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CIVIL AVIATION

Issue 73, November 2012, Thu Al Hijjah 1433

Prince Fahd Chairs GACA Board of Directors 10th Meeting

Solar Aircrafts:

A Look into the Future of Aviation

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Dr. Faisal H. Al-Sugair *

GACA is honored to serve pilgrims

As this magazine issue reaches the readers hands, the Hajj season will be coming to a close, and its holy rituals will be far over. However, departure of out-of-Kingdom pilgrims will continue for more days to come. Hundreds of thousands of satisfied pilgrims will be reaching their homes now after successfully performing Hajj.

Needless to say that this great season was preceded, and will be followed by great successful efforts exerted by the government of this blessed land. What most distinguishes these major successes is the remarkable ability to manage these huge crowds that group together in a definite period of time, in a specific location, walking toward one direction, worship one God, and perform the same rituals. Management of these crowds starts and ends in airports as they receive hundreds of thousands of pilgrims and bids them farewell. This is what makes GACA, being the authority in charge of the Kingdom's airports, ready to devote all of its human and material resources, as much as possible, to the Hajj season.

Crowd management is an independent subject that embraces many elements including handling the behavior of these crowds which depends on two important factors: crowd actions and crowd awareness. A lot of foreseen and unforeseen efforts fall under these two titles. How crowds behave? How they move? How they like to be treated? What is their lodging, and transportation demands? A lot of similar questions must be answered with differed answers to satisfy different nationalities, different cultures, different awareness programs they had, and different instructions they were given.

For this purpose, the officials and employees in the concerned airports get prepared, particularly, KAIA in Jeddah at first hand, followed by PMIA in Madina. KAIA receives thousands of flights within a very short period of time and successfully handles tens of air carriers which operate these flights. Accordingly, the success of those two airports depends on the success of all their concerned bodies. Moreover, the managements of both airports utilize all their potentials and resources to create a suitable environment for the success of all actions taken by all involved parties and to eliminate all chances of delay, error, or negligence.

It's the spirit of teamwork that ties all these parties together. It's their joint determination to provide best services to the guests of Allah. It's in fact, a series of services starting from passports authorities to ministry of Hajj, security, customs, etc. We shouldn't forget air carriers since they are the ones that fly pilgrims to the Kingdom and fly them back to their home countries.

This responsibility is by no means a small one and GACA feels greatly honored in assuming it, supported by its partners under the direct follow-up and supervision of His Highness the President of GACA, and the guidance of the wise leadership of our beloved country ■

* VP, General Authority for Civil Aviation

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Prince Fahd Chairs GACA Board of Directors 10th Meeting

His Highness Prince Fahd Bin Abdullah Chairman of GACA Board of Directors chaired on Monday 17/9/2012 in his office in Jeddah the Board's 10th meeting. He welcomed the new Board members appointed by the Council of Ministers. He highlighted the major role played by the Board's former Chairman, the late HRH Prince Sultan Bin Abdulaziz, and his genuine efforts and far sighted vision for developing the Kingdom's civil aviation sector.

The Board discussed a number of development projects underway, most important are the New KAIA Project, KKIA Development Project, and New PMIA Project in Medina. Discussions also covered major development projects in Domestic Airports, new/existing air carriers, and human resources.

The Board also reviewed GACA budget for the current fiscal year beside air traffic in the Kingdom's airports. The meeting was attended by GACA's Vice President and Deputy Chairman Dr. Faisal H. Al-Sugair.

Jeddah's King Abdulaziz International Airport Taking Shape

Here is a sneak peek inside new terminal buildings at Jeddah's King Abdul-Aziz International Airport.

Basic infrastructure and structural work is now well advanced, with interior works due to commence in the main terminal later this year. The airport is due to be finished in 2014 and will handle 30 million passengers per year.

Interior designers, Areen, are carrying out the works, which started in February 2011.

The London-based practice was awarded the interior design and supply management contract by SBG in November 2010.

This put Areen in charge of both the design of the interiors and the procurement management of interior finishes and furnishings for the whole project, including the Passenger Terminal Complex, the Control Tower, the new Railway Station and the numerous support and ancillary buildings, including the 120 key airport hotel.

Areen said the design was inspired by the local environment and culture as well as the city's historical art and architecture, creating a contemporary yet culturally sensitive gateway to Jeddah and the Holy City of Makkah

Source: Airpot world magazine

KKIA Boarding Bridges Replacement and Upgrade Contract

His Highness Prince Fahd Bin Abdullah, President of GACA, signed on Monday 10/9/2012 in Jeddah a contract with one of the private companies for replacement, upgrade, operation and maintenance of all boarding tubes, Aircraft ground power supply units, and PCA supply units at KKIA.

He pointed out that this contract is within the context of GACA strategic and operational Plan regarding the development of Airport facilities and services.

GACA Vice President, Dr. Faisal H. Al-Sugair, explained that the contract includes replacement and upgrade of boarding tubes and their associated facilities in passenger and royal terminals based on a BTO system. The project aims to install technologically advanced boarding tubes that caters for spaciousness and that extend from the departure level to the aircraft door with heights consistent with the different types of aircraft including wide body aircraft.

He added that boarding tubes shall include 400Hz ground power units (GPUs) and (PCA) units to improve services provided to passengers and airlines. The Project will be completed in three years without any interruption in airport operations.

New Agreement between the Kingdom and Kuwait

His Excellency Dr. Faisal H. Al-Sugair, Vice President of GACA received on Monday October 1, 2012 at GACA headquarters the President of the Kuwaiti Civil Aviation, Mr. Fawaz Al-Farah.

The two parties signed a new Bilateral Air services Agreement between the Kingdom and Kuwait. It aims to update and modify current agreement in the air transport sector in the two nations.

Saudia Cargo grows by 26% in Q1-Q2

Saudi Airlines Cargo Company (Saudia Cargo) carried a record 251,500 tons of cargo in the first half of 2012. This growth represents an increase of 26% in tonnage carried and 25% in revenue compared to the same period in 2011.

The volume growth mainly attributes to Saudia Cargo's expanding freighter network, which in April 2012 saw the introduction of new routes in Frankfurt, Vienna, Ho Chi Min City and Dubai. In the first six months, Saudia Cargo increased its capacity in Hong Kong, Guangzhou, Lagos, N'Djamena and Europe.

GACA Receives National Air-Carriers License Proposals

GACA held a meeting on Sunday October 7, 2012 that was attended by six companies to receive their bidding proposals to be licensed for domestic air travel. In fact, the Request for Proposal documents were handed to seven companies earlier in the year.

His Excellency Prince Fahd Bin Abdullah, President of GACA, stated that this big number of bidders proves that the Saudi market is very attractive and is a good sign for the success of GACA's plan for introducing new air carriers to the Kingdom's domestic travel.

The bidders are Qatar Airways; HNA of China/Mazaya Al-Shabab International Co. Consortium; Gulf Air/Abdul-Hadi Al-Gahtani Sons Co. Consortium; Bahrain Airways/Private Air Consortium; Nesma; Almasria Universal Airlines/Islamic Development bank Consortium.

The meeting was chaired by Dr. Faisal H. Al-Sugair, VP of GACA. The evaluation process is expected to take about six weeks after which names of the successful bidders will be announced.

KFIA Houses DHL Main Freight Station

DHL the World's leading freight and logistics company and KFIA management in Dammam laid down the cornerstone for DHL new station at KFIA on 10,000 square meters area to cope with the increasing demand for fast delivery international shipping services and to raise the company's operation capacity in the Saudi market, in addition to create more than 100 job opportunities to Saudi Nationals.

The celebration was attended by Eng. Khalid Al-Mzel, KFIA Director General, Mr. Ken Allen, CEO DHL Express Global, Mr. Nour Suliman CEO DHL Express ME and North Africa, Geoff Walsh, Manager DHL Express Saudi Arabia and a number of senior officials and managers from both sides.

Mr. Ken Allen said that laying down of the station's cornerstone constitutes a quality shift in the Kingdom's freight industry as the Kingdom represents a huge economic base and a vital investment artery that feeds the Gulf States and ME area. Mr. Nour Suliman, CEO DHL Express ME and North Africa revealed that construction works in the new station will commence by the end of this year 2012 and all its facilities will be completed by 2014.

New Agreement between the Kingdom and Philippines

A round of bilateral discussions between the civil aviation authorities in the Kingdom of Saudi Arabia and Philippines took place on 29/9/2012 in the Philippines capital, Manila. At the end of discussions the two parties signed an (MoU) and initialed a new draft Bilateral Air Services Agreement agreeing on a framework for Air Transport Services to cope with the developments experienced by the Air Transport sector and strengthen bilateral relations between the two countries in this area.

The (MoU) raised number of scheduled flights operated by the air carriers designated by each party to (28) weekly flights of which (21) are passenger flights and (7) for cargo. Also the Agreement allowed each party to designate more than one national carrier, operate flights to all international destinations in both countries, join strategic alliances, and make code sharing arrangements between the two parties' air carriers.

The (MoU) was signed by Captain Mohamed Jamjoom, VP, GACA, for Safety & Economic Regulation from the Saudi side and Mr. Jose Perpetuo Lotilla, Transportation Undersecretary from the Philippines side..

Air Arabia Q2 profit up 31% to $ 18 million

Air Arabia posted a net profit of $18 million for the three months ending June 30, 2012. The figure shows an increase of 31% compared to $ 13.9 million profit recorded in the corresponding period in 2011.

The carrier's turnover for the second quarter of 2012 stood at $198.8 million, an increase of 23% compared to $161.45 million reported in the same period of 2011.

The airline welcomed onboard 1.3 million passengers in the second quarter of 2012, an increase of 15% compared to the same period last year.

Air Arabia's average seat load factor – or passengers carried as a percentage of available seats – for the three months ending June 30, 2012, stood at 85%, up 3% on the same period last year. For the six months ending June 30, 2012, Air Arabia reported a net profit of $31.36 million, an increase of 22% compared to $25.6 million in the corresponding period in 2011. The carrier's turnover for the first half of 2012 stood at $0.354 billion, an increase of 22% compared to $0.299 billion reported in the same period of 2011. The airline welcomed onboard 2.5 million passengers in the first half of 2012, an increase of 11% compared to the same period last year.

Solar Aircrafts:

A Look into the Future of Aviation

Civil aviation has grown a lot in the last few centuries with the rapid enhancement of aircraft development. However, the planes relied primarily on fuel consumption, which unfortunately causes pollution and creates other problems. Therefore, pioneers and scientists around the world have been studying solar energy and how it could be used as a fuel substitute for aircrafts.

By: Eman Atallah*

Solar Impulse is a Swiss long-range solar powered aircraft project initiated in 2003 and it is being undertaken at the École Polytechnique Fédérale de Lausanne, a Swiss Federal Institute of Technology located in Lausanne, Switzerland. The project eventually hopes to achieve the first circumnavigation of the Earth by a piloted fixed-wing aircraft using only solar power. The project is led by Bertrand Piccard and André Borschberg who are both Swiss pioneers, innovators and pilots. Piccard is a psychiatrist and balloonist born in Lausanne, Vaud canton, Switzerland in 1958. He was the first to complete a non-stop balloon flight around the globe along with Brian Jones. Piccard's father and grandfather were inventors and balloonists. Borschberg is a Swiss businessman and pilot born in Zurich, Switzerland, in 1952.

In 2003, Piccard completed the flight around the world in a balloon with crewmate Brian Jones. Although the trip was successful, he was very aware of the precariousness of the mission's success due to its dependence on fossil fuels. Having landed with 4kg of liquid propane, down from 3.7 tons at the time of departure, Piccard made a resolution that his next flight around the world would be fuel and emissions-free. And that is how the idea for a solar airplane came to his life.

In the same year the two joined together and formed their team and started working on their new project named Solar Impulse. They were building and designing an aircraft that uses solar energy. In November 2007, the final design of the first prototype solar aircraft named HB-SIA was presented to the press and partners. This aircraft is designed for one crew and has 64-meter wing span and weighs 1.6 tons only which is close to a car's weight. Its length is 21.85m, height 6.40m, and has a power plant of 4 electric motors. It is powered by lithium-ion batteries and has a take-off speed of 35 kilometres per hour. In 2008, Piccard and Borschberg succeeded in the first virtual flights (25 hours each) as construction of the HB-SIA prototype continued. A year later, a short-hop test was made to the HB-SIA proving the ability of the aircraft to lift itself off the ground.

In July 8, 2010 the dream of seeing an airplane flying through day and night with no fuel but solar energy became true and the HB-SIA achieved the world's first manned 26-hour solar-powered flight. It successfully completed a 9000m flight using only solar power. It reached a maximum altitude of 8,700m which was the longest and highest flight ever flown by such an aircraft. These records were officially recognized by the Fédération Aéronautique Internationale (FAI). The HB-SIA aircraft operates in the following way: during the day, the solar cells that are located on the wings absorb the light from the sun and convert it to electricity to run the plane's electrical engines and at the same time charge the batteries. After sunset, it can still continue to fly since the batteries are charged to run the engines until the next morning. When the sun rises the next day, the same cycle repeats itself. In September 21, 2010 the Solar Impulse team was invited by Geneva airport to land in their international airport. It flew successfully from Payerne to Geneva and from Payerne to Zurich in Switzerland.

In 2011, the technical team launched the construction of the second Solar Impulse aircraft named HB-SIB a slightly larger, follow-on design destined to fly around the world in 2015. The HB-SIB will have some improvements such as enabling the pilot to recline fully during flights lasting from 4 to 6 days; it will have an increased payload; its electrical circuitry will be isolated to enable flights in rain and other improvements. While the team continued to work on the new plane, they sustained testing and flying HB-SIA through different routes such as Ouarzazate-Rabat, Rabat- Madrid, Madrid-Toulouse.

Solar Impulse is one of the first big adventures of the 21st century that could change the future of civil aviation. When people ask Piccard, if it will be possible to transport hundreds of passengers by solar power he answers them saying: "It would be crazy to say 'Yes' and stupid to say 'No'" ■

* Student at Concordia University, Canada

THE BLACK BOX

A solid-state recorder

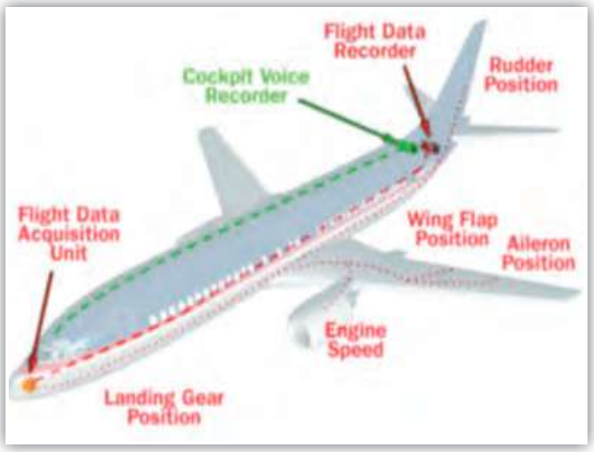
With any airplane crash, there are many unanswered questions as to what brought the plane down. Investigators turn to the airplane's flight data recorder (FDR) and cockpit voice recorder (CVR), also known as "black boxes," for answers. The FDR contains approximately 48 parameters of flight data, and the CVR recorded a little more than 30 minutes of conversation and other audible cockpit noise.

By Dr. Mohamed Elfatih Elamin*

Following any airplane accident the safety investigators team immediately begin searching for the aircraft's black boxes. These recording devices, which cost between $10,000 and $15,000 each, reveal details of the events immediately preceding the accident. In this article, we will look at the two types of black boxes, ¬how they survive crashes, and how they are retrieved and analyzed.

Solid-state recorders are considered much more reliable than their magnetic-tape counterparts, to Honeywell, a black-box manufacturer. Solid state uses stacked arrays of memory chips, so they don't have moving parts. With no moving parts, there are fewer maintenance issues and a decreased chance of something breaking during a crash.

Data from both the CVR and FDR is stored on stacked memory boards inside the crash-survivable memory unit (CSMU). The



Basic components and operation of an aviation recording system

The damaged flight data recorder from EgyptAir Flight 990

stacked memory boards are about 1.75 inches (4.45 cm) in diameter and 1 inch (2.54 cm) tall. The memory boards have enough digital storage space to accommodate two hours of audio data for CVRs and 25 hours of flight data for FDRs.

Airplanes are equipped with sensors that gather data. There are sensors that detect acceleration, airspeed, altitude, flap settings, outside temperature, cabin temperature and pressure, engine performance and more. Magnetic-tape recorders can track about 100 parameters, while solid-state recorders can track more than 700 in larger aircraft.

All of the data collected by the airplane's sensors is sent to the flight-data acquisition unit (FDAU) at the front of the aircraft. This device often is found in the electronic equipment bay under the cockpit. The flight-data acquisition unit is the middle manager of the entire data-recording process. It takes the information from the sensors and sends it on to the black boxes.

Both black boxes are powered by power generators that draw their power from the plane's engines. One generator is a 28-volt DC power source, and the other is a 115-volt, 400-hertz (Hz) AC power source. These are standard aircraft power supplies.,

In almost every commercial aircraft, there are several microphones built into the cockpit to track the conversations of the flight crew. These microphones are also designed to track any ambient noise in the cockpit, such as switches being thrown or any knocks or sounds. There may be up to four microphones in the plane's cockpit, each connected to the cockpit voice recorder (CVR).

Any sounds in the cockpit are picked up by these microphones and sent to the CVR, where the recordings are digitized and stored. There is also another device in the cockpit, called the associated control unit, that provides preamplification for audio going to the CVR. Here are the positions of the four microphones:

- Pilot's headset
- Co-pilot's headset
- Headset of a third crew member (if there is a third crew member)
- Near the center of the cockpit, where it can pick up audio alerts and other sounds

Most magnetic-tape CVRs store the last 30 minutes of sound. They use a continuous loop of tape that completes a cycle every 30 minutes. As new material is recorded, the oldest material is replaced. CVRs that used solid-state storage can record two hours of audio. Similar to the magnetic-tape recorders, solid-state recorders also record over old material.

The flight data recorder (FDR) is designed to record the operating data from the plane's systems. There are sensors that are wired from various areas on the plane to the flight-data acquisition unit, which is wired to the FDR. When a switch is turned on or off, that operation is recorded by the FDR.

In general it is required that commercial airlines record a minimum of 11 to 29 parameters,

depending on the size of the aircraft. Magnetic-tape recorders have the potential to record up to 100 parameters. Solid-state FDRs can record more than 700 parameters. By Regulations it is equired the recording of at least 88 parameters on aircraft manufactured after August 19, 2002.

Here are a few of the parameters recorded by most FDRs:

- Time
- Pressure altitude
- Airspeed
- Vertical acceleration
- Magnetic heading
- Control-column position
- Rudder-pedal position
- Control-wheel position
- Horizontal stabilizer
- Fuel flow

Solid-state recorders can track more parameters than magnetic tape because they allow for a faster data flow. Solid-state FDRs can store up to 25 hours of flight data. Each additional parameter that is recorded by the FDR gives investigators one more clue about the cause of an accident.

In many airline accidents, the only devices that survive are the crash-survivable memory units (CSMUs) of the flight data recorders and cockpit voice recorders. Typically, the rest of the recorders' chassis and inner components are mangled. The CSMU is a large cylinder that bolts onto the flat portion of the recorder. This device is engineered to withstand extreme heat, violent

crashes and tons of pressure. In older magnetic-tape recorders, the CSMU is inside a rectangular box.

Using three layers of materials, the CSMU in a solid-state black box insulates and protects the stack of memory boards that store the digitized information.

After the crash

Although they are called "black boxes," aviation recorders are actually painted bright orange. This distinct color, along with the strips of reflective tape attached to the recorders' exteriors, help investigators locate the black boxes following an accident. These are especially helpful when a plane lands in the water. There are two possible origins of the term "black box": Some believe it is because early recorders were painted black, while others think it refers to the charring that occurs in post-accident fires.

A close-up of an underwater locator beacon

Underwater Locator Beacon

In addition to the paint and reflective tape, black boxes are equipped with an underwater locator beacon (ULB) a small, cylindrical object attached to one end of the device

If a plane crashes into the water, this beacon sends out an ultrasonic pulse that cannot be heard by human ears but is readily detectable by sonar and acoustical locating equipment. There is a submergence sensor on the side of the beacon that looks like a bull's-eye. When water touches this sensor, it activates the beacon.

The beacon sends out pulses at 37.5 kilohertz (kHz) and can transmit sound as deep as 14,000 feet (4,267 m). Once the beacon begins "pinging," it pings once per second for 30 days. This beacon is powered by a battery that has a shelf life of six years. In rare instances, the beacon may get snapped off during a high-impact collision ■

* Technical Advisor - GACA/ANS/SED/COMMUNICATIONS

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European Low Fares Airline Association Statistics 2011

(1/3)

Airline	Country	Passengers (Millions) (2011)	Average Load Factor (%) 2011	Number of Daily Flights December 2011
EasyJet	United Kingdom	55.5	87.5	1,260
Flybe	United Kingdom	7.4	--	655
Jet2.com	United Kingdom	4.2	87.1	125
Norwegian	Norway	16.0	80.0	390
Ryanair	Ireland	76.4	82.2	1,353
Sverigeflyg	Sweden	0.6	75.0	50
transavia.com	The Netherlands	5.4	81.0	54
Vueling	Spain	12.3	75.6	253
Wizz Air	Hungary	11.0	84.0	199
Total		**188.8**	**83.4%**	**4,339**

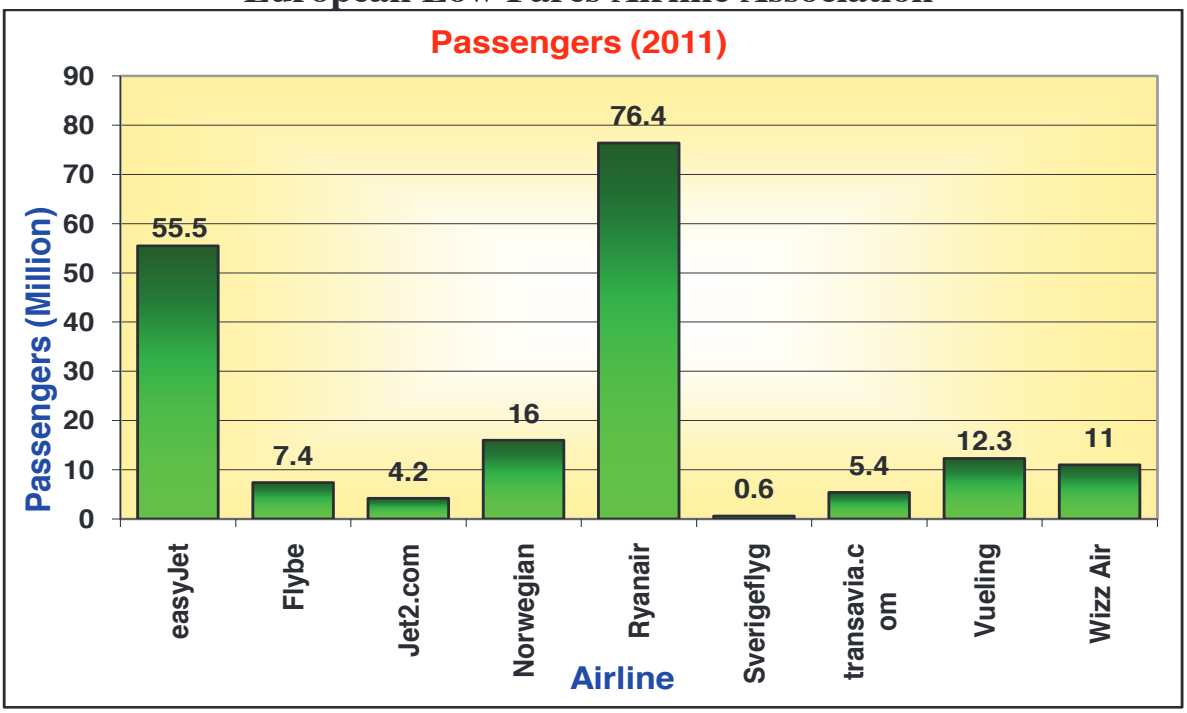
2/3

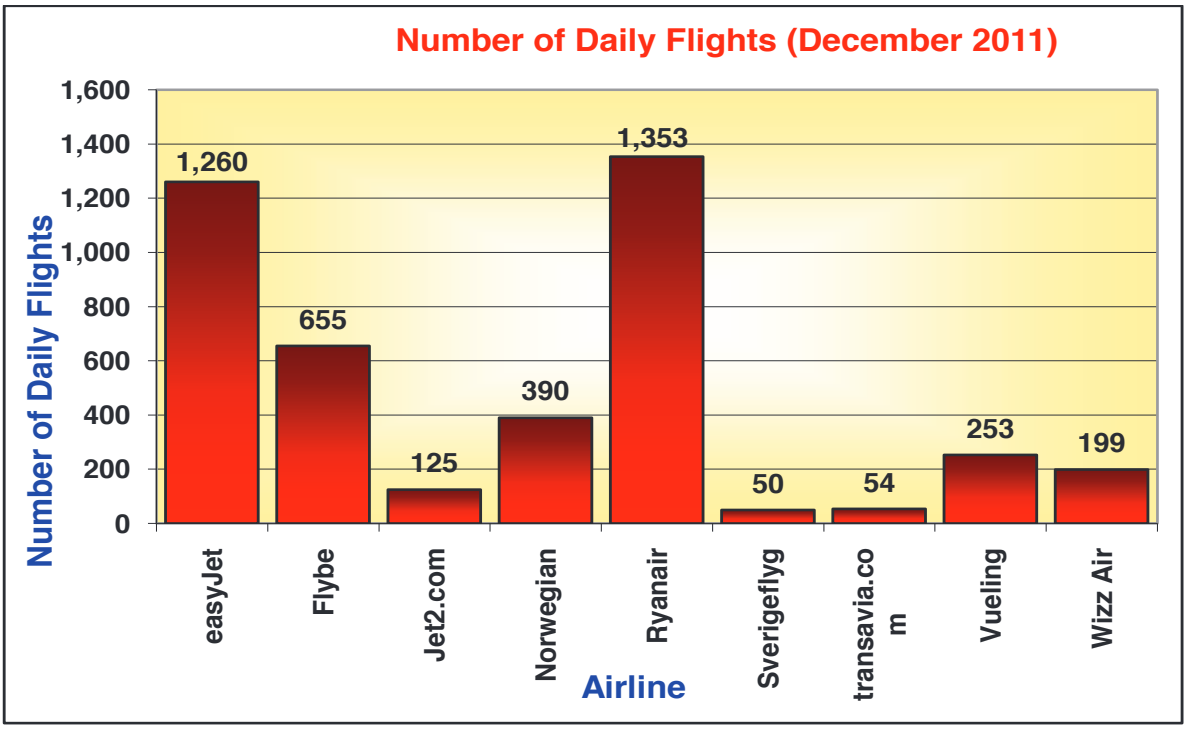
Airline	Countries Served Dec 2011	Destinations Dec 2011	Routes Dec 2011	Full Time Employees December 2011
EasyJet	30	130	611	7,571
Flybe	18	97	203	3,350
Jet2.com	19	51	168	2,100
Norwegian	31	110	297	2,500
Ryanair	27	162	1,400	9,000
Sverigeflyg	7	17	25	130
transavia.com	22	96	126	1,871
Vueling	20	110	144	1,438
Wizz Air	27	59	199	1,370

3/3

Airline	Number of Aircraft Dec 2011	Average Fleet Age Dec 2011	Fleet Type (December 2011)
EasyJet	202	3.9	35 x Airbus A320, 167 x Airbus A319
Flybe	84	4.4	14 x Embraer 195, 4 x E175, 2 x E170, 50 x Bombardier Q400, 2 x ATR42, 11 x ATR72
Jet2.com	38	--	12 x Boeing B757-200, 24 x B737-300, 2 x B737-800
Norwegian	62	6.0	49 x Boeing B737-800, 13 x B737-300
Ryanair	275	3.0	275 x Boeing B737-800
Sverigeflyg	9	14.6	4 x Saab 340, 2 x Saab 2000, 3 x ATR72/500
transavia.com	44	7.9	32 x Boeing B737-800, 12 x B737-700
Vueling	47	9.0	46 x Airbus A320, 1 x Airbus A319
Wizz Air	34	3.4	34 x Airbus A320-200
Total	**795**	**4.5**	-

European Low Fares Airline Association





Source: ELFAA

Forthcoming Aviation Conferences, Exhibitions & Seminars

1 November – 31 December 2012

1 - 2 November
13th Annual Asia Pacific Airfinance Conference
Hong Kong, China
euromoneyseminars.com/Calendar.aspx?CategoryID=0

SEAFAC 2012
Vancouver, Canada
arabaviation.com/IndustryResources/

4 - 7 November
AAAE/Chicago Dept of Aviation Airports Going Green Conference
Chicago, IL, USA
events.aaae.org/sites/121104/

5 November
65th Executive Committee Meeting
Algiers, Algeria
aaco.org/EventsDetails.aspx?pageid=2634

Satcom Direct MENA Office Grand Opening
Dubai, UAE
aeropodium.com/cp/satcomdirect.html

5 - 6 November
Safety in Aviation North America
Montréal, Canada
flightglobalevents.com/safetyna2012

5 - 7 November
AACO 45th AGM
Algiers, Algeria
aaco.org/EventsDetails.aspx?pageid=2662

5 - 8 November
Global Airport Development
Paris, France
icbi-gad.com/page?xtssot=0

6 - 7 November
Lithium Battery Workshop
Houston, TX, USA
iata.org/events/Pages/lithium-battery-workshop.aspx

European Airline Training Symposium
Berlin, Germany
halldale.com/eats

6 - 8 November
IATA 8th Cargo Claims and Loss Prevention Conference
Houston, TX, USA
iata.org/events/Pages/cclp-2012.aspx

European Regional Runway Safety Seminar
Moscow, Russia
iata.org/events/Pages/runway-safety.aspx

Aviation Fuel Forum
Bangkok, Thailand
iata.org/events/aff/Pages/index.aspx

Dubai Helishow
Dubai, UAE
dubaihelicoptershow.com/

7 - 8 November
Airline Operational Efficiency & Cost Management Workshop
Beijing, China
iata.org/events/Pages/operational-efficiency.aspx

7 - 9 November
IATA Treasury Conference
Barcelona, Spain
iata.org/events/Pages/treasury-2012.aspx

7 - 10 November
8th ACI Asia-Pacific Small Airports Seminar
Hyderabad, India
aci-asiapac.aero/event-detail.php?pid=400&id=50

8 - 9 November
European Air Law Association 24th Annual Conference
Istanbul, Turkey
aaco.org/EventsDetails.aspx?pageid=4141

10 - 13 November
ACI-LAC Assembly, Conference and Exhibition
Puerto Vallarta, Mexico
aci.aero/Events

12 - 14 November
Airport Concessions Conference
Denver, CO, USA
aci-na.org/event/563

12 - 21 November
Fuel Project - Tender I/2013 - Negotiations Meeting
Cairo, Egypt
aaco.org/EventsDetails.aspx?pageid=4081

13 - 14 November
Airport Development and Expansion Summit
Istanbul, Turkey
airportexpansionsummit.com/

13 - 15 November
Global Aviation Human Capital Summit
Colombo, Sri Lanka
iata.org/events/Pages/global-hc-summit.aspx

Engine MRO Asia
Singapore, Singapore
events.aviationweek.com/current/maseng/

13 - 16 November
The Australian Airports Association Conference
Melbourne, Australia
nzairports.co.nz/w/aaa-convention-airports-aviation-outlook-2012/

13 - 18 November
Airshow China
Zhuhai, China
airshow.com.cn/en/

14 - 15 November
Airline Operational Efficiency & Cost Management
Singapore, Singapore
iata.org/events/Pages/operational-efficiency-singapore.aspx

Airport Conference
Warsaw, Poland
biztradeshows.com/conferences/airport-conference-warsaw/

Transport Security Expo's & conference
London, UK
transec.com/page.cfm/Link=110/t=m/goSection=4

15 - 18 November
131st Iot Conference
Toronto, Canada
iata.org/events/sc131/Pages/index.aspx

18 - 19 November
MRO Saudi Arabia Exhibition and Conference
Jeddah, Saudi Arabia
mrosaudiarabia.com/

18 - 20 November
African Airlines Association 44Th Annual General Assembly
Johannesburg, South Africa
airtransportnews.aero/events.pl

19 - 30 November
ICAO Twelfth Air Navigation Conference
Montréal, Canada
icao.int/Meetings/anconf12/Pages/default.aspx

26 November
4th international Conference EU-Russia Air Transport
Brussels, Belgium
events.ato.ru/eng/events/airtransport

26 - 28 November
ACI Europe & ACI Asia Pacific Airport Exchange, Conference & Exhibition
Amsterdam, Netherlands
airport-exchange.com/

27 - 29 November
ICAO Regional Seminar on MRTDs, Biometrics and Border Security
Victoria Falls, Zimbabwe
icao.int/Meetings/Pages/default.aspx

28 - 29 November
Aviation 2020 Finance Forum
San Francisco, TBC
ascendconferences.com/ascendffsanfrancisco2012

CAPA World Aviation Summit
Hong Kong, China
centreforaviation.com/events/

28 - 30 November
CEPA EXPO 2012
Prague, Czech Republic
cepaexpo.com/

30 November
Legal Aviation Workshop - LAW
Washington, DC, USA
aeropodium.com/law/aircraftlease.html

2 - 4 December
AAAE Runway Safety Summit
Baltimore, MD, USA
events.aaae.org/sites/121204/index.cfm

4 December
Airline E&M: Air Cargo Aircraft MRO & Conversion
Berlin, Germany
ubmaviationnews.com/Events

5 - 6 December
13th Aircraft Acquisition Planning Seminar
Scottsdale, AZ, USA
events.linkedin.com/13th-aircraft-acquisition-planning-1080584

6 December
Airports December Forum
Sunderland, UK
nzairports.co.nz/w/airports-december-forum/

6 - 7 December
International Aviation Issues Seminar
Washington, DC, USA
aci-na.org/event/564

8 - 12 December
ICAO Air Services Negotiation Conference
Jeddah, Saudi Arabia
icao.int/meetings/ican2012/Pages/default.aspx

9 December
4th International Aircraft Repossession
Dubai, UAE
aeropodium.com/cp/aircraftrepo.html

9 - 11 December
AAAE Military/Civilian Joint Use Issues Conference
Clearwater, FL, USA
events.aaae.org/sites/121203/index.cfm

10 - 11 December
12th Annual AAAE/TSA/DHS Aviation Security Summit
Arlington, VA, USA
events.aaae.org/sites/121202/index.cfm

11 December
AACO Amadeus Steering Board Meeting
Cairo, Egypt
aaco.org/EventsDetails.aspx?pageid=4196

11 - 13 December
MEBA-Middle East Business Aviation
Dubai, UAE
meba.aero/

12 - 14 December
China Aviation industry Summit
Shanghai, China
aviation-summit.com/index.asp