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AVICOPTER

不忘初心 扶摇直上
Boeing Selects Zhoushan for 737 Completion Center

Boeing and Comac have named the Chinese coastal city of Zhoushan as the intended site of a jointly-developed completion center for 737s for onward delivery to Chinese operators.

The offshore completion site is the first of its kind for any Boeing commercial airplane and, following acceptance of ‘green’ airframes from Seattle, will be responsible for fitting interior cabin furnishings, painting and final handover to airlines.

Development of the Chinese completion center, plans for which were first revealed by Aviation Week in September 2015, forms part of a broader strategic move by Boeing which has preferred to keep final assembly within the U.S. rather than adopt the Airbus model of opening production lines in key overseas markets. Boeing maintains a delivery and completion site will generate significantly greater local value to Chinese industry than the Airbus A320 final assembly line in Tianjin, which opened in 2009.

The Zhoushan site extends Boeing’s already extensive existing relationship with China’s aerospace industry which currently makes the horizontal stabilizers, vertical fins, aft tail section, doors, wing panels and other components of the present 737 model. Chinese manufacturers also supply parts for the 747-8, as well as the rudder, fairings, leading edge vertical fin panels and other composite parts for the 787. In addition the Chinese city of Xiamen is the first conversion location for the 747-400 Boeing Converted Freighter program.

No details have been released about the proposed timing of the Zhoushan facility which will be based within an aviation industrial park on the island city.

—Guy Norris

10月28日下午，浙江省、波音公司、中国商飞在杭州举行发布会宣布，波音737系列飞机完工和交付中心落户浙江舟山。浙江省政府和波音公司，中国商飞签署战略合作框架合作协议。该完工中心是波音公司第一次将737生产系统的一部分延伸到海外，主要有两个部分组成：一是波音公司与中国商飞合资的737飞机完工中心，二是地处相同位置的波音公司独资的737交付中心。该合资公司将在737飞机的交付中心将在此完工的737飞机交付给波音在中国的客户。
boeing.cn/787
革新机队规划
改写商业战略

787梦想飞机，让我们飞得更好。787梦想飞机的先进技术为世界各地的航空公司带来了非凡机遇。我们称之为梦幻魔力。优秀的燃油效率和航程能力使航空公司能够开辟新的航线，优化机队和航线网络，而乘客则可获得特别的飞行体验，体验梦幻魔力。让我们飞得更好。
Comac Makes Progress With Its Airliners

中国商飞民机研发取得突破

Comac reports progress with both its airliner programs, the ARJ21-700 regional airliner and the narrowbody C919.

The ARJ21 here is the second one to enter airline service.

The C919 airliner is undergoing system integration tests in Shanghai as it works up towards its imminent first flight, for which no date has been announced. Flight test preparation is under way, and the application for type certificate has been submitted to Europe's EASA via the China's CAAC.

The second flight test C919 will enter final assembly by the end of this year.

New Site for Airshow

航展启用新展馆

This year’s Zhuhai Airshow is very different to the previous shows, thanks to a new, larger exhibition hall.

“The former number 1, 2 and 3 halls were dismantled last year and replaced by the new hall, which is 550 meters-long and 120 meters-wide,” says the Zhuhai Municipal Government, adding that the new hall is 66,000 sq. metres.

The total area will be about 82,000 sq. metres, a 24% increase over the 2014 show, says the government, adding that there will be two fixed halls and one temporary tent hall.

The show organiser says besides the new hall, the other hall is one from previous shows. It says all the earlier halls were demolished last year, except for one.

As for outdoor exhibition space, the Zhuhai government says there will be more than 350,000 sq. meters.

It also says it has improved transport links to and from the show site as well as parking.

“Airshow China will have five temporary parking lots in Jinwan and Doumen districts and at Gaolan Port, and more feeder buses to alleviate traffic pressure,” says the Government, adding that the transport bureau plans to provide nearly 600 buses.

The decision to redevelop the show site last year, with work completed in September of this year, did cause problems for some.

Aero Asia, a new general aviation show that was due to be held on the site in October 2015, had to be cancelled suddenly due to the redevelopment work.

The co-organiser of the Aero Asia show said at the time that the Zhuhai Government’s decision to redevelop the show site, was "unexpected". Aero Asia is a joint-v venture between the Chinese organiser and German exhibition company Messe Friedrichshafen, which has a similar show in Europe.

noun ~

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AVIC Achieves Leapfrog Development

中航工业实现跨越式发展

2016年是“十三五”开局之年，也是珠海航展（Airshow China）举办20周年，中航工业作为珠海航展的主办单位，今年将以“跨越发展二十年”为主题，继续大规模参加本届航展，全面展示整体实力、品牌形象和社会责任，促进国际合作与交流，推进航空产品国际市场营销。

在昨日举行的新闻发布会上，中航工业总经理谭瑞松表示，中航工业集中展示军机、民机、直升机、通用飞机、无人机、航电系统、机电系统、机载武器等8大类共160多项核心产品和系统，其中63项产品以实物形式进行展示，57项产品为首次展出，并计划组织8型飞机实物进行飞行表演。

从珠海航展参展内容的变化最能直接和形象地反映中航工业的发展。从1996年歼8II战斗机参加珠海航展，到2008年歼10战斗机，再到2014年FC-31“鹘鹰”战斗机参展，形象地体现了中航工业航空产业跨越式发展成果。中航工业在实现我国航空武器装备的跨越式发展的同时，也使我国跻身世界少数几个能系列化、网络化、多谱系自主研制先进航空武器装备的国家之列。本届航展，中航工业以先进航空装备为引领，以第三代主战航空装备系列化发展为主线，全面展示集团公司在跨代装备研制方面的重大突破，体现航空武器装备实现从第三代到第四代的跨越，从机械化到信息化的跨越，从陆基到海基的跨越，从有人到无人的跨越，从小型到大中型的跨越。

中航工业把振兴我国民用航空产业作为使命所在，大力推进民用飞机研发制造和相关产业发展。中航工业全面推进“新舟”系列新支线飞机、运12系列运输机以及AC系列民用直升机等民机的体系化发展。本届航展，中航工业将以民用运输机系列、“新舟”多用途平台系列、“新舟”700新一代涡桨支线客机为代表，展示集团公司大力发展军民融合、构建和完善民机产业体系的新格局。特别推出的大型民用运输机概念，进一步展示中航工业大型民机产品设计、研发、制造技术的综合实力。

在公共航空武器装备发展的重要趋势，经过多年努力，中航工业高端无人机系统实现突飞猛进的发展。本届航展，中航工业将通过静态展示的方式，与空军装备实物静展相配合，全力围绕“龙”系列、“鹰”系列、“蛟”系列、“影”系列、“兵”系列、无人直升机系列等五个系列重点高端无人机产品，集中展示中航工业高端无人机产业主力军的地位。
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AVIC Aims to Expand Internationally

中航工业推进国际化开拓战略

Expect to see more of Avic outside China over the next few years. Aviation Industry Corp. of China (Avic), the national state-owned aerospace and defense holding conglomerate, has set its sights on global markets to drive its growth. It plans not just to sell overseas, but also to become more international as it strives to gain market share in defense and commercial markets around the world.

During the last Five Year Plan (2011-15) it cemented its base for international expansion, including acquiring or investing in foreign aerospace companies such as Cirrus Aircraft, Continental Motors, and the Austrian composites expert FACC.

Look for more moves in the current Five Year Plan (2016-20) as Avic accelerates its international growth.

Liu Lin, vp for international business at Avic, told ShowNews the company will become proactive in applying the government's the ‘Belt and Road' strategic and economic development initiatives overseas. That will mean cooperation and trade to bring mutual benefit between China and the rest of Eurasia. Many of Avic’s products are ideally suited to that region.

Avic plans to significantly improve its international market share, enhance its ability to operate internationally, and to raise global awareness of its brand by 2020.

The measures of its success will be raising international revenues to 30% from 20% today, and becoming more globally diversified with its transnationality index rising to 18% from 13.3% in 2015. That index is calculated as the average of three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment. Many economists believe the higher the figure, the more competitive the company will be. Reaching that goal will mark Avic’s transition into a transnational corporation with international competitiveness.

Underpinning that strategy is Avic’s performance and reputation over the last Five Year Plan. Operating revenues grew 12.6% annually, and profits rose at an annual rate of 8.7%. It has ranked among the Fortune World Top 500 for seven consecutive years, moving up to No. 159 and featuring in the top aerospace and defense sector. In addition it ranked 25 among China’s 500 Most Valuable Brands as named by the World Brand Lab, with its brand value exceeding 100.8 billion yuan.
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Aero Engine Corp. of China Makes Its Debut
中国航空发动机集团亮相

China now has an independent aero-engine company, one that intends to enter world markets by 2016 and be a global player by 2025.

The new group, Aero Engine Corp. of China (AECC), has been separated from aeronautics conglomerate Avic, which will now concentrate on airframes, onboard systems and various other activities.

The decision to create AECC “proceeds from the high-level consideration of developing the country and strengthening the military,” President Xi Jinping said Aug. 28, when the group was ceremoniously inaugurated. Before AECC, most of China’s aero-engine activities were already in a single group under Avic. But now Avic is a shareholder in AECC, as is Comac, a commercial-aircraft builder that was split from Avic in 2008. Both are state companies. The Chinese state is a direct shareholder in AECC, since the central government has a stake and so has the Beijing city administration. AECC is based in Beijing. Registered capital for AECC is 50 billion yuan ($7.5 billion).

The top leadership position of the engine company has gone not to an Avic official but to a manager brought in from another state aerospace organization, in this case China Aerospace Science and Industry Corp. (Casic), the builder of many of China’s most sophisticated weapons.

That person is Cao Jianguo, formerly the general manager of Casic. He was named as chairman of the engine company in March. The president of the engine company is an Avic man, Li Fangyong, who was formerly deputy general manager of the aeronautics group.

Although AECC is organized as a company, and even has units listed on the Shanghai stock exchange, it remains as much an arm of the Chinese state as are Casic and Avic.

AECC manufactures products almost entirely for the Chinese state, and has a payroll of 96,000. But AECC is expected to expand its horizons.

It has launched a special project: In line with the “Made in China 2025” strategy, it plans that by the end of the 13th Five-Year Plan in 2020 China’s aero-engine industry will exceed 70 billion yuan with several products entering the international market. By 2025, it will exceed 100 billion yuan, and the aero-engine industry will rank in the best in the world.
Picture yourself a generation ahead.

Pratt & Whitney’s PurePower® Geared Turbofan™ engines are now in commercial service. The PurePower GTF engine powers the new generation of airliners, and their new generation of passengers. More and more next-generation operators are adopting the cleaner, greener, quieter engine. Because that’s how their customers want to fly. Learn more at PurePowerEngines.com.
China’s Avicopter, the state-owned helicopter manufacturer, has ambitious plans: It aims to capture 20% of the world market and 40% of domestic demand by the end of the current Five Year Plan in 2020.

It is developing a raft of new types, using latest technology and elegant styling, to do so. But that will not in itself be enough to achieve those goals, says Avicopter Chairman Yu Feng.

The company must develop itself as well as the market. Avicopter needs to become a market-facing service provider and builder a customer support network. It needs to emphasize market-driven research and development to provide products to attract customers, then encourage the infrastructure that they need to operate. It must improve its competitiveness, and promote its brand as a top domestic helicopter operator with international influence.

Yu believes development of the use of the helicopter should become a national strategy instead of being promoted just by aviation industry enterprises themselves. “This will improve the market adaptability of the helicopter industry in the new round of national supply-side reform, and drive it towards the goal of self development, self-adaptability to the market and satisfying market demands,” he says.

Avicopter’s helicopter line up includes the 2-ton-class light single-engine AC311, the 4-ton-class medium twin-engine AC312, and the 13-ton-class large three-engine AC313. Meanwhile, it is developing the 3-ton-class AC322 light helicopter and the 7-ton-class super-medium AC352, a Chinese version of the Airbus Helicopters H175.

Yu Feng, Chairman of Avicopter.

As a key player in China’s growing helicopter industry, and a national team, Avicopter is committed to innovation and the integration of military and civilian applications. The company has been developing its product line, focusing on high-quality, state-of-the-art helicopters.

In the “twelve-five” planning period, the company has successfully developed the 2-ton-class light single-engine AC311, the 4-ton-class medium twin-engine AC312, the 13-ton-class large three-engine AC313, and other models. Currently, the company is extending its lineup with the 3-ton-class AC322 light helicopter and the 7-ton-class super-medium AC352.

Against the backdrop of the rapid development of the aviation industry and the urgent need for aviation services, Avicopter has decided to reposition itself and its product line. The focus is on market orientation and providing customers with tailored services. The company will continue to develop new types of helicopters, enhance its capabilities, and promote its brand as a top domestic helicopter operator with international influence.

Yu Feng, Chairman of Avicopter, has been leading the company to develop itself as well as the market. Avicopter needs to become a market-facing service provider and build a customer support network. It needs to emphasize market-driven research and development to provide products to attract customers, and encourage the infrastructure that they need to operate. It must improve its competitiveness and promote its brand as a top domestic helicopter operator with international influence.

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哪种机型能将舒适性和经济性融于一身？

空客A350XWB宽体飞机，经济舱标配18英寸更宽座椅，燃油效率提升25%，座英里成本降低25%。还有比A350XWB更出色的吗？它已经翱翔天际。

空中之道 空客知道
China Aviation Industry General Aircraft (CAIGA) is the part of state-owned conglomerate AVIC that has been most active internationally, acquiring technology and expertise via international acquisitions and cooperation. The Zhuhai-headquartered company has a cooperation agreement with Cessna to assemble Cessna Caravan aircraft in its factory in Shijiazhuang. It also has a joint-venture with Cessna that is responsible for painting and doing final delivery of Cessna XLS+ business jet aircraft to customers in China. CAIGA also owns U.S. general aviation aircraft manufacturer Cirrus, as well as Continental Motors and other general aviation enterprises. These acquisitions have given it access to new technologies, especially expertise in composite materials.

Cirrus in the U.S., meanwhile, is expanding its product portfolio to include special mission surveillance aircraft. It unveiled in mid-July its first multi-mission ISR (intelligence, surveillance and reconnaissance) package which can be fitted on the Cirrus SR22 and SR22T.

Cirrus is moving into very light jets (VLJ), something CAIGA is also working to do. The Cirrus SF50 Vision Jet, powered by a single Williams International FJ33-5A turbofan engine, is awaiting certification by the U.S. FAA.

Also in production are the “Little Eagle” 500 single-engine touring and training aircraft, and the Seagull 300 light amphibian. CAIGA is also busy developing the AG600, the largest amphibious aircraft in production, with a maximum take-off weight of 53.5t. The aircraft was officially rolled out in July.

besides manufacturing, CAIGA developed the Aviclub Aviation Communication Co., Ltd. which spreads aviation culture and stimulates the potential of aviation consumption through holding “Aviclub Flight Carnivals” each year. Its goal is to help develop the general aviation market through inspiring the public with flight events. Aviclub operates a fleet of Cirrus aircraft.
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新一代驾驶舱以及确保数据安全的空地互联，创造飞行和任务效率的新纪录。

在航空业的每时每刻，会涉及数以百万计关键决策的制定。泰雷兹在这个过程中扮演着核心的角色，并在航电、乘客体验、飞行员培训和模拟、空管、监控、电气发电各个领域拥有着业界长期广泛的研发积累。我们在中国的30年长足发展，让我们得以积累了对制造商、航空公司、机场、飞行员、机务和空管单位至关重要的关键因素的深刻洞察力。无时无刻，安全所在之处，泰雷兹无往不至。

Search: Thalesgroup
AG600 First Flight ‘Early Next Year’

AG600将于明年第一季度首飞

Work is progressing toward the maiden flight in the first quarter of 2017 of Avic’s AG600 amphibious transport aircraft, one of three ‘large aircraft’ programs regarded as a national priority (the other two are the Y-20 jet transport and the C919 airliner).

The nearly-complete aircraft is housed here at Zhuhai in the hangars of China Aviation Industry General Aircraft Co., Ltd. (CAIGA), which aims to build five aircraft a year when it goes into production.

CAIGA says letters of intent have been signed for 17 aircraft, and it sees demand for about 50 AG600s in the domestic market.

The aircraft was rolled out amidst much fanfare this July, some seven years after its launch in 2009. At that time the first flight was planned for 2013 and entry into service in 2015, but it appears Avic has taken the extra time to greatly improve the design from what was originally an updated Harbin SH-5 amphibian built in small numbers in the 1970s and 1980s.

The AG600 is intended to fill many roles including fighting forest fires, marine monitoring, maritime rights protection and anti-smuggling. Rescuing people at sea has also long been mentioned.

Other missions could include carrying supplies to islands and reefs, many of which might not have runways.

In its overland role of firefighting the AG600 water is designed to scoop up 12 tons (26,000 lb.) of water in 20 secs., according to Avic. Its speed will allow it to outperform rotorcraft in the role, and its water capacity will exceed even that of the giant Mil Mi-26 helicopter, which China uses for fighting forest fires.

Avic notes the AG600 consists of more than 50,000 structural and system components, over 90% of which are made domestically.

The AG600 features tricycle retractable landing gear, and is powered by four domestic WJ6 engines of 3,126 kw. Externally it is about the size of a Boeing 737, with a takeoff weight of 53.5 tons, maximum cruising speed of 500 km/h, longest flight duration of 12 hours, and maximum range of 4,500 km.

AG600 is我国三个“大飞机”项目之一，在运20、C919相继交付、下线之后，AG600也于7月23日实现了总装下线，成为我国在大型飞机研制领域取得的又一阶段性重大成果。

据统计，AG600全机共有5万多个结构及系统零部件、近120万个标准件，98%的结构及系统零件由国内供应商提供；全机机载成品90%以上为国产产品。国内共有20个省市、150多家企事业单位、十余所高校的数以万计的科研人员参与了项目研制。

据该项目总设计师黄领才介绍，AG600飞机采用单船身、悬臂上单翼和前三点可收放起落架布局；选装4台国产涡桨6发动机，单台功率为3126千瓦；机长37米，翼展38.8米，机高12.1米，其外部尺寸与波音737相当；最大起飞重量53.5吨，最大巡航速度500千米/小时，最大续航时间12小时；最大航程4500千米；20秒内可一次汲水12吨，单次投水救火面积超过4000平方米；飞机在水面起降时抗浪能力不低于2米。

未来，AG600飞机按照“水陆两栖、一机多型、系列发展”的设计思路，通过系列化的发展和改进，满足森林灭火、海洋监测、海上援救、海上维权执法等多种需求。在该机投产后，中航工业通飞将以每年5架的速度实现量产，而目前AG600已取得了17架意向订单，国内市场对该机的需求大约有50架，同时AG600也有望走出国门，服务于世界其他国家。
Shaping tomorrow’s regional aviation*

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Two in every ten widebody aircraft on the Boeing production line will be destined for a Chinese carrier, a sign of China’s growing importance.

“On average 15% of the widebodies Boeing produces have been going to China and I think longer-term it will get to 20%,” says Darren Hulst, managing director of marketing for Northeast Asia, Boeing Commercial Airplanes.

There will be nearly 30 widebodies delivered to China this year, he says, adding that this “is very similar to last year.”

The most popular Boeing widebody among Chinese carriers is the 787.

“Going forward it is the 787 by far. Between orders, commitments and deliveries we are well over 120. We’ve already had a lot of sales activity and we see tremendous follow-on orders and additional demand from other carriers.”

Airport slot constraints are also leading Chinese carriers to sometimes by-pass the big Chinese hubs when launching new international services.

“This is why we are seeing so many airlines tapping secondary markets,” says Hulst.

“What is compelling and interesting about the 787 in China is...the airlines can operate the aircraft from big hubs in China to big cities in the U.S., but also to secondary cities in the U.S. Hainan just announced Beijing-Las Vegas. Shanghai-Seattle and Shanghai-Boston are also 787 routes.”

“The flip side of that, is that the 787 can be used to operate from secondary cities in China to big cities in the U.S. We have seen a tremendous explosion in growth and expansion from Chinese carriers with 787s operating from secondary cities in China to big cities in the U.S. Examples are Changsha to Los Angeles and Chengdu to Los Angeles. Those are routes that need the range, but also need the right size of aircraft. That is the unique capability that the 787 offers,” he adds.

Hulst says the Boeing 777-300ER has also proven popular, “but the Chinese airlines were among the later adopters of the 777-300ER.”

“You can carry more payload on existing routes. These aircraft will add 5-10 tons of cargo on some of these same routes, which is straight to the bottom line. The range, especially with the 777-8, will facilitate flights further south in the U.S. and potentially some Latin American destinations,” he says.

China Southern Airlines has ordered 12 787-9 Dreamliners, valued at $3.2 billion at current list prices.

波音民机集团中国与东北亚区市场营销执行总监霍达仁表示：“现在，波音生产

的宽体客机有15%是交付给中国的，不久后这一比例将突破

20%。”波音公司今年将向中国的航空公司交付30架宽体客机，与去年基本持平。波音787

成为中国市场最受欢迎的宽体客机，共获得120架以上的承诺和确认订单。

787属于中型宽体客机，由于北京和上海两地机场的航班时刻限制，对787的销售起到促进作用。在国内的干线航线上，客流量很大，但航空公司很难得到更多的航班时刻，由此促使一些航空公司改用787这样的宽体客机替代窄体机在这些干线航线上运营。

在被问及在国内短途航线上使用宽体客机是否合适时，霍达仁没有做出更多的评判。目前，在中国国内航线采用宽体机执飞的航线约为5%，所占比例不大，而且大部分分布在高客流航线上，如北京—上海和北京—广州。他还表示，如果一架宽体飞机的前序或者后序航班是远程国际航线，而选用此宽体机执飞国内航线也很合理，这样还能够提高飞机日利用率。

由于大型枢纽机场的航班时刻限制，使得一些航空公司选择在二线城市开通国际航线。航空公司不仅可以用787执飞中国大型枢纽机场到美国的大城市的航线，也能到一些二线城市的航线。海南航空不久前就宣布用787开通北京—拉斯维加斯、上海—西雅图、上海—波士顿航线。

另一方面，787也可执飞中国二线城市到美国一线城市的航线。中国航空公司利用787执飞此类航线已经出现了爆发式的增长，如长沙—洛杉矶、成都—洛杉矶。这些航线不仅要选择航程合适的飞机，还要选择合适大小的飞机。787完美匹配了这一市场的需求。

霍达仁表示，波音的777-300ER在中国也颇受欢迎，新一代777系列的777-8和777-9也在研发之中。波音777X可使中国的三大航空公司拥有更远的航程，更佳的燃油效率，使现有航线的运营更为成功，并执飞777-300ER无法抵达的航点。
As an Airline MRO, Air France Industries KLM Engineering & Maintenance has developed a unique portfolio of know-how and engineering capabilities reflected in its development of a wide range of value-adding innovations.

“The MRO Lab” is the program where all the innovations developed by AFI KLM E&M and its network of affiliates converge. Specially tailored to the challenges of aircraft maintenance, the innovations are the fruit of continuous development aimed at satisfying the requirements of airline operating performance.

The know-how deriving from mastery of these technologies benefits AFI KLM E&M clients by generating scale effects and optimizing fleet performance.
China Needs $1 Trillion of Airliners

未来20年中国需要价值超10000亿美元的飞机

China is set to become the world's first $1 trillion aviation market for airliners, according to Boeing.

“The continuing expansion of China’s middle class, coupled with new visa policies and a wide range of widebody airplanes with new technologies, capabilities and efficiencies, gives us every reason to expect a very bright future for China’s long-haul market,” said Randy Tinseth, vice president of Marketing, Boeing Commercial Airplanes.

At the end of 2035, Chinese airlines should have 7,720 aircraft in service, compared with 2,880 at the end of 2015, Boeing said. Since 1,970 aircraft will be retired in those 20 years, the airlines will need to introduce 6,810 aircraft into service. Their value will be $1 trillion.

Boeing predicts China will need 5,110 new single-aisle airplanes through 2035, accounting for 75% of the total new deliveries. Low-cost carriers and full-service airlines have been adding airplanes and expanding new point-to-point services to cater for both leisure and business travel demand from a rising middle class in China and throughout Asia.

China’s widebody fleet will triple, with airlines taking 870 small widebodies that seat up to 300 passengers, and 630 medium widebodies with 300-400 seats.

Boeing forecasts 6.4% annual growth in passenger traffic for Chinese airlines through 2035, with international business expanding faster than domestic.

The fleet growth forecast is slower than the 5.3% figure that Boeing issued in 2015 for the 20 years through 2034.

Meanwhile, China has a component role on every current Boeing commercial airplane model – the Next-Generation 737, 747, 767, 777, as well as the 787 Dreamliner. Over 9,000 Boeing airplanes fly throughout the world with integrated China-built parts and assemblies.

Boeing’s Randy Tinseth delivered Boeing’s $1 trillion forecast.

波音预测，中国将成为全球第一个规模超过10000亿美元的航空市场。中国目前单通道机队规模占全球单通道机队的18%，但宽体机队的规模只占全球宽体机队的5%左右。未来二十年这一数据将发生重大变化。

波音民机集团市场营销副总裁兰迪•廷塞斯认为：“中产阶级人群的不断增长、新签证政策的出台以及具备新科技、新性能与高效率的各种宽体飞机的面世，让我们有充足的理由相信中国远程航线市场的前景一片光明。”

去年波音曾预测，截至2034年，中国机队规模将达7720架，2015年仅为2880架。由于未来20年将有1970架飞机退役，所以未来中国将需要6810架新飞机。总价值达10250亿美元。到2035年中国单通道飞机市场将需要5110架飞机，占飞机总交付量的75%。低成本航空公司和全服务航空公司将继续增购飞机，继续扩张与完善“点对点”航线网络，以满足在中国乃至全亚洲范围内快速崛起的中产阶级的休闲及商务出行需求。而未来20年宽体飞机机队规模将增至当今的3倍，其中200~300座级的小型宽体机有870架，300~400的中型宽体机有630架。未来20年中国的年客运量增长率将达到6.4%，其中国际客运量的增长速度高于国内客运量。随着飞机尺寸和利用率的上升，运营商的机队规模也需要快速扩展，波音预测飞机数量年均增长率为5.1%。

这些预测反映了各国际航线的不同市场份额和需求量。廷塞斯表示，波音的预测中假定了未来20年中国经济的年均增速为5.1%，假定了中国民航局仍会每年批准增加一些航线来满足客运量的增加。此外，预测中有一个很大的难以估计的问题是中国允许低成本航空机队大规模扩张的程度，它可以很大程度地刺激客运量，而波音在这方面方面的预测很保守。

波音预测未来20年全球范围将有价值59万亿美元的39620架新飞机交付。目前，波音飞机是中国航空公司客货运体系中的主力机型。中国运营的所有民用喷气机中，超过50%是波音飞机。同时，中国参与了所有波音机型的制造，包括新一代737、747、767、777和最具创新意义的787“梦想飞机”。超过9000架飞行在世界各地的波音飞机上安装了中国制造的零部件和组件。
A330, Ideal for China’s ‘Belt and Road’

A330助力中国航企积极融入“一带一路”发展战略

Most of the international destinations opened in 2015 by Chinese airlines’ Airbus A330s were located in the areas covered by China’s ‘Belt and Road’ strategy.

That is not a coincidence, says Eric Chen, president of Airbus China.

The ‘Belt and Road’ reaches out to more than 60 countries and regions which are all within the range of the A330 from Beijing. And the aircraft’s range and capacity make it much more efficient than some truly long range aircraft when flying further afield on long and narrow routes such as Beijing to Copenhagen and Xi’an to Sydney.

Airbus launched the re-engined A330neo (A330-800/900) in 2014. With latest generation engines, aerodynamic improvements and new cabin features it will deliver a 14% reduction in fuel consumption per seat and with a range increase of up to 400 nm.

“We are more than happy to work together with our partners to help the modernization of western China through air transport,” says Chen. “Aviation will help this region to capture the opportunities brought by the ‘Belt and Road’.” We think A330 is the ideal aircraft; it can fly from Chengdu, Xi’an and other cities in this region to any main destinations in Europe, Southeast Asia and Australia.

Airbus launched the re-engined A330neo (A330-800/900) in 2014. With latest generation engines, aerodynamic improvements and new cabin features it will deliver a 14% reduction in fuel consumption per seat and with a range increase of up to 400 nm.

The A330neo is ideal for airlines operating widebodies for the first time because of its lower cost/high reliability, says Chen. Airbus will deliver the first A330neo in 2017.

To date the A330 family has attracted more than 1,600 orders, and nearly 1,300 A330s are flying worldwide with more than 110 operators. The A330neo has received 186 orders from 10 customers all over the world. It was in 2005 that China Southern introduced the first A330 to China; today, there are over 170 operated by Chinese airlines on the Mainland. The government decided last year to buy another 75 A330s for Chinese airlines in return for the setting up of a completion center, now under construction alongside the A320 family final assembly line in Tianjin.

The center will cover completion activities including cabin installation, aircraft painting and flight test, as well as aircraft delivery and customer flight acceptance. The A330s to be completed there will be assembled in Toulouse and flown over.

Chinese airlines are expected to receive A330s from Tianjin starting from September 2017.

Airbus promises to further enhance its industrial cooperation with China, targeting a total of $1 billion in value by 2020, says Chen.

A rendering of the A330 completion and delivery center in Tianjin.

Airbus China President Eric Chen.
让飞行梦想不再遥远

中航通用飞机有限责任公司

中航工业通飞是国内最大的以通用飞机研发制造、运营服务为主业，涵盖支线航空、通用航空、水上飞行、新材料、锻造、液压等业务的多元化公司，以“传播航空文化，实现飞行梦想，引领中国通用航空产业发展”为使命，实施全面提升产品和服务的价值创造力发展战略，致力于成为“国内领先、世界一流”的通用航空解决方案提供商，全球化、全谱系、全产业链、全价值链发展模式不断完善。

通飞以市场需求为牵引，统筹国内国外两种市场、两种资源，加快通用航空器研制全谱系化进程。大型水陆两栖飞机AG600在珠海总装下线；与法国飞鲸公司签署了重伤飞机项目投资协议；中航通飞公司乐景SF50首架批产飞机成功首飞；西锐向客户交付第6000架飞机，连续12年稳居全球最畅销四/五座飞机榜首。中航通飞集团型号生产小鹰500、运五B、A2C及金雕系列飞机、系留气球等通用飞机和浮空器，国际合作生产赛斯纳208B、奖状XLS+公务机，正在研制领世AG300轻型公务机、海鸥300轻型水陆两栖飞机、AG100初级教练机、领翔AG50飞机等。

通飞以全产业链发展为目标，重组产业链的价值环节，拓展通航新兴业务。在内蒙古、新疆探索发展通用航空和通用航空旅游；所属多家通航公司取得CCAR-91部、CCAR-135部、CCAR-145部运行资质；在建珠海、呼伦贝尔、河北、湖北等机场管理公司；UL91、100LL无铅航空通过适航评审进入市场。爱飞客控股集团落户南京，通用航空示范区加快布局，荆门、武汉、南通、阿勒泰等地全面建设；举办爱飞客飞行大会，传播航空文化，促进产业发展。“通用航空+”发展方向得以践行。
The aircraft (MSN2) is one of Airbus' fleet of five A350-900 test aircraft and one of two with a fully functional cabin configuration (42 business class and 210 economy class seats). The flights will be operated by an Airbus flight-test crew.

Launched in 2006, Airbus has received 810 firm orders for the A350 XWB from 43 customers worldwide. By the end of September, a total of 41 A350 XWBs were in service with nine customers.

The A350 XWB has received orders from Chinese customers: China Eastern Airlines ordered 20 A350-900 aircraft in April 2016; Air China ordered 10 A350-900s with first delivery scheduled in 2017; and in September, Sichuan Airlines signed a Letter of Intent to lease four A350-900s.

Five percent of the airframe is designed and manufactured in China.
国画激光投影机
感受不一样的视界
第11届中国国际航空航天博览会
H6H7 展位
中国·广东·珠海
2016年11月1日–6日

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*航展期间上电将开展扫码送礼活动，敬请关注
GE Tests World’s Largest Jet Engine
GE测试世界最大的喷气式发动机

GE Aviation has completed the initial ground testing of the GE9X, the world’s largest commercial aircraft jet engine. It is being developed to power Boeing’s 777X, for which Hong Kong-based Cathay Pacific is an early customer.

The GE9X engine will be in the 100,000-pound thrust class and will have the largest front fan at 134 inches in diameter, with a composite fan case and just 16 fourth generation carbon fiber composite fan blades. It also has some new technologies, such as ceramic matrix composite (CMC) parts, a new lightweight material that can withstand extremely high temperatures. The GE9X, along with the new CFM International Leap engines, are the first commercial aircraft engines to have CMC parts.

The GE9X also has some parts that are 3D printed, another relatively new technology.

GE Tests World’s Largest Jet Engine

CFM Delivers 30,000th Engine
CFM交付第30000台发动机

Airbus recently celebrated the delivery of its 10,000th aircraft, but engine-maker CFM International coincidentally has just announced it has delivered its 30,000th engine.

CFM International delivered its very first engine in 1982 and has the advantage of being the exclusive engine on the Boeing 737 family while competing on Airbus narrowbodies.

The engine-maker, which is a joint-venture between GE and Safran’s Snecma, says the milestone was achieved with delivery of a CFM56-7B powered 737-800 to China Eastern Airlines. That airline is its largest customer in China, with more than 800 CFM56 engines.

“Let’s do it for the CFM56 program,” says Jean-Paul Ebanga, president and CEO of CFM International. Meanwhile, the company is making a smooth transition to LEAP engine production, says Ebanga, adding that CFM will produce around 100 LEAP engines in 2016, ramping up to more than 2,000 engines per year by 2020.

“We knew from day one that this would be an extraordinary ramp-up, and we have been preparing for it for a long time,” he says.

CFM国际公司由GE和赛峰集团合资成立。在1982年交付了首台发动机，目前是波音737飞机的独家发动机供应商，同时也是空客窄体机的首选动力之一。

“对CFM56项目而言，今年是具有历史意义的一年，”CFM国际公司总裁兼首席执行官让-保罗·埃邦加表示。与此同时，公司正在顺利地过渡到LEAP发动机的生产中，CFM将在2016年生产约100台LEAP发动机。到2020年，发动机年生产量将增长到2000多台。

他说：“我们从一开始就明白，这将会是一个非常大的增长，我们已经为此准备了相当长的一段时间。”
Leonardo Helicopters provide unique, integrated and affordable products to the global healthcare delivery system; delivering state-of-the-art tools to save lives; anytime, anywhere.

Together, bringing care to the patient with the best aero-medical solution.

Finmeccanica is now Leonardo - inspired by the vision, curiosity and creativity of the great master inventor - designing the technology of tomorrow.
Embraer China has benefited recently from the launch of new start-up airlines in China and it also expects to receive a further boost from new regulations recently announced.

Guan Dong Yuan, president of Embraer China, says the Chinese Government’s new rule, stating that new start-up airlines in the country must begin with aircraft below 100-seats, will help stimulate sales for Embraer.

Guan says the government has stated that all new regional airlines must - for the first 25 aircraft in the fleet - have aircraft less than 100-seats.

This suits Embraer, which has the E-170 and E-190 that are below 100-seats. It could also potentially provide a boost to other regional aircraft manufacturers too, such as ATR, Bombardier, as well as SuperJet International with the Sukhoi SuperJet and Commercial Aircraft Corporation of China (Comac) with the ARJ21.

Guan says the government introduced the new rule because it wants to develop the air transport network in western China and other relatively under-served regions away from the eastern seaboard.

One new start-up that recently commenced operations with Embraer aircraft is Colorful Guizhou Airlines. Guan says the carrier ordered seven Embraer 190s last year with options for 10 more, and this year it ordered two more Embraer aircraft with options for five more.

Guiyang, the capital of Guizhou province, was the home of Bombardier CRJ900 operator China Express, but Guan says China Express has since relocated to Chongqing. Guan says the passenger traffic on many of the routes from Guiyang are unable to support larger narrowbodies, such as the Boeing 737 and Airbus A320. So it makes sense to “right size” and develop the passenger market with E-190s, he says.

The Chinese economy has been experiencing a general economic slow-down but despite this, passenger traffic in China remains strong. Domestic passenger traffic last year rose 9.4% to 394 million, making it comparable in size to the U.S. market.

One factor that could put a dampener on passenger growth in future is slot constraints and congestion at Beijing and Shanghai airports. But Guan says the new airport being built for Beijing will ease the congestion there.

Interestingly, Guan points out that of the big three airlines in China, China Southern Airlines has been the most active in using Embraer regional jets to develop new international routes.

China Southern has the advantage of being based in Guangzhou which has relatively few slot constraints. It is also closer to Southeast Asia. Guan says China Southern has been using E-Jets on thin international routes, such as Guangzhou-Manila and Guangzhou-Hanoi. These routes have too little traffic to support larger aircraft. But it is important to maintain these air links to maintain business and trade ties with these countries, he adds.

He also says the E-Jet is used by China Southern in Urumqi for air services within Xinjiang province and also to connect Urumqi to places in central Asia, such as Kazakhstan’s capital Astana.
Motor Sich Develops in China

马达西奇愿与中国航空共同成长

Motor Sich and China Skyrizon will jointly build a large aero-engine research center in China in the near future. Vyacheslav A. Boguslayev, president of Motor Sich JSC, notes that China has a large aviation market, and the influence of Chinese aviation enterprises in international markets has become increasingly stronger as it exports domestically-made aircraft and helicopters to other countries. The company hopes to cooperate on future Chinese products, as well as maintenance and guarantees to customers around the world.

Motor Sich (Booth H2A2-3) has long been the standard engine on many Russian and Ukrainian-built helicopters, including the Mi-8/17 series, many of which are flying in China.

In recent years it cooperated with China’s Hongdu Aviation Industry Corporation (HAIC) to provide the Ukrainian-made AI-222-25 low-bypass turbofan for the L-15 trainer, and an afterburning version for the Lead-in Fighter (LIF) and attack version of that aircraft.

Vyacheslav A. Boguslayev, President and General Designer of Motor Sich JSC.
20 Years of Leaping Development

Airshow China Witness AVIC

跨越式发展二十年
价值观源于创造。中国航空工业集团公司秉承“航空报国，强军富民”的宗旨，践行“敬业诚信，创新超越”的理念，努力推动中国航空工业由战略先导产业向战略支柱产业的转变。

20年的中国（珠海）航展，见证了中航工业的跨越发展。航空武器装备实现了对世界先进水平从“总体跟跑”到“主体并跑”的跨越：从第二代战斗机到第四代战斗机、从中小型飞机到大型飞机、从机械化装备到信息化装备、从陆基装备到舰载装备、从有人机到无人机、从重点局部突破到注重体系化发展的跨越。
After six years of having no airline customers in mainland China, things may be picking up for regional aircraft manufacturer ATR—although the company had nothing to do with it.

In July, Hunnu Air, a Mongolian airline that began scheduled flights in 2011, took delivery of a sole ATR 72-500 from leasing company Nordic Aviation Capital, and has operated it since from Chinggis Khaan International Airport. It will be supported through 2021 by Sabena Technics.

The last ATR operator in China was Xinjiang Airlines (later merged into China Southern Airlines) which for 14 years operated five ATR 72 aircraft, primarily for regional air transport within Xinjiang such as providing a safe and efficient way to travel for tourists and locals along the Urumqi-Altay-Urumqi route.

It is just coincidence that the arrival of Hunnu Air’s aircraft came only months after ATR opening a sales office in Beijing and hiring a senior Chinese sales executive. But management at ATR believes its arrival is an encouraging sign for the future.

ATR says that China should have a lot more regional aircraft. The proportion of aircraft with less than 90 seats is around 2.5% of China’s commercial aircraft fleet; in other markets it is 25%. And the potential market in China is large enough to support at least two competitors, allowing room as well for Avic’s MA600 and MA700 turboprop aircraft.

ATR placed its China bet 20 years ago, believing that if it put work into the country the airlines would buy. That’s when it signed up Avic’s Xi’an Aircraft Industry Co. Ltd. to manufacture key fuselage sections for ATR aircraft, becoming the sole supplier. Due to the high demand for ATR aircraft, Xi’an’s subcontract production for ATR aircraft currently has an annual value $20 million.

This week at Airshow China ATR aims to disclose further plans for the Chinese market.

Meanwhile, ATR last year obtained certifications for two new configurations of the 72-600, including the so-called “high-density” cabin that raises capacity from 74 to 78 seats, a feature that should appeal to Asian customers.

Philippines-based Cebu Pacific has ordered 16 ATR 72-600s, with 10 options, and Papua New Guinea’s PNG Air launched the new “Cargo Flex” cabin that reduces capacity to 44 seats but doubles cargo capability.

—John Morris

**A New CEO for ATR**

ATR公司任命新的首席执行官

ATR公司任命其首席执行官 Christin Scherer为新一任ATR首席执行官，任期4年。ATR公司认为，目前全球支线航空市场有6500架飞机在役，占世界机队总数的25%，而中国支线飞机机队数量仅占整个民航机队数量的2.5%，因此中国的支线航空市场的发展并不充分。

自成立以来的35年时间，ATR公司一直致力于50座级的ATR42和70座级的ATR72涡桨飞机的研制和销售工作。在1997-2011年的14年时间里，新疆航空公司先后运营了5架ATR72飞机，主要用作疆内支线航空运输。此后一段时间，ATR飞机停止了在中国大陆的运营。

今年5月，国务院办公厅印发《关于促进通用航空业发展的指导意见》，对进一步促进通用航空业发展做出部署。ATR飞机独有的全公务/超级经济舱的布局，3.4吨商载可以搭载30名乘客和800千克货物，可在通用航空的短途运输市场提供高端的服务。

在航展首日，ATR公司将与陕西天驹投资集团宣布合作开发中国西北航空短途运输市场。

中航工业西飞公司早在20年前就开始为ATR飞机制造关键机身段，并成为一些重要部件的唯一供应商。随着ATR飞机的热销，西飞每年的ATR转包产值达2000万美元。
Comac and UAC to Unveil Widebody Model
中俄联合展出宽体机模型

Airshow China 2016 is expected to demonstrate clear progress in the development of the Russo-Chinese Long-Range Wide-Body Commercial Aircraft, known as the C929 or LRWBCA.

This program was launched by Comac and Russia’s United Aircraft Corporation (UAC) in 2014 and backed by the intergovernmental agreement signed in July between Moscow and Beijing. A scaled-down model of the new airliner is to be unveiled at the Comac exhibit at Zhuhai on Wednesday.

The program will be managed by an equal Russo-Chinese joint venture. It will be registered in China, in Shanghai free trade zone in Pudong district, a home region of Comac, and take upon itself the design, sales, after-sales support of the new airliner as well as the investment and financing through the project. Creation of this joint venture may mark the beginning of full-scale development.

The final assembly of the future airliner will also be located in Shanghai.

Nevertheless, the roles of each partner are still being discussed, says UAC CEO Yury Slyusar. “Russia could manufacture the wing and empennage with the use of an advanced composite infusion technology, whereas our Chinese colleagues could be responsible for the fuselage and for final assembly,” he says.

UAC (Booth H4B3-1) has important technology to offer Comac, notably in wing design. And Comac brings the large Chinese domestic market to the program.

The new aircraft will be able to carry about 280 passengers for 12,000 km in basic configuration. Slyusar says the program also calls for the development of shortened and stretched versions.

A UAC representative says it is hoped that the LRWBCA will fly in 2021 and be certified by 2025.

—Maxim Pyadushkin

J-10B Makes Its First Public Showing
歼10B首次公开亮相

The J-10B unveiled to the public here at Airshow China is an improved version of the J-10 in service with the PLA Air Force and flown by the August 1st jet aerobatic team.

The J-10B features a reshaped and improved inlet for a lower radar signature, an elongated radome, and infrared sensor and air-to-air refueling. It is being shown here with a variety of weapons it can carry in a ground attack role.
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The majority of U.S. exhibitors at Airshow China are small to medium-sized companies promoting their expertise in technology, components and services. Nearly 40 of them are grouped together in the U.S. International Pavilion.

This will be a primary destination for buyers looking to meet industry leaders, an on-site business hub for American exhibitors looking to maximize their exposure and impact at the event, and a forum for all to share industry information and insights, says Tom Kallman, President and CEO of the Pavilion’s organizer, Kallman Worldwide. 2016 marks its 20th year as the show’s official U.S. representative, in coordination with numerous government agencies including the U.S. departments of Commerce and State.

Pavilion exhibitors (Hall 5) are hoping to initiate or strengthen international partnerships that will generate new business and create more jobs back home. Almost half the exhibitors are new to the Pavilion, four are new to the Chinese market, and more than half are small or medium-sized enterprises with fewer than 250 employees.

“When American companies commit to exhibit at Airshow China, we’re saying we believe in the power of this event to attract real business prospects and customers,” says Kallman.

To drive more trade attendees to visit Pavilion exhibitors, Kallman is promoting the U.S. national presence at Airshow China 2016 with its “Ask America” on-site advocacy campaign. The message is being placed prominently around the U.S. International Pavilion, integrated into official events and media during the show and highlighted in social media (follow on Twitter @ kallmanEWC).

Hexcel Shows Carbon Fiber Materials
赫氏公司展示碳纤维材料

A new cost-effective alternative to autoclave-curing for aerostructures is being shown here by Hexcel, a leading advanced composites company that manufactures preps for primary and secondary aircraft structures.

It has developed a way to hot-form its unidirectional carbon fiber prepreg into structures suitable for aerospace, with the fiber tows all oriented in the same direction for optimal stiffness and strength. On show is a section of a composite beam made from Hexcel's HexPly M21 unidirectional carbon fiber prepreg.

This material, and Hexcel's new HexPly M91 toughened prepreg offer outstanding all-round levels of performance for airframe components on commercial aircraft, regional jets, helicopters and engines, and are suitable for automated and manual lay-up, the company says. The materials are manufactured with a tightly controlled cure ply thickness thanks to Hexcel’s state-of-the art production technologies, including online monitoring.

Airbus recently extended Hexcel's contract to supply carbon fiber prepreg for all of the A350 XWB primary composite structures through 2030. Hexcel has a dedicated sales office including customer service and technical support in Shanghai, and an industrial prepreg plant in Tianjin. It is here at Booth H5F3.

Hexcel is a leading advanced composites company, and one of the largest carbon fiber prepreg producers globally. It is a subsidiary of Hexcel Corporation, a leading advanced composites company. The company’s products are used in a wide range of industries, including aerospace, automotive, wind energy, and marine.

空客集团最近将赫氏为其A350XWB主结构提供碳纤维预浸料的合同延长至2030年。赫氏公司在上海有负责销售、客户服务和技术支持的办公室，在天津则有生产工业预浸料的工厂。
Local company Zhuhai Lonhua Helicopters Technology Co., Ltd., is promoting its XV2 precision crop-spraying unmanned helicopter here (Booth H6D4). Currently under development, it has a max takeoff weight of 230kg with 70kg payload.

The XV2 uses an integrated power system; the engine, gearbox, generator, and other main subsystems are all integrated into one single unit, reducing the total weight. Its tail rotor is driven by electrical power and there is no tail drive system; an electric cable is used to connect the generator to the motor.

The company sees a market for 2,000 to 3,000 helicopters.

Professor WANG Haowen and an XV2 Unmanned Helicopter.

XV2无人机采用一体化动力系统,发动机、减速器和发电机等主要动力系统集成于一体单元,尾浆采用电力驱动,无须尾传动系统,提高可维护性能。无人机采用带有桨叶负扭转和桨尖下反结构的先进旋翼，使旋翼悬停效率达到0.8左右。XV2无人机最大起飞重量230千克,有效载荷70千克,可在超视距(>550米)、超低空(≤10米)、固定巡航速度(≤15米/秒)的条件下自主沿航迹飞行。

无人机采用HUMS系统健康管理系统,对无人直升机飞行安全进行判断,并向飞控系统发送故障信息,降低无人直升机的飞行风险。
General Aviation in China Begins to Soar

China’s general aviation market has continued to grow strongly, thanks in part to government largesse and improvements in government policy.

Textron Aviation’s senior VP business development for China, Bill Schultz, says the economic slowdown in China led sales of business jets to dip, “but we are seeing that the utility side of the business is very strong.” He says: “Customers that have these specific missions are not having any difficulty justifying the aircraft or the capital required. That is the immediate market opportunity right now.” He confirms that many of these operators with special missions are government-owned entities that are doing work such as aerial mapping, aerial photography, cloud seeding and maritime patrol.

Textron will have on display at the Zhuhai Airshow a: King Air 350 configured for medivac, as well as a Cessna Caravan utility aircraft. In terms of business jets, it will have a Cessna Latitude factory demonstrator on static display. This aircraft will be doing demonstration flights before and after the show.

Schultz says one factor that is helping development of general aviation in China is the recent opening of low level airspace. He also says the government recognizes that general aviation is an engine of economic growth and is vital for developing the talent pool required for China’s burgeoning commercial aviation industry.

“...and that is just to meet current demand.”

As a consequence, existing flying schools in China are expanding and new ones are being established – some that are privately owned and others are backed by state-owned entities, says Schultz.

Textron’s Cessna Aircraft has already benefited greatly from this. The Civil Aviation Flight University of China, near Chengdu, operates over 105 Cessna 172 trainer aircraft, says Schultz, adding that this is the largest fleet of Cessna 172s in the world.

Jeff Lowe, managing director of Asian Sky Group, agrees that the Chinese Government has recognized the importance of developing the next generation of aviators in China. “The central government recognises the importance of developing the grassroots, so that you have a long-term future for commercial aviation. To get people into aviation, you do it through general aviation. The opening of low-level airspace helps recreational flyers and people who want to get a private pilots’ license and get into aviation.”

“But the next thing that really needs to be addressed is the process of filing a flight plan. It is very cumbersome in China. There are obstacles that need be overcome so the system can function smoothly,” he adds.

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“The general aviation industry is now recognized by the government as an engine of economic development in China,” says Schultz, adding that the government earlier this year issued some statements on this.

He also says a few months ago the authorities opened the airspace at 3000 meters and below, whereas previously it was airspace 1000 meters and less that was open.

Schultz also adds: “China has publicly said that there is a need to produce 5,000 pilots per year in China, and that is just to meet current demand.”

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红钻航空再添新机型
——“富豪”、“男爵”将比翼中国蓝天

11月1-3日，红钻航空携其自有比奇“富豪”G36飞机亮相珠海航展，这是该款机型成功试飞并于今年上半年顺利取得中国民用航空局颁发的“三证（国籍登记证、标准适航证和无线电台执照）”后，在珠海航展的首次亮相。

未来一年，红钻航空将继续引进1架比奇“富豪”G36和2架比奇“男爵”G58飞机，这意味着红钻航空将成为继中国内地首家引进比奇“富豪”G36后，首家引进比奇“男爵”G58的通航企业。新引进的3架飞机将全部托管至北京华安通航，初期在北京及其周边地区展开飞行活动。同时，为更好地向自有机队和购机客户提供全方位的通航服务支持，红钻航空也获民航局批准申请CCAR-91部通航资质，筹建工作预计于2017年年中完成。

作为伴随中国民航发展35年的专业团队，红钻航空一直致力于为客户提供丰富的购机选择和良好的飞行体验。所引进的比奇“富豪”G36、“男爵”G58分别是全球连续生产时间、销售时间最长的6座活塞式飞机。

富豪G36最高时速326千米、最大航程1590千米，累计飞行时间超2000万小时，是单发活塞飞机的“金标”；“男爵”G58最高时速374千米、最大航程达2741千米，全球累计飞行时间超1200万小时，被誉为航空史上最成功的双发活塞飞机。两款机型不仅在作业飞行上游刃有余，也是商务出行、亲友出游的舒适选择。

Beijing Red Diamond has brought two Beechcraft to the airshow – a Bonanza G36 and a Baron G58. It plans to import them into China and place them with charter operators here.
Safran Powers China’s Aerospace Goals

赛峰创新技术助力中国航空事业

赛峰集团一向以创新而著称，创新是赛峰企业文化中不可分割的组成部分，它源自赛峰创始人并由7000名赛峰员工不断传承。

赛峰集团国际和公共事务高级执行副总裁Stephane Abrial称：“我们面临的下一个挑战是如何研发出更安静、更清洁、更节能的发动机。我们现在正为欧洲市场设定的CAEP/6标准而努力，即二氧化碳排放减少75%。此外，赛峰还将通过数个重要项目进行数字化转型，这不仅可以使赛峰更好地了解市场、客户以及产品的使用情况，还有利于预测新的需求，并通过改进流程满足这些需求。”

他还表示：“我们还致力于‘多电飞机’的研发，这意味着传统的液压和气动系统将逐渐被电动系统取代。其结果是飞机将具有更多动力供给及更高的能源效率，因为生产成本和维护成本的降低，飞机也将更加经济可靠。”

在近年来，赛峰直升机发动机公司与中国航发东安发动机公司共同研制的涡轴发动机已进入后期测试阶段，已经为装配AC352直升机发动机的中国商用直升机做好了充分准备。今年年底，由赛峰直升机发动机公司与中航直升机公司合作的AC352直升机将装配LEAP-1C发动机与现有的发动机相比，其燃油消耗率将降低42%。涡轴发动机也将装配在AC352直升机发动机上进行首飞。涡轴发动机目前正处于研发阶段，已经为装配AC352直升机发动机的中国商用直升机做好了充分准备。

除了航空和防务两项核心业务外，数字技术也促进了赛峰的业务发展。赛峰集团已经通过数个重要项目进行数字化转型，这不仅可以使赛峰更好地了解市场、客户以及产品的使用情况，还有利于预测新的需求，并通过改进流程满足这些需求。

新成立的赛峰数据分析公司（Safran Analytics）是专注于赛峰集团数字化事务的关键机构，在不同领域提高赛峰的工业水平，包括在工业4.0环境下，为更高效的发展和更流畅的流程提供支持，从而使赛峰的解决方案能更好地满足客户的需求。赛峰的数据分析将逐步加强赛峰集团的整个价值链。
Aerospace Leaders Honored at the 11th Laureates Awards

China’s leading contributors to aerospace, seven individuals and two institutions, were honored last night at the 11th Aerospace Laureate Awards Ceremony.

This year’s Aerospace Laureate Awards, a crowning honor in the aviation industry, are held by China Aviation Publishing & Media Co., Ltd., CANNEWS, Aviation Week and the Correspondents Association of China A&D Industry.

**Flight Elite Award**
Sui Mingguang, Airline Test Pilot of ARJ21, General Manager of Sichuan Airlines Group

Sui Mingguang is a civil aviation pilot with military experience who has worked in four different airlines. As a veteran of China’s civil aviation industry, he is well-known for his bold initiatives, innovative management and pioneering spirit. He holds a strong belief in the future of domestically-made civil aircraft, and supported the development of China’s own aviation industry. After six years’ of relentless efforts, he long-cherished wish “to bring a domestically-made aircraft home” was finally realized. He flew the first domestically-made ARJ21 into Sichuan, thus enabling the “China Wings” strategy to take root in the faraway southwest hinterland.

**Cooperation Award**
Aviation Industry Corporation of China & GE Company

As the backbone of China’s aviation manufacturing industry, Aviation Industry Corporation of China possesses powerful electronics design and manufacturing capabilities. AVIC supplies the nerve systems of domestically-made aircraft through decades of research and innovation. General Electric is a powerhouse in North America’s aviation industry. With a history of over 100 years, GE plays an major role in the global aviation industrial chain in a range of areas including aviation engines, components and avionics, and integrated digital and mechanical systems. For a long time, GE and AVIC have been actively promoting cooperation between the two sides. At the historic moment when China launched the research project for large passenger aircraft, AVIC and GE, the two aviation giants, established Aviage Systems in Shanghai and became China’s annual outstanding supplier to COMAC. The two sides have created a new model for cross-border cooperation, producing products for the global market with the most transparent and comprehensive technical cooperation.
**Technology Pioneer Award**

**Cheng Tangming, Deputy Chief Designer of the Long March VII Carrier Rocket**

In the past 20 years Cheng Tangming has participated in the design of “Long March II” F separation and escape system, the pre-research and overall design of the “Long March V,” and the design project of the “Long March VII.” Speaking of his past experience, he still remembers the projects he was once involved in as well as the project milestones and technical characteristics. He knows everything about “Long March VII,” which adopts 96 new technologies such as the use of a new liquid oxygen kerosene power system and all-digital design. He regards “Long March VII” as his own child and feels proud of it. Meanwhile, he remains modest towards praise from the outside world. He is open-minded and more willing to talk about the contributions of his teammates, and the growth and contributions of the young people. In his words, he just “encountered a good opportunity, and leaders who trusted me.”

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**Hero Award**

**He Binbin, Command Pilot of Chinese Air Force; Chief Test Pilot of China’s Next Generation Fighter**

In the eyes of others, He Binbin is a “flying genius”, but few people know how much hard work he has done in order to become a top test pilot. For 30 years as a pilot and 20 years as a test pilot, he devoted himself to the leading edge of building a national defense. In over 2,500 hours of test flight he has dealt with emergencies and major problems in newly developed aircraft and saved experimental hardware and national property at extremely critical moments. He has, along with the aircraft design team, addressed key problems and major dangers, improved the performance of domestic fighters with a huge quantity of flight data, and facilitated the delivery of new fighters on schedule.
Outstanding Leadership Award
Briand Greer, President of Honeywell ASEAN

As President of Honeywell Aerospace in the Asia Pacific, Briand Greer once lived in China for nearly five years and strengthened the company’s aerospace business across the region. The award recognizes Greer’s leadership and significant achievements in China. Under his leadership, Honeywell established two joint ventures in China to support the C919 airliner and other platforms globally. In addition to partnering with Commercial Aircraft Corporation of China on the C919 and ARJ21 programs, he also played a critical role in leading Honeywell’s active participation in other Chinese aircraft programs such as AC311, MA700, and Y-12F. The award also recognizes his support for corporate social responsibility in China. He contributes to the educational undertakings of China’s remote areas through the Honeywell Hometown Solutions initiative.

Outstanding Leadership Award
Qu Jingwen, Chairman, China Aviation Industry General Aircraft Co., Ltd; AG600 Commander-in-Chief

As the pioneer of the development of China’s general aviation industry, Qu Jingwen coordinates the use of global aviation resources, enhances the competitiveness of China’s general aviation industry, and marks the Cirrus light aircraft, Cessna Citation XLS business jet and other leading brands with Chinese labels. He presided over the development and production of a variety of aircraft, including the large amphibious aircraft AG600, and with CAIGA brought a new high-end industry to the Pearl River region.

Lifetime Dedication Award
Guan Qiao, Academician of the Chinese Academy of Engineering; Founder of Low-stress Non-deformation Welding Theory

In the field of welding, Guan Qiao pioneered the theory of “Low-stress Non-deformation Welding.” The “low-stress non-deformation welding method and devices for thin-wall structure” invented by him has made major breakthroughs in the field of welding deformation control. He is also the leader of aviation welding discipline and a pioneer of a number of special welding technologies. He presided over a series of research and development projects, bridging a number of technology gaps. In terms of welding mechanics and welding structure integrity, his research on “Welding transient thermal strain Moiré testing technology” has important academic value in promoting the development and enriching the contents of the discipline.

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As President of Honeywell Aerospace in the Asia Pacific, Briand Greer once lived in China for nearly five years and strengthened the company’s aerospace business across the region. The award recognizes Greer’s leadership and significant achievements in China. Under his leadership, Honeywell established two joint ventures in China to support the C919 airliner and other platforms globally. In addition to partnering with Commercial Aircraft Corporation of China on the C919 and ARJ21 programs, he also played a critical role in leading Honeywell’s active participation in other Chinese aircraft programs such as AC311, MA700, and Y-12F. The award also recognizes his support for corporate social responsibility in China. He contributes to the educational undertakings of China’s remote areas through the Honeywell Hometown Solutions initiative.
Aviation Technology Powered Laser Projector Debuts

An advanced image projector using a laser instead of a light bulb is being debuted here by AVIC Shanghai Aviation Electronics, which is the only domestic system-level producer of cockpit control panel assemblies and dimming systems for the Comac C919 airliner.

Now it has turned its talents to image projection with the GUOHUA laser projector for use in commercial activities, by the military, and at home for entertainment.

Compared with traditional projectors which use bulbs as the light source, the new projector has a laser light source that last 20,000 hours compared with 2,000 hours for a traditional bulb.

The Projector has received European Union CE certification and U.S. FCC certification and is applying for UL certification. Booth H6H7.
Ameco Focuses on International Business

Ameco专注于发展国际业务

“New Ameco” - still known to the trade as Ameco Beijing - was created last year by merging Air China’s in-house MRO arm Air China Technics into the former Ameco Beijing, itself a joint venture between Air China and Lufthansa German Airlines formed in 1989.

“After integration, new Ameco (Booth H388) is much stronger in its capabilities, output and network than before,” the company says. “It also has sufficient resources, assets and channels to bring a stronger ability to serve customers in overseas markets. We believe our products are more competitive than ever before.”

“New Ameco and Lufthansa Technik will continue to cooperate on large-scale projects such as landing gear overhaul, as well as MRO industry development. Transfer of technology will be unchanged, and sharing of experience and know-how will continue,” the company told ShowNews. While the German shareholding in new Ameco Beijing has been reduced from 40% to 25%, the amount of its investment remains the same.

The merging of Air China Technics and Ameco is reducing duplication of resources while adding to capabilities. It also aligns MRO activities at nine branches – Chengdu, Chongqing, Hangzhou, Tianjin, Hohhot, Shanghai, Guiyang, Wuhan and Guangzhou with the Beijing base. Together they hold maintenance licenses from almost 30 countries or regions, including CAAC, FAA and EASA.

Ameco now has more capacity for aircraft overhaul in both Beijing and Chengdu facilities. It was already accelerating its international business when the new company was established on June 1st, 2015.

In Beijing, Ameco operates one four-bay hangar accommodating four Boeing 747s for overhaul simultaneously, together with a one-bay hangar for up to a Boeing 747’s overhaul and painting.

In Chengdu, Ameco has a Boeing 757 three-bay hangar and an Airbus A321 three-bay hangar for heavy maintenance services, meeting the layover requirement of all maintenance levels on Boeing 737NG series, Boeing 757 and Airbus A340 family. Another paint hangar can house the aircraft as large as an Airbus A330.

Engine overhaul now extends to the V2500.

Up to this October, four V2500-A5 engines have been redelivered to customers and another six are under repair. Ameco had secured authorization from the CAAC, FAA and EASA in 2015 to conduct overhaul and modification on V2500-A5 series engines. Ameco was also named by Pratt & Whitney as an approved repair station to undertake engine services for V2500 users all over the world.

截至10月, Ameco已经修理了4台V2500-A5发动机并交付客户使用,还有6台正在修理中。

2015年, Ameco获得中国民航局、美国联邦航空局和欧洲航空安全局的V2500-A5型发动机维修许可。同年, Ameco成为普惠授权的V2500发动机修理站，可以为来自全球的V2500发动机客户提供大修服务。

Ameco的V2500大修业务上升

成立于2015年6月1日的新北京飞机维修工程有限公司（简称“新Ameco”）由中国国际航空公司持股75%、德国汉莎航空公司持股25%，面对激烈的市场竞争，Ameco充分发挥整合后的维修资源，通过提供标准化、网络化的服务不断扩大航线维护市场份额。今年，又有8家国际新客户与Ameco签订了航线维护和放行服务协议，这使Ameco的国际三方航线客户超过了70家，服务的机型涵盖波音和空客所有宽体机系列，包括波音787和空客A380、A350等新机型。

今年，Ameco正式启动飞机大修产品“2合1”整合项目。Ameco北京基地和成都分公司两个大修部门的业务将进一步整合为一，以一个飞机大修产品参与国内外市场竞争，这将有利于拓展三方大修业务，尤其是促进国际三方业务的快速增长。

Ameco在北京首都国际机场建有可以同时维修4架空客A380飞机的四机位机库及同时大修4架波音747飞机的四机位机库各一座。有一机位的波音747飞机大修喷漆一体机库，可以满足目前市场上全部干线运营机型各个维修级别的停场维修需求，另有一座公务机维修机库。

在成都双流国际机场建有波音757三机位机库及空客A321三机位机库一座，用于飞机定检及喷漆维修，可以满足波音737NG系列、波音757、A340及以下各机型各类维修级别的停场维修需求。另有喷漆机库一座，可满足A330及以下级别机型喷漆需求，此外还有一座航线维修机库，可满足1架A330及2架A321飞机同时停场维修。

Ameco拓展航线维护业务

Ameco的线维护业务拓展

By utilizing its integrated MRO resources in Beijing and other nine branches, Ameco’s third-party line maintenance business has increased. As of end-August, eight new international customers had signed up for line maintenance and releasing services, bringing to more than 70 the total number of international customers for line maintenance on all Boeing and Airbus wide-body aircraft, such as the 787 and A350.

Ameco充分发挥整合后的维修资源，通过提供标准化、网络化的服务不断扩大航线维护市场份额。今年，Ameco又与8家国际新客户签订了航线维护和放行服务协议，这使Ameco的国际三方航线客户超过了70家，服务机型涵盖波音和空客所有宽体机系列，包括波音787和空客A380、A350等新机型。
The H-6K long-range cruise-missile carrier appears once again at Airshow China. It is still in production as the PLA Air Force's main long-range strike aircraft; new engines and other improvements give it a longer range and make it more capable than earlier versions. It can also be used to carry conventional bombs, as displayed here in the static display at Zhuhai.

**H-6K Illustrates Its Capabilities**

**轰6K展示实力**

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**珠海隆华，让每一次飞行更安全、更智能、更高效！**

2014年11月5日，珠海隆华直升机的用户——中国航空工业集团北京航空发动机有限公司在珠海航展期间展示了其最新研发的XV-2型无人直升机。该机型采用先进的航电系统和高性能发动机，具有优异的飞行性能和可靠性，可广泛应用于航空监测、通讯保障、气象观测等领域。

**XV-2型无人直升机性能指标**

- **机长**：5150mm
- **机高**：1400mm
- **旋翼直径**：4400mm
- **最大起飞重量**：230kg
- **有效荷载**：70kg
- **续航时间**：1h

**任务设置（可选配）**

- **巡航速度**：88km/h
- **有效载荷**：100kg
- **航程**：1000km
- **有效载荷**：5.5kg

**珠海隆华直升机技术参数**

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Honeywell Prepares to Ride China’s Growth

Honeywell Aerospace sees “fantastic” growth in China’s aviation industry over the next 10-12 years in a number of significant areas. And Honeywell plans to be part of the action in areas covering safety, efficiency and passenger comfort, says Steven Lien, President, Honeywell Aerospace Asia Pacific.

Honeywell is targeting airlines and the helicopter industry with safety, navigation and surveillance avionics, and the air carriers with Wi-Fi and satellite communications for all on board, as well as maintenance, repair and overhaul (MRO) solutions.

“The government has a strong commitment to support aviation infrastructure and new aerospace technology,” says Lien. “According to the 13th Five Year Plan, about 50 new major airports will be established to accommodate the growth in air travel. We estimate a 6-7% annual growth in passenger traffic, airplane acquisitions and total flying hours in the next two decades.

“In addition, we are going to see tremendous growth in helicopter usage across China, with a 20% growth in the number of helicopters in the last year alone. Demand is being driven by law enforcement, emergency medical services and natural resources missions, primarily mining and oil exploration.”

Lien believes that the gradual opening up of business and general aviation will contribute to growth in those sectors.

Honeywell, he says, is involved in many of the country’s most critical aviation, aircraft and airport initiatives.

“We will continue to support the airlines and other operators with maintenance solutions, upgrades and retrofit solutions to make their fleets safer, more efficient and more comfortable. The Global Xpress (GX) Aviation service is a great example. This next-generation solution from Honeywell and Inmarsat will provide passengers with high-speed, inflight Wi-Fi access comparable to the service they experience on the ground.”GX Aviation will be rolled out both globally and in the APAC region this month, he notes.

“We are working closely with Air China on the installation and test of GX Aviation on Air China’s Airbus 330 fleet next year and are discussing launch plans with other airlines in China.”

A recent survey by Honeywell of more than 3,000 Chinese pilots and cockpit crew members, 53% of whom were first officers and 36% line captains, revealed their greatest concerns are about harsh weather and air congestion issues. Honeywell has solutions for these concerns, says Lien.

Honeywell’s IntuVue 3-D Weather Radar provides pilots real-time, accurate weather information, helping them make right decisions faster in all phases of flight, avoiding hazardous weather and ensuring passenger comfort.

Satellite Landing System

Honeywell’s SmartPath Ground-Based Augmentation System (GBAS) is the world’s only certified, satellite-based navigation and precision landing system. It provides a cost-effective solution to increase airport capacity, decrease air traffic noise and reduce weather-related delays.

In April 2015, Honeywell worked with the Civil Aviation Administration of China and Air Traffic Management Bureau to install the first GBAS flight demonstration at Pudong International Airport in Shanghai. It is now under test, with CAAC approval expected next year. China Civil Aviation Technology & Equipment Corp. Ltd. has been appointed as the region’s first representative for SmartPath sales, installation support and maintenance in China.

The SmartPath GBAS landing system (GLS), which augments GPS signals to boost accuracy to required levels, is the first certified system to be installed in China. One GLS, which can output guidance for up to 26 approaches to any runway, replaces traditional instrument approach architectures that require horizontal and vertical guidance systems to be placed at each runway end. The single system, which covers approaches for all four runways at Pudong, also saves on a variety of regular inspection and maintenance costs.

Equipment Supplier

Honeywell is growing its presence as a supplier to China’s aircraft manufacturers. It has equipment on the COMAC ARJ21 regional jet, and four systems on the COMAC C919 airliner: the auxiliary power unit, air data and inertial reference system, flight control electronics, and the wheels and brakes.

Honeywell is working closely with Avic and other manufacturers in China on various other programs. For example, the Y12-F twin-engined light transport, certified by FAA earlier this year, flies with Honeywell’s Primus Apex integrated avionics system.

The company has five aerospace joint ventures in China, including two manufacturing sites supporting both local and global customers, as well as more than 500 aerospace engineers in the country.
霍尼韦尔准备搭乘中国增长的“快车”

霍尼韦尔航空航天集团亚太区总裁林世伟认为，在未来10~12年内，中国航空产业在很多领域都将呈现不可思议的增长。霍尼韦尔计划将航空安全、效率和乘客的乘坐舒适性等业务参与其中，为这一增长贡献力量。

霍尼韦尔不但为固定翼飞机和直升机产品提供安全、导航和监控方面的航电系统，还为航空运输运营商提供机载无线网络和卫星通信设备，以及维护、维修和大修（MRO）方案。

林世伟说道：“中国政府有强烈的愿望支持航空基础设施和新的航空航天技术发展。根据‘十三五’计划，中国将建设大约50个新机场以便适应航空运输的增长趋势。我们预计在未来20年内中国航空客运规模、飞机引进量和总飞行小时数都将保持每年6%~7%的增长速度。”

“除了以上这些，我们还将看到中国直升机使用量的大幅增长，仅去年中国直升机机队规模就增长了20%。直升机的需求主要分布在执法、紧急医疗救护以及以采矿和油气开发为主的自然资源开采行业。”

林世伟认为公务与通用航空的逐步开放也有助于这些领域的增长，他表示，霍尼韦尔参与了中国航空工业、民机研制和机场建设等很多关键的业务。

“我们会继续支持航空公司和其他运营商采用霍尼韦尔的维护、升级和改装方案，使机队运行更加安全、高效，飞行更为舒适。以Global Xpress (GX)航空服务为例，这款由霍尼韦尔和国际海事卫星组织（Inmarsat）开发的下一代方案，为乘客提供了可以与地面网络媲美的高速机载无线网络接入服务。我们正在与中国国际航空公司紧密合作，明年将为国航A330机队安装和调试GX设备。我们还打算与中国其他的航空公司讨论应用GX的计划。”

霍尼韦尔最近对3000多位中国飞行员和机组成员进行了问卷调查，其中53%是飞机副驾驶，36%是航班机长。调查发现，恶劣天气和空中交通拥堵是飞行员最为关切的问题，而霍尼韦尔有办法解决这些问题。

霍尼韦尔的IntuVue三维气象雷达可以为飞行员提供实时、精确的气象信息，帮助飞行员在整个飞行任务中都能快速做出正确的决策，绕过恶劣天气，确保乘客舒适旅行。

卫星着陆系统

霍尼韦尔的SmartPath地基增强系统（GBAS）是世界上唯一经过适航认证的星基导航和精确着陆系统。它是一种效率比很高的解决方案，可增加机场容量、降低空中交通噪声，并减少天气原因导致的航班延误。

2015年4月，霍尼韦尔与中国民航局空中交通管理局合作，在上海浦东国际机场进行了首次GBAS飞行试验。目前GBAS系统还在测试阶段，预计会在2017年取得中国民航局的认证。中国民航技术装备有限责任公司已经被指定为SmartPath在华销售、安装支持和维护的首席代理商。SmartPath GBAS着陆系统（GLS）增强了GPS信号，使得精度达到了所需的量级。一套GLS能够引导任何跑道的多架飞机的近进，并有抗风能力，可以引导在跑道头安装水平和垂直引导系统。浦东机场的单套GLS系统就覆盖了4条跑道的近进引导，还可节省可观的常规检查和维护费用。

设备供应商

霍尼韦尔作为中国飞机制造企业供应商的地位正在强化，它为中国商飞的ARJ21支线客机提供设备，还为C919干线客机提供辅助动力装置、大气数据和惯性基准系统、飞行控制系统以及机轮刹车。

霍尼韦尔还与中国航空工业以及其他中国制造商在各种项目上紧密协作。例如，今年年初获得美国联邦航空局（FAA）适航认证的运12F双发轻型运输机就安装了霍尼韦尔的Primus Apex综合航电系统。

霍尼韦尔在中国有5家合资企业，航空工程师数量超过500人，其中有两家公司为国内外客户提供支持服务。
British Red Arrows Fly to Boost UK Trade

红箭表演队来华促进中英贸易发展

History is being made at Zhuhai this week, with the first airshow display in China by the Red Arrows, the Royal Air Force’s aerobatic team. Excitement is high among both spectators and aviators alike.

“This is special,” says team leader Sqn Ldr David Montenegro, whose callsign is Red One. “There’ll be spectators at Zhuhai who’ve never seen the Red Arrows. We know there are fans in China - a 10-year-old boy who lives in Beijing got hold of us online to tell us he’s a Red Arrows fan - so to physically bring the show here is a wonderful opportunity.”

For the pilots of the distinctively liveried red BAE Hawk T1s, the airshow presents other opportunities, too.

“There’ll be some formation aerobatics and some solo aircraft that the team and I have never seen before,” Montenegro says. “I can’t wait to see the host-nation team - I’ve never had any opportunity to see them anywhere. The corporate knowledge of formation aerobatic flying is so small around the world, so when you do get the opportunity to watch other teams, you learn.

“It’s one of the most developed and technically difficult display routines that we’ve flown for years,” he continues. “I’m really pleased that we pushed hard to make this technically difficult. It’s as dynamic as we can ever make a Red Arrows show, and to bring that show here is fantastic.”

The team are also effectively flying ambassadors for British industry, and their arrival in China comes at a crucial point in the UK’s history. As the nation prepares to leave the European single market, future trading relations with China are more important than ever. The difference a Red Arrows display can make may be hard to quantify, but the team are aware of the wider resonance of their work, and factor it in to their preparations.

“Red Arrows tours are always done in cooperation with the government,” Montenegro says. “We have to align our objectives and goals to ensure we’re giving the taxpayer something back. Having discussed the impact I’ve seen so far, the positivity and relationships between countries, that those objectives are being met at every stage, and that’s great. But that is done in line with very senior leaders in defence and government to make sure that a tour of this scale is done correctly.”

—Angus Batey

英国皇家空军的红箭飞行表演队将亮相2016珠海航展。“红箭”飞行表演队队长称，此次表演非常特殊，因为珠海有很多从未见过红箭飞行表演队的观众。其实，该飞行表演队在中国有很多粉丝，他们还和北京的一位10岁小粉丝在网上进行过互动。

对驾驶“鹰”式教练机队的红箭飞行员来说，首次来中国参加航展也具有特别的意义。他们表示，从来没有同时见过航展上有编队特技飞行表演和单架特技飞行表演，而且非常期待与中国空军的“八一”飞行表演队同台演出，这也是他们第一次看中国本土飞行表演队的表演。

编队特技飞行表演是最先进和最具技术难度的表演。红箭飞行表演队非常高兴能给观众带来一场活力四射、精彩纷呈的飞行表演。

红箭表演队此次来华进行表演，更像是英国的宣传大使。英国自脱欧公投以来，与中国的贸易关系愈加密切。红箭飞行队的巡演在其中起到的作用虽然很难量化，但是他们已对自身使命达成共识。
Russian Teams Perform Together in Zhuhai

Visitors to Airshow China 2016 have chance to see the rare air display presented for the first time in Zhuhai by the world-known Russian aerobatic teams the Russian Knights and the Swifts. Both teams belong to the Russian Aerospace Forces.

The Knights that performs on Sukhoi Su-27 heavy fighters have been quite regular participants Airshow China in recent years. The Swifts, Mig-29 fighters, have been missing from Zhuhai for almost a decade, but both teams for the first time will perform a joint display at this year’s show.

These two teams are the only ones in the world to show a joint aerobatic program on two different types of aircraft, a Russian Aerospace Forces spokesman explained to ShowNews. This unique formation of five Su-27s and four MiG-29s is known as the Kubinka diamond and is named after the airbase near Moscow where both teams are deployed. The nine-aircraft-strong formation will demonstrate a number of aerobatic maneuvers with minimal space between the fighters.

Besides the joint display, the Russian teams will demonstrate separate programs that include such famous maneuvers as synchronized and group rolls, Nesterov loops, Immelman turns, the mirror, tailslide, various break-ups and crossover flights.

Both the Russian Knights and the Swifts use aircraft that can be easily adapted for combat missions. The Russian Knights are expected to further improve their air display next year with new Sukhoi Su-30SM fighters. The team received the first four aircraft of the type in October, with the second batch coming by the end of the year. Su-30SM is a Russified version of Sukhoi’s export bestseller Su-30MKI. Compared to the basic Flanker it has increased maneuverability thanks to thrust vector control and canards. —Maxim Pyadushkin
Gulfstream Delivers 1st G650ER for China

Gulfstream Aerospace Corp. delivered the first ultra-long range Gulfstream G650ER into Mainland China in March to Minsheng Financial Leasing Co. Ltd. (MSFL).

Minsheng Financial Leasing was formed in April 2008 and took delivery of its first Gulfstream, a G450, in June 2010. Since 2011 it has signed orders, options and MoUs involving up to 110 Gulfstream aircraft although the total is less as some of the deals overlap. Today MSFL operates some 64 Gulfstreams to support its aircraft leasing operation.

The G650ER was delivered as an N-registered aircraft while awaiting the aircraft type’s approval by China’s CAAC, which is expected within the next couple of months.

More than 180 Gulfstream aircraft are now operating in Greater China.

A recent JETNET iQ report lists Gulfstream first in its Brand Reputations of Aircraft Manufacturers survey for Asia Pacific, where the manufacturer has a fleet of more than 300 aircraft in operation.

Gulfstream has now delivered more than 200 G650s and G650ERs to customers around the world. A G650 is on show here at H4C3.
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Rockwell Collins to Buy B/E Aerospace

罗克韦尔柯林斯收购B/E航宇公司

Rockwell Collins offer to buy cabin interiors leader B/E Aerospace for $8.3 billion will secure Rockwell as a leading provider of aircraft content. The move will triple the widebody content and double the narrowbody content for avionics and aircraft connectivity provider Rockwell, as well as diversify its customer mix and geographic presence.

B/E is arguably the industry’s leading interiors provider, with revenues of more than $2.7 billion in 2015.

The proposed acquisition combines Rockwell’s highly regarded avionics, cabin electronics, mission communications, simulation and training and information management systems with B/E’s cabin interior products. Those include seating, food and beverage preparation and storage equipment, lighting and oxygen systems and modular galley and lavatory systems for commercial airliners and business jets.

By way of technology, Rockwell’s offerings are “smart” while B/E’s are more inert. But as connectivity becomes increasingly important to the commercial and business aviation markets, with passengers, pilots, owners and maintainers all demanding more and better internet access and communications, Rockwell sees opportunities in making cabins smarter.

Rockwell sees the acquisition as transformational for its business. The move represents a strategic decision to grow in adjacent, albeit familiar product markets instead of trying to break into unrelated fields.

More important for Rockwell, adding B/E diversifies its customer mix, including airlines, and geographic presence.

The deal, which is slated to close by the spring of 2017, would shift Rockwell’s overall business mix from a bias toward defense to 55% commercial.

—Michael Bruno

Kung Fu Panda 787 From Hainan Airlines

海南航空展示功夫熊猫涂装的787“梦想飞机”

The Hainan Airlines Boeing 787-9 Dreamliner bedecked in Kung Fu Panda artwork is one of six that will feature artwork of the movie characters submitted in a competition earlier this year. The aircraft, one of 40 787s ordered by Hainan, is appearing here at Airshow China.
Pratt & Whitney China Adds V2500 MRO

Pratt & Whitney’s maintenance, repair and overhaul (MRO) facility in Shanghai, which is a joint-venture with China Eastern Airlines, has completed over 600 overhauls on CFM International CFM56 engines and is preparing to add International Aero Engine (IAE) V2500 capability.

“We have overhauled just over 600 CFM56 engines and we reached the 600 milestone in September,” says P&W Shanghai Engine Center general manager, Roger Retana.

P&W is authorized by GE to do engine overhaul on the -3, -5B and -7B variants of the CFM56. GE, along with Snecma, is the CFM56 original equipment maker (OEM).

“P&W saw the opportunity to partner with China Eastern, so the JV was developed with China Eastern with 51% equity and P&W 49%. China Eastern is one of the biggest operators of CFM56 engines. And we got the agreements [approval] from GE to do CFM56 engine overhaul. You can think of us as a third-party shop, even though we have the P&W name,” says Retana, when asked how P&W was allowed to do GE engine aftermarket work.

Besides doing CFM overhaul for the China Eastern fleet, the Shanghai MRO facility has other customers such as: Hainan Airlines, Shenzhen Airlines, Xiamen Airlines, Chengdu Airlines, Donghai Airlines, Okay Airways, Spring Airlines, Jetstar Pacific, Lion Air, Garuda Indonesia, Sriwijaya Air, Air New Zealand and Willis Lease Finance.

China Eastern also operates V2500 engines, so the MRO engine shop is gearing up for that. “We are training people and implementing a benchmarking program to ensure best practices on the V2500,” says Retana, adding that it aims to overhaul the first customer V2500 in 2017’s fourth quarter. He says the center now has 270 employees, and aims to have more than 300 next year and 320-330 employees at the end of 2017.

When asked whether the Shanghai facility will be overhauling P&W GTF and CFM Leap engines in the future, Retana declined to draw, saying no decision has been made.

P&W Shanghai Engine Center general manager, Roger Retana with a CFM56.
MTU Zhuhai Set For Future Expansion
珠海摩天宇将适时扩大产能

MTU Zhuhai appears set for future expansion, but the company is taking a cautious approach at this stage.

“Last year we did 242 engine shop visits, excluding small checks,” says MTU Maintenance Zhuhai president and CEO Frank Bodenhage. He says the number of engine shop visits there is growing by about 10% per annum and the facility currently has capacity for 300 shop visits a year.

Bodenhage says once they approach the 300 milestone, they will expand again but “it depends on market demand.”

When asked if the facility will be working on the new generation of engines – namely the Pratt & Whitney Geared Turbofan (GTF) and CFM International Leap engines – Bodenhage replies that “both new engine types are of interest to us.”

“These engines are still some time away before they are due for overhaul, but we are in the process of evaluating them. No final decision has been made yet, but we believe we are in quite a good position because MTU Zhuhai is a joint-venture between MTU and China Southern Airlines. MTU knows the OEMs (original equipment makers) and China Southern is a big engine customer.”

Indeed, MTU, a partner of Pratt & Whitney, in late October opened an assembly line in Munich for the GTF engine.

“China Southern has ordered the GTF for the A320neo. They have not ordered the CFM International Leap engine yet, but they are in the process of ordering more aircraft. They tend to order aircraft batch by batch,” adds Bodenhage.

MTU Zhuhai already overhauls CFM56 engines as well as International Aero Engine (IAE) V2500s. There are a large number of CFM56 engine overhaul facilities in Asia.

“It is really a challenge to differentiate ourselves against other engine MRO companies that are also doing CFM56 engine overhauls,” says Bodenhage.

“There are a huge number of CFM56 shops around the world,” but MTU’s worldwide network of engine overhaul facilities accounted in 2015 for 11% of all the CFM56 engine overhauls, he says, adding that MTU Zhuhai accounted for two-thirds of MTU’s total.

“We have expanded our customer base beyond China to the worldwide market. This year, MTU Zhuhai achieved the milestone of the 1,000th CFM56 shop visit,” he adds.
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Airbus Leads Helicopter Deliveries To China

Airbus helicopters, particularly the AS350 Squirrel, strongly led deliveries of turbine-engine helicopters to China last year, with Bell Helicopter second.

Of 62 new turbine helicopters joining the Greater China fleet in 2015, 23 came from Airbus and 13 from Bell, according to Asian Sky Group’s annual survey of Asia-Pacific rotorcraft.

The other two major western manufacturers, Sikorsky and AgustaWestland, supplied 11 and five, respectively.

AS350s were most common among new turbine helicopters, with 18 joining the Greater China fleet. The Bell 407 was the second most popular: 12 new helicopters of that type arrived.

By far the most popular helicopter to import of all was the piston-engine Robinson R44. Greater China received 35 new R44s in 2015.

—Bradley Perrett

Rolls-Royce 700s for China Eastern

Rolls-Royce has won a $1.5 billion order from China Eastern Airlines for Trent 700 engines to power 15 Airbus A330 aircraft. The order also includes long-term TotalCare engine support services. The aircraft are in addition to the 51 Trent 700-powered A330s that China Eastern Airlines already operates.

The Trent 700 delivers the best fuel burn, emissions and noise performance, says Rolls-Royce. The engine has won 70% of new orders over the last five years and accounts for a similar percentage on future A330 deliveries.

Rolls-Royce currently has more than 1,600 installed engines on the A330s worldwide, with a market share of close to 90% in Greater China. In July, Tibet Airlines became the 14th operator in Greater China with A330s powered by Trent 700s.

China Eastern Airlines also has 20 Airbus A350 XWB aircraft on order. Those aircraft are powered by the Rolls-Royce Trent XWB.

Tang Bing, executive vice president of China Eastern Airlines and Paul Freestone, senior vice president of Rolls-Royce shake hands after signing the contract.

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P&WC Expands Turboprop Support in China
加拿大普惠扩大在中国的涡桨发动机售后服务

With a growing list of joint ventures, Pratt & Whitney Canada is building support in China for many of its best known engines powering numerous business and general aviation aircraft and helicopters.

An MRO joint venture between P&WC and Tonghui, SAIC Motor Corporation in Shanghai will provide maintenance services to civil PT6A turboprop operators in China. These are expected to multiply as PT6A-powered general aviation aircraft become more popular and are produced here. Among the hopefuls, Beijing GA Company will soon assemble the short-field, utility Pacific Aerospace P750 XSTOL in China, and Pilatus has established a facility in China for manufacture and assembly of the PC-6 and PC-12.

Cessna is busy assembling the Caravan EX powered by the PT6A-140 in China, and AVIC’s Y12E and Y12F light transports employ the PT6A-135A and the PT6A-65B respectively.

As might be expected, with the fleet of PT6 engines growing in China, so is service and support. P&WC says it has invested “significantly” in establishing a strong support presence in Asia Pacific.

In addition to its global service network of P&WC-owned overhaul facilities, the company has brought on line its CFirst Centre in Singapore, a fully-integrated part of its dedicated Asia Customer Support Hub (CFirst is an acronym for Customer First.) The Hub also supports P&WC turbofan engines in business jets.

P&WC has doubled the number of staff at its Singapore hub to more than 30 since opening in 2013 and provides end-to-end service, parts, engine rentals and MRO support.

“There’s been significant growth in business jets in China in recent years, and growth is also being observed in the civil helicopter and general aviation sectors,” the company says.

随着合资企业数量的增多, 加拿大普惠公司将在中国构建其发动机售后服务网络。

加拿大普惠公司与株洲通惠航空发动机有限公司通过在上海成立的合资公司, 为国内的PT6A涡桨发动机提供维修服务。由于安装有PT6A发动机的通航飞机在中国的产量不断增加, 可以预见该公司的维修业务今后会翻番。例如, 北京通航航空公司已经计划在中国组装由新西兰太平洋航空有限公司研制的P750 XSTOL超短距起降多用途飞机。皮拉图斯公司也在中国建立了生产和组装PC-6和PC-12飞机的工厂。赛斯纳公司正在进行PT6A-140发动机的“大篷车”EX飞机。中航工业的运12E和运12F轻型运输机也分别装配了PT6A-135A和PT6A-65B发动机。

随着装配PT6发动机的机队数量在中国不断扩大, 可以想象出该发动机的售后服务需求也会不断增长。加拿大普惠公司表示, 他们在亚太区投入了“可观的”资源以便提供强大的客户支援服务。

加拿大普惠公司除了在全球布局大修服务网络外, 该公司还在新加坡成立了CFirst中心, 这是一家全面综合的专业客户支援中心, 主要面向亚太地区客户。该中心还可为加拿大普惠公司生产的涡扇发动机提供客户支持。自从CFirst中心在2013年成立以来, 其员工人数已经增加了一倍, 达到30多人。服务中心可为客户提供点到点服务, 零部件供应、发动机租赁和MRO支援。

加拿大普惠公司表示, 中国的公务航空市场最近几年有了显著的增长, 民用直升机和通航市场也有一定的增长。
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