting times at the runway have been continuously reduced and improved by about 30 seconds, which is a lot considering the traffic numbers” - Munich airport has an average number of 1,100 landings and take-offs per day.

“Equally, position overlaps causing waiting time for a free parking position were reduced to only two percent in 2009. On-block delay is minimized and more capacity is gained without increasing the available stands.”

A study on the use of A-CDM at Munich has demonstrated that the majority of flights are now ready for take-off at the runway when their slot window starts – in other words, five minutes before their calculated take-off time. Another study on airport CDM network impact assessment based on Munich experience showed that even sector capacity within the core area increased by up to four percent.

“Summing it up, costs can be reduced, emissions can be lowered, punctuality improved and stronger partnerships can be forged. In this way, aircraft can be served according to the ‘best planned – best served’ principle,” says Achim Baumann, regional manager Middle East at DFS.

Process-related information sharing is achieved by networking existing infrastructures together.

“To describe it in an oversimplified way, we always say a pen, a phone and a paper, plus the willingness to share information, are enough in order to introduce A-CDM,” says Achim Baumann. “It is not necessary to introduce completely new systems or procedures. The IT infrastructures in place at normal modern airports may be used.”

The approach to Collaborative Decision Making by Munich Airport and DFS was put into operation at Munich Airport in June 2007, making it the first A-CDM of this kind implemented in Europe. The findings and practical experience gained have considerably influenced developments at the European level.

Munich Airport and DFS support other organisations and their partners worldwide in implementing a Collaborative Decision Making process at their airports. A four-phase model provides the necessary steps for implementing A-CDM starting with an introductory workshop and finishing with a detailed action plan and the final implementation.

ARINC launches check-in solution in region

ARINC is introducing its newly launched common use check-in solution—vMUSE Enterprise to the Middle East market

The company said it reduces the hardware and support requirements of common-use check-in by running on servers in the ARINC processing centre. This removes the need for costly on-site servers, dedicated telecommunications lines, and technical support to configure and maintain a local network. Airports and airlines can achieve significant cost savings while gaining increased operational flexibility.

For users who prefer to manage their own technology, the system can also be deployed in an airport core room. Either hosted or on-site versions represent a major advance in cost-effective, common-use technology, offering fast and reliable system access, and secure transmission.

vMUSE Enterprise is designed to run on standard PCs, laptops, or thin-client hardware, with access to the core application at an ARINC processing centre via an Internet connection. This reduced need for hardware allows passenger check-in services to be supported anywhere in the airport, or at off-airport locations..

*As a hub of growing international status, the Middle East is expected to play a big part in the battle to reduce the impact of aviation on the environment. **Brendan Gallagher** reports on how the region is rising to the challenge.*

In the middle of March this year the US Air Transport Association (ATA), representing the country's airlines, and the Pentagon's Defence Energy Support Centre (DESC) announced an alliance to develop, produce and distribute alternative aviation fuels.

The intent was strategic, of course – to reduce US dependence on uncertain sources of supply for traditional fuels. But it's also intended to improve America's record as an emitter of greenhouse gases second only to China.

The twin pressures of energy vulnerability and climate change mean that in recent years the USA has been in the forefront of efforts to introduce cleaner, greener aircraft fuels. Though the Middle East is to some extent spared US anxieties about where the next barrel of oil is coming from it, too, is also playing a leading role in the drive to improve the environmental credentials of aviation in a variety of ways.

Currently in the spotlight are programmes by Qatar Airways and Etihad. Last autumn a Qatar Airbus A340-600 carried out the world's first commercial passenger flight on the power of a fuel made from natural gas. The aircraft's Rolls-Royce Trent engines burned a 50-50 blend of conventional and synthetic gas-to-liquids (GTL) kerosene. The State of Qatar is set to become the world's leading producer of GTL kerosene when it introduces full commercial production from 2012.

Reduce environmental impact

GTL kerosene helps to reduce environmental impact in two ways. It produces lower levels of particulates and other pollutants that affect local air quality. And its slightly higher energy density per kilogramme compared with oil-derived kerosene means that less is burned for each kilometre flown, resulting in a net reduction in emissions per flight.

At the end of last year UAE national carrier Etihad became the second carrier from the region, after Gulf Air, to join the Sustainable Aviation Fuel Users Group (SAFUG), an airline-led body set up in 2008 to accelerate the commercialisation and availability of sustainable biofuels.

Etihad has thus committed itself to supporting initial research into the suitability of algae and the jatropha curcas plant as a feedstock for biofuels.

After the false dawn of corn-based ethanol, which led to increased food prices and demanded large amounts of energy in production, these feedstocks could one day yield biofuels that are both cleaner and more energy-efficient than fossil fuels. In the meantime, the airline is already making a green difference with a proven



Going green – in so many ways

technique that it plans to introduce across its fleet.

The skin of an airliner operating many hours a day quickly picks up a coating of grease, dust and other dirt. As well as harming the image of the airline, the grime represents weight and drag that adds to fuel consumption and emissions.

Repel dust and dirt

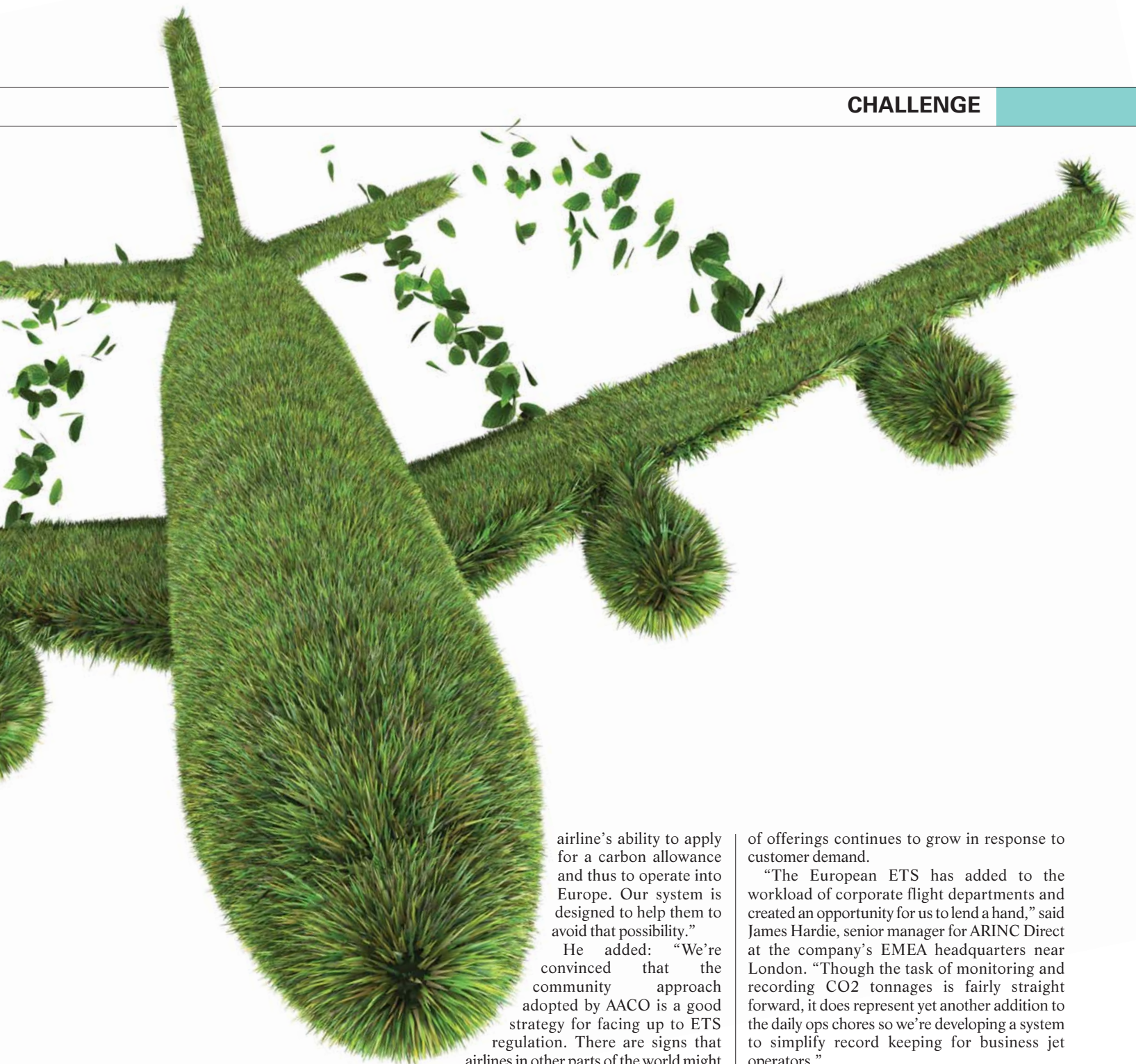
Last year the carrier trialed a newly-developed polymer coating for the exterior of the aircraft. Called Permagard and produced by the British company of the same name, the coating is designed to repel dust and dirt, so that the aircraft stays cleaner for longer, burning less fuel and having to be washed less often.

But the trial also revealed an incidental benefit. On washdays the dirt came off the treated aircraft more readily, requiring the use of less water and allowing strong cleaning agents to be replaced by more environmentally friendly alternatives.

Etihad estimates that this year it will cut its consumption of cleaning water by 10 million litres, for a 75 per cent saving, as well as slashing cleaning fluid usage by fully 96 per cent, from 50,000 litres to just 2,000.

Along with pioneering individual initiatives like Etihad's, the carriers of the region have proved that they can also act collectively for the good of the environment. Twelve months ago the Arab Air Carriers Organisation (AACO) became the first regional airline representative body in the world to recommend that its members adopt a system developed to support compliance with Europe's emissions trading scheme (ETS) for aviation.

Before the end of the year airline IT and communications supplier SITA announced that 12 AACO member airlines had adopted its Aircraft Emissions Manager software system. Described as the first of its kind in the world, this CO2 emission monitoring, reporting and



verification tool features powerful data mining and processing capabilities.

In development it was tested by a total of four airlines from the Middle East, the United States and Europe. It is now in operational service with carriers in Egypt, Jordan, Kuwait, Lebanon, Libya, Oman, Syria and Yemen who are monitoring and recording their emissions in preparation for the 2012 introduction of carbon caps on airlines operating into Europe.

"Aircraft Emissions Manager is helping these airlines to be compliant with the European ETS requirement at a minimum extra administrative cost," said Frederic Falise, head of SITA's environment programme. "Miscalculations or failures to prove accuracy could jeopardise an

airline's ability to apply for a carbon allowance and thus to operate into Europe. Our system is designed to help them to avoid that possibility."

He added: "We're convinced that the community approach adopted by AACO is a good strategy for facing up to ETS regulation. There are signs that airlines in other parts of the world might follow their example."

With millions of miles flown every year, the airlines are the prime focus for the environmental campaign. But corporate and VIP aviation is also subject to measures like emissions trading, and at least one service provider is gearing up to provide the help that owner-operators and flight departments will need to be compliant.

ARINC Direct is a package of flight-planning and other support services launched by IT and communications provider ARINC in the USA in 2003 and has since also been taken up by growing numbers of operators in Europe, the Middle East and Africa. It covers three main areas – flight planning, datalink communications for the cockpit, and passenger connectivity – and the list

of offerings continues to grow in response to customer demand.

"The European ETS has added to the workload of corporate flight departments and created an opportunity for us to lend a hand," said James Hardie, senior manager for ARINC Direct at the company's EMEA headquarters near London. "Though the task of monitoring and recording CO2 tonnages is fairly straight forward, it does represent yet another addition to the daily ops chores so we're developing a system to simplify record keeping for business jet operators."

The ARINC Direct ETS solution is expected to become available within the next few months. It will be integrated into the existing flight planning and, possibly, datalink systems, and will allow supplementary data entry, storage and reporting for the operators' own purposes.

"We think this combination of capabilities will not only make it easier for the operators to be compliant but will also allow them to obtain increased efficiencies in fuel procurement and trip management," said Hardie. "It's among the new services we will be ready to discuss at the EBACE business aviation show in Geneva this spring, and we hope to receive plenty of expressions of interest from our customers in Europe and the Middle East."

TRAINING

Al Ain centre key to Abu Dhabi future >

The growth and aspirations for Abu Dhabi's aerospace industry would not be possible if training was not in place. And already the city of Al Ain features one of the most advanced training centres in the region.

Situated next door to the already recognised Horizon flight school is the International Al Ain Aviation Academy, which is under the umbrella of the Institute of Applied Technology.

The Academy was built almost two years ago to the highest specification. When Mubadala was looking at how to get the training right for its manufacturing plants, it is said the company didn't even know the Academy existed. But when representatives saw the facilities the decision to move their training there was a no-brainer.

"The academy is very professionally organised, it is well equipped, well designed well staffed," said Academy Director Paul Clark.

The first cohort of 60 trainees from Mubadala's Strata division started in March on the Foundation programme. Next month they go into the workshops to learn about composite manufacturing with guidance from Airbus trainers. The Academy is equipped with real full-size autoclaves to enable the trainers to get real experience before moving into the Strata plant when manufacturing begins next year.

But one look in the hangars shows that Al Ain Academy has a much broader approach. It is a certified Part 147 school with EASA standards. And



already in the hangar are aircraft such as Falcon 20 business jet, a Dornier 228 turboprop passenger aircraft and a Bell helicopter.

"We are providing training in aircraft maintenance. Technologies to Part 147 standards or EASA part 66 in other words," said Clark. "Our students are Emiratis who are training to become licensed aeronautical engineers working on avionics, aero mechanics or line maintenance and later we will be doing helicopters (Part c). The students go through an EASA accredited programme and can achieve the Higher Diploma with the possibility of a top up course at Kingston University in the UK for a Bachelors degree," Clark said.

AASC goes from strength to strength

Saudi Arabia's Advanced Arabian Simulation Company (AASC) is making its mark in the region and has won three major contracts since start-up in 2008.

Set up to provide simulator flight training in the Middle East the joint venture between the Advanced Electronics Company (AEC) and Thales Training and Simulation includes the design, development and manufacture of different types of simulators, along with training and full technical support. It also creates job opportunities for Saudi nationals.

According to AASC's Jan De Haldevang, the training provider is proving to be a useful resource. He said: "Our business is developing at an encouraging pace. Many of our clients are regional government entities, so we do not disclose who they are – however, we are seeing six times the number of strong leads since this time last year."

AASC offers a range of FAA/EASA/ICAO compliant Part and Full task simulation training devices, all of which are capable of integration with different types of training software, such as: ab initio and recurrent training for pilots, as well as technician and cabin crew training. The simulators have a modular architecture with common core elements that can operate independently of the aircraft, meaning it is easy for a provider to switch between different types of plane.

The company already has an Airbus A330 Integrated Procedures Trainer (IPT) in Riyadh and is aiming to expand its offering, possibly to full flight simulators (FFS).

De Haldevang said: "There are numerous opportunities across all sectors.

"Airlines are spending a fortune on training and we envisage that most of successes are likely to be government contracts."

Five point plan that can turn inexperienced pilots into jet setters

The debate over ab-initio training spilled over to the ADTS conference in Dubai with Captain Lee Woodward, head of CTC Wings and executive director of CTC Aviation telling delegates that Ab initio training programmes that seek to fast-track relatively inexperienced pilots into jet airline operations can work.

Captain Woodward said there is great polarity on the subject but told the conference "When we look at Europe, we see a tried and tested process where aspiring pilots who have completed scrutinous and appropriate selection can enter well-organised training establishments, follow a full-time, structured training syllabus and complete a frozen ATPL course in less than 200 hours. What is more, they are then more than ready to complete a type-rating to a high standard and move seamlessly into line operations."

Woodward said it is the responsibility of the airline to nurture the talent and develop the pilot's skills to produce a competent and professional airline pilot.

CTC is increasing its involvement in the Middle East and said the key to success was based around welcoming a high calibre of candidates; having a robust and relevant selection process; providing competency based training (CPL/IR) that is airline focused, having jet orientation training on an appropriate aircraft type using airline SOP's and having high quality base and line training, particularly during the first 500 hours

"CTC has adopted a 'vertically Integrated' approach to ab-initio training; both the selection process and the training delivery is airline orientated," Woodward said. "Wherever possible the company adopts airline procedures and disciplines and the performance results speak for themselves producing a failure rate through training that is envied by other training providers and some of the highest - if not the highest-ATPL results and first series pass marks at CPL/IR in the industry."

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- Trade missions assistance
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Germans deliver training options 4U

German company Cockpit4u Aviation Service GmbH was delighted to be at ADTS – Dubai’s first show for the Aerospace and defence industry.

“Our company implements complex aviation training projects on the national and international scene,” said MD Dennis Pilz. “Commercial and private customers can choose between different pilot training offerings in accordance with the aircraft families of Airbus, Boeing, Bombardier and Dassault, as well as attend trainer-and-crew seminars. We are one of the leading internationally-acting Type Rating Training Organisations (TRTO) according to JAR-FCL, which is the last stage of training and allows the student to get the stamp they need in their license to qualify.

“We help airlines to optimally fulfil the challenges in pilot training without the airline needing to compromise on quality.”

Emirates is the company’s biggest customer and they have been working together since 2008. “We have helped the Emirates fleet grow by training its trainers as future instructors. In the Middle East region we also have business jet customers, which include Elite Jets and Execujet,” said Pilz.

“Our training centre is based in Berlin but we bring the training to you, which makes us unique. For instance, with Emirates we set up the training course at its base in Dubai. We fly instructors out to the Emirates training base. We rent simulators and place the trainers,” explained Pilz, who flies A320 aircraft himself.

The German company offers a six-day training programme, with days one to three theory and days four to six in a simulator, which offers 24 hours SIM training for eight pilots, three hours right-hand-seat training, three hours SIM panel introduction, as well as session executions and debriefing.

“We believe short-term training support leads to long-term value for your organisation. Through training outsourcing, an airline can leverage the best processes, systems, and solutions with a smaller investment than creating, maintaining, and continuously improving,” said Pilz.



Captain Mohammed Ahmed, Director of Operations at Air Arabia, addressing the first-ever Aerospace & Defence Training Show (ADTS) at Dubai’s Airport Expo.

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Airlines role in tackling shortages

The looming pilot shortage across the aerospace industry can be tackled by career mapping and better planning by airlines, according to industry experts speaking at the region's first-ever Aerospace & Defence Training Show (ADTS) at Dubai's Airport Expo on March 3-4.

Captain Lee Woodward, head of CTC Wings, a UK-based pilot training facility, said: "The industry is facing a pilot shortage and in order to hit the targets, in line with airline fleet growth, we need to promote aviation training. That means airlines should map out a career that's attractive to individuals today."

His remarks were echoed by Captain Mohammed Ahmed, director of operations at Air Arabia. "While a career in flying is attractive – a short study time, high salary – airlines don't get involved in education early enough to encourage young people to pursue pilot training," he said. "Another challenge is that airlines don't plan for

their future pilot requirements. Training is the first in line for cost-cutting when airlines are faced with uncontrolled costs such as a fuel hikes."

Taking manufacturers' market outlook studies into account, IATA predicts that 17,650 new passenger aircraft will be delivered by 2018, requiring more than 200,000 new pilots, or nearly 19,000 pilots a year. Current global training programmes can produce a maximum of 15,200 per year, leaving a shortfall of more than 3,000 pilots annually.

Alison Weller, MD of F&E Aerospace, said: "ADTS was our first-ever show dedicated to training within the aerospace industry and we are enormously pleased with the calibre of speakers at the conference and the exhibitors, ensuring our visitors received a comprehensive understanding of the industry, whether to gain a better understanding of the issues addressed, build contacts in the training industry or build on their existing training requirements."

Finns enjoy 'friendly fire'

Training simulator manufacture Interfire Products was at ADTS demonstrating its capabilities to the region. The Finnish company specialises in environmentally clean Real Fire Fighting Trainers, better known as RFFT, used by airline cabin crew.

"We produce fire-fighting training simulation equipment, using living fire and artificial smoke, which is environmentally friendly and safe, to create a realistic training environment," explained CEO Kari Komaro.

"Our mobile simulators are brought straight to the customers' door, so there is no extra cost for moving the trainees. All our trainers are professionals in fire and rescue service. The main thing is our products are made to JAA regulations. They are also 100 per cent environmentally friendly."

The company delivered to Etihad in 2007 and to Emirates in 2001 and has a service centre in Abu Dhabi as well as its main plant just outside of Helsinki.

"We opened a service centre in Abu Dhabi as we expanded in the region and now we are looking at an assembly base in Dubai," said Komaro.

The manufacturer says it can deliver a simulator very quickly to its customer depending on specifications. Komaro explained: "It can take two years, or it can be quicker. Modifications, testing and certification can take a few months, design around five months. Once built, the customer comes to check it over subject to certification. Once cleared, it is then dismantled and delivered to our customer, where it is then JAA certified. This can take six weeks. But this time scale varies for each project."

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Gulf Air anniversary a runway success >

A massive runway incursion took place at Bahrain International Airport on March 24th – but all for a good cause.

Hundreds of Gulf Air staff came together to form the shape of the number 60 in front of one of the airline's new jets, to celebrate the company's 60th anniversary.

A whole series of events were organised by the airline around the anniversary and special awards were made to long serving staff.

The airline began life as Gulf Aviation Company, operating scheduled commercial services. The first flight, an Avro Anson seven-seater aircraft, took off from Bahrain to Sharjah via Doha and the fare was Rupees 130 single (around One BD) and Rupees 220 return (Around 2 BD).

Paying tribute to the airline and its staff, Gulf Air chairman Talal Al Zain said: "Over the past six decades, Gulf Air has established itself as one of the leading pioneers in the global aviation industry and a global ambassador for the Kingdom of Bahrain"

"I am confident that the next 60 years will be no different as the airline continues to establish itself as a efficient, commercially sustainable business and a dynamic airline that effectively serves the people and the economy of Bahrain whilst continuing to represent the Kingdom on the world stage."



Business Aviation in the spotlight

The first Middle East Business Aviation Conference (MEBAC) will take place in Abu Dhabi in May, with Bombardier as the key sponsor.

Organised by Fleming Gulf, the conference represents a logical step forward in rallying business aircraft operators together and helping them to understand and address important issues that impact business aviation operations in the Middle East.

The event is supported by the Middle East Business Aviation Association (MEBAA), the Middle East Aerospace Consortium (MEAC) and the International Business Aviation Council (IBAC) and will address the magnitude of growth being experienced in this sector and is set to take place in Abu Dhabi on May 17 and 18.

A pre-conference workshop on 'Introduction to IS-BAO (International Standard for Business Aircraft Operations)' conducted by Katherine Perfetti of IBAC will be held on May 16.



Airlines cash in at the ATM

New Airline routes and holiday destinations within the Middle East and around the world is on the agenda at this years' Arabian Travel Market which runs May 4th-7th. The show, in its 17th year, is the travel and tourism event unlocking business potential within the Middle East for inbound and outbound tourism professionals.

Tourism destinations from the Middle East and around the world showcase a diverse range of accommodation options, tourism attractions and new airline routes. Held at the Dubai International Convention and Exhibition Centre, this event attracts industry and government leaders. Exhibitors include: National Tourism Boards, Accommodation and Venue Providers, Airlines, Cruise Companies, Tourist Attractions and Tourism Technology Companies.

Bringing Air Power to Muscat

The Air Power Middle East 2010 event at the Crowne Plaza in Muscat April 28-29 will be opened by Air Commodore Maktoum bin Salim al-Mazroi of the Royal Oman Air Force.

With the Middle East home to some of the biggest spending nations when it comes to the procurement and production of both military and commercial aviation, organised briefings on the subject are essential.

The Air Power Middle East 2010 is organised by Defence IQ and its aim is to offer an opportunity to understand the demands of the region, to meet key figures in a relaxed and personal environment, and to develop a better idea of the issues driving Middle Eastern air forces.

Organisers say the event will examine the ideal aircraft and systems at hand and analyse relevant platforms across fast jet, airlift, special mission aircraft and helicopter. Focus will turn to training and simulation, airborne early warning, logistic support, maintenance and regional cooperation for the future.

Other early senior level confirmations for include Major General (ret) Saber al-Suwaidan, former Commander of KAF who will be speaking on GCC relations with Iran and the overall role of Air Power; Brigadier General Giovanni Fantuzzi, Chief of Plans and Policy Division, Italian Air Force who will be discussing the role of Air Power in planning for future challenges; and Commodore (ret) Seshadri Vasan, Indian Navy to be talking on the significance of aviation platforms in controlling piracy and policing the sea.



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AIRCRAFT STATIC DISPLAY



Hosni Mubarak, President of Egypt, takes a tour of the Jet Showcase Park during AVEX 2008 with Ahmed Shafik, Egypt's Minister of Civil Aviation.

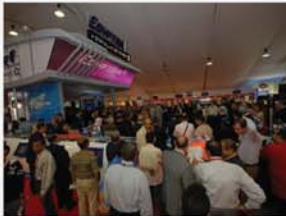
ABOUT AVEX 2010

AVEX International Airshow 2010 is the aviation business platform of the Africa and Middle East region. Strategically located in Sharm El Sheikh - a captivating city that acts as a 'bridge' between Africa and the Middle East - AVEX is the only strategic initiative to provide a highly focused environment for leading international aviation businesses to access the largely untapped aviation market of Africa. Featuring buyers and senior decision makers from Africa and the Middle East, AVEX is one of the world's fastest growing air shows.



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RAK names acting chief

United Arab Emirates' struggling airline project, RAK Airways, has lost its latest chief executive with the departure of Kristian Kirchheiner.

After a series of changes in RAK's business plan, Kirchheiner said last November that the airline intended to re-launch in mid-2010 as a full-service regional carrier.

However, Kirchheiner is "no longer working with RAK Airways", says a source at the company, adding that chief financial officer Omar Jahameh has taken over as acting chief.

Hansen new CEO for Lufthansa Systems

Lufthansa Systems has announced that Stefan Hansen will become CEO and chairman of the executive board for three years from July 1.

He succeeds Wolfgang Gohde.

Hansen formerly worked with Lufthansa Systems as head of the desktop and network services department before taking

CLOATRE STEPS UP AS SALES DIRECTOR AT DASSAULT AVIATION

Dassault Aviation has appointed Renaud Cloatre sales director for the Middle East region, based in Dubai. Cloatre has taken over the position from Gerard Gallice, who set up the Dassault Falcon operation in the Middle East and has retired after 19 years with the company.

John Rosanvallon, president and CEO of Dassault Falcon, said: "Renaud brings to this position a deep understanding and passion for aviation."

Cloatre joined Dassault Aviation in 2001 and served as sales manager in the customer service department. He is a licensed glider pilot and private pilot, and flies his own Cessna 337.



over as managing director of the subsidiary Lufthansa Systems Infratec in 2001.

Badran for Banc of America Leasing

Banc of America Leasing has appointed Alex Badran as managing director and head of sales for International Corporate Aircraft Finance (ICAF). Badran is responsible for leading ICAF's expansion across Europe, the Middle East, Africa (EMEA) and Asia Pacific.

Boulter lands key role with IATA

IATA has appointed former Gulf Air chief commercial officer Willy Boulter as regional VP for Asia Pacific. He will be in charge of member and government relations and will oversee IATA's initiatives in the region.

Mills to head sales for Airline Services

Airline Services Ltd has appointed Graham Mills regional sales manager

dedicated to the Middle East. Canadian-born Mills joins the company from Greiner PURtec in Austria, where he led sales efforts over the past 13 years.

Wataniya chief commercial officer

Kuwait's Wataniya Airways has appointed Lee Shave as its new chief commercial officer.

Shave, who brings with him more than 20 years of expertise in the international aviation sector, said: "I am looking forward to being part of the next phase of the Wataniya Airways success story."

Balkar quits as MEBAA president

President and CEO of MEBAA, Ammar Balkar, has announced his resignation.

In an email to members he said: "After three years as president and CEO I have decided to resign and concentrate on my current post as president and CEO of Elite Jet during this challenging period."

MEBAA has not yet named a successor.

StandardAero brings in Jeff Manion

StandardAero, a Dubai Aerospace Enterprise (DAE) company, has appointed Jeff Manion as vice president, global sales and customer service for the company's Business Aviation sector.

Manion will be responsible for directing Business Aviation's global sales and customer service activities as well as developing, planning and co-ordinating sales strategies and execution, and managing sales pipeline processes.

Hershov to head VistaJet board

Robert Hershov has been named as chairman of the newly-formed VistaJet advisory board.

VistaJet is the world's second largest private aviation company with the largest wholly-owned commercial fleet outside the Americas.

Hershov offers many years of experience, both in the private aviation market and in the luxury goods business. He was the founder of Marquis Jet Europe.

OMAN AIR'S CORPORATE AFFAIRS CHIEF

Oman Air has appointed Philippe Georgiou as chief officer, corporate affairs. He will be responsible for marketing, corporate communications and media, customer relations, emergency response, government relations and legal affairs. He will also be the official spokesperson for the airline.

"I am very happy to be joining Oman Air, which has tremendous opportunities that can be capitalised upon," said Georgiou.

"My main priority will be to support the aggressive expansion plan of the airline by providing corporate support and enhanced communications, internally and externally. Our contribution to the airline's drive, as it moves forward with its objectives, ultimately aims at sustaining and enhancing Oman Air's image and reputation."



all in a day

PEOPLE

PETER HILL

Marcelle Nethersole speaks to the chief executive of Oman Air.



1

■ How did you get involved in the aerospace industry?

I joined BOAC as a commercial trainee in 1961 until 1974 when I moved to Gulf Aviation in Bahrain. I was part of the team that created Gulf Air and, after a period working with DNATA, went on to help put together the first business plan for Emirates in 1984. From 1998, I headed up Air Lanka and oversaw their rebranding as Sri Lankan Airlines. I was invited to join Oman Air in 2008.

4

■ Where do you see yourself and your organisation in five years?

Our new fleet of A330s will be well established and we should have taken delivery of the first of our 787 Dreamliners by then. Our routes will continue to expand as they have done over the last year and we will continue with the sort of technological innovation that saw us become the first airline to offer both mobile phone and wi-fi connectivity on our widebody fleet. I have also said that we should be into profitability within that timeframe.

2

■ As Chief Executive of a rapidly expanding airline, what do your day to day responsibilities include?

I try to combine my strategic role – overseeing the development of Oman Air and planning for the future – with hands-on management. My working day can include meetings with Government ministers, discussions about the delivery of new aircraft and the re-organisation of staffing structures. The wide variety of responsibilities is both pleasing and demanding.

5

■ What do you enjoy most about your work?

I love the challenge of developing an exciting and dynamic airline within what is probably the most demanding business sector there is. To have been part of the changes that have seen Oman Air become a carrier of such superb quality, serving a unique and beautiful country, is incredibly satisfying.

3

■ What has been the biggest challenge you have faced in your job?

Transforming a regional carrier into an international player is always going to be a major challenge, but with the invaluable support of the Government of Oman and some excellent staff, we are making that transformation a reality. That we are achieving it within one of the most difficult trading environments in aviation's history makes it all the more satisfying.

6

■ What do you do in your free time...or are you always working?

Well, the hours at Oman Air are undoubtedly long, but you would expect nothing else. I do, however, have interests outside of work, the main one being the Arakavila Dance and Theatre Foundation, which works with young people in Sri Lanka to preserve and promote traditional dance, theatre and music.

“ I love the challenge of developing an exciting and dynamic airline within what is probably the most demanding business sector there is. ”

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