DRAB POL® AVIONICS NEWS

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Quarterly Newsletter no 3(84) July - August - September 2019

A limitless inflight connectivity and entertainment with Gogo Business Aviation

„The fundamental principle of transportation is its safety”

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FROM THE EDITOR

Ladies and Gentlemen! Dear Readers !

Avionics Department could not complain about boredom this summer. After several months of mutual talks, we signed agreements on mutual cooperation with two leaders on the global aviation market. The first of them - the American company, Gogo Business Aviation, is a leading manufacturer providing inflight connectivity and entertainmentsolutions for BA aircraft. Our second partner, the Israel company Bet Shemesh Engines Limited (BSEL), deals with the repair of engines for military and civil aviation. Thanks to the new cooperation, our company's portfolio has expanded with new solutions, both in products and provided services.

We are also pleased to inform you that we have acquired the right to train operators of MX-series electro-optical turrets, as well as maintenance staff of the O level. Obtaining the rights was preceeded by a two-week training of our representative at the headquarters of L3 Harris in Canada. In this issue, we would like to encourage you to get acquinted with new avionics products, important information regarding flights in accordance with PBN procedures and the EASA proposal in the field of cybersecurity regulations for product and spare parts certyfication.

We wish you pleasant reading !

Alicja Drabczyńska

DRABPOL NEWS AVIONICS

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For Business Aviation

Cooperation with Gogo Business Aviation

Talks with the management board of the American company Gogo Business Aviation concerning the representation of their interests in Poland and Central and Eastern Europe, that were held during the AEA Convention in the USA, were successful. After a strict verification, at the beginning of Autumn we signed a cooperation agreement with Gogo Business Aviation – a leading manufacturer providing inflight connectivity and entertainment solutions for BA aircraft.

For over 25 years, Gogo Business Aviation has been a pioneer in the global aviation market in providing the most innovative technologies that help create smart aircraft, that provide passengers and pilots with world-class communication.

The Gogo Business Aviation's flagship solutions, such as satellite communication systems, broadband internet, onboard multimedia systems or wireless systems offering ondemand inflight entertainment and information (movies, TV programs, news, weather, magazines, flight maps and many others) are used in single, light business aircraft as well as and in global aviation corporations.

Owing to the established cooperation, owners of BA aircraft have gained the possibility to buy Gogo Business Aviation systems directly in Poland, and those who already use them can expect a technical support both in Poland and Europe.

Acting as a VAR (Value Added Reseller) company, we provide a comprehensive project development - fromconsulting to after-sales service.

Our Part 21 Design Office deals with projects for modernization and development of avionics and deck equipment, and our Aviation Service Center in Modlin provides technical inspections, service and assembly of devices.

More on Gogo Business Aviation solutions on pp. 14-17.

The firsttalks with Gogo Business Aviation took place during the AEA spring convention in Palm Springs.

For military and civil aviation

Drabpol became a representative of Bet Shemes Engines Ltd.

After a period of bilateral talks, meetings and market research, our company has signed an agency agreement with Israeli company Bet Shemesh Engines Limited (BSEL), dealing among other things repair of engines for military and civil aviation, becoming an official representative.

The signing of the contract was preceded by a visit of our delegation at the motor plant in Bet Shemesh, Israel, aimed check out with the company's capabilities and its full offer.

The mutual agreement is the result of meeting the expectations of the Polish Armed Forces in support of the operation of military aircraft equipped with engines of Western production, for which the Polish aerospace industry has not yet competence in the scope of intermediate level maintenance and repair of modules and entire engines.

A barrier to diversification of the support sources of F100 engines is the limitations imposed by the United States, which is due to the need for the service company to maintain or repair the State Department's consent in the form of a Technical Assistant Agreement (TAA). Such a document is currently being carried out and its obtaining will allow BSEL to perform work on Polish engines F100.

The signing of the mutual cooperation agreement was preceded by a visit of our delegation to the headquarters of Bet Shemesh Enginesin Israel.

Why Drabpol – BSEL?

BSEL is one of the world's leading companies dealing with engine repair for military and civilian aviation.
It supports the Israeli Air Force, providing them with a high readiness for F-16 aircraft. They have experience in cooperation with the military, as most of the staff of both the company and the technical company began their careers in the world of military aviation, and some are still its active reserves. In the air force, the company is known for its high quality and short working dates.

This quality is also demonstrated by ISO 9001, AS 9100, FAA -repair station, EASA, Pratt & Whitney engine manufacturers for F100 and General Electric engines for T700

- Production
- Foundry
- Research and Development
- Repair

Production department – implements the mechanical machining of large round parts, such as rotor blades and discs of turbine and compressor wheels, and is responsible for the manu-facture of sheet metal elements such as flame stabilisers, injector assemblies, etc.

Foundry department – deals with the casting of compressor blades and turbines from the so-called superalloys and vanes and nozzles for the following aircraft engines: PW4000, V2500, APS 2300, APS 2800, APS 3200, APS 5000, PWC 210, PWC 306,PWC 307, PWC 545 and others.

Research and Development – department-designs gas turbines, modules and engine parts using the most advanced manufacturing technologies. It offers the development, modification and production of turbine engines for engines with a thrust of 150 to 1200 pounds.

Repair – overhaul works – oriented mainly to the security of military aviation, realizing engine repairs for the air forces of Brazil, Thailand, Greece, Colombia, the Philippines, Ecuador and others, while retaining the full readiness to support the Israeli Air Force.

engines and air force approvals from different countries. Looking for a business partner, BSL drew attention to our great competence and action for the defence and civil aviation industry.

We ensure that the products, materials and services we offer are delivered in accordance with applicable standards, standards, using appropriate procedures and in accordance with our permissions and certificates.
These include the Quality Management System PN-EN ISO 9001:2001, Certificate of Conformity of the Functioning of the Internal Control System, the Ministry of Internal Affairs and Administration Concession authorising the trading of goods, services and technologies of strategic importance, AQAP Certificate 2110:2006, TRACE Certificate and NATO NCAGE 0733H Certificate.
The Drabpol structure also contains a specially extracted cell, which is the Secret Office, which is responsible for proper recording, storage, circulation and release of materials to authorized persons, thus ensuring the protection of information Classified.

Overhauls of engines both for military aviation (international air forces) and for civil aviation take place at Bet Shemesh Engines plant.

BSEL - HISTORY

Bet Shemesh Engines Ltd. (BSEL) was established in 1968 as a manufacturer of jet engine parts. In addition to the production of engine parts, it carries out repairs of aircraft engines and supports customers with minor repairs of modules.

BSEL consist of 4 divisions:

It carries out servicing, refurbishment and upgrades of the following engines:

- Pratt & Whitney - F100 series,
- Pratt & Whitney - PT6 series,
- General Electric - T700 series,
- Rolls-Royce: Alison series M250
- And their modules, devices and engines for UAV.

The main, implemented modernisation programmes are the modernisation of the F100-100 engine for the DPI/220E configuration and the T700 engine for the 701C/D configuration.
The PT-6, T-700 and RR-250 engines are also used in civil aircraft. As a result, BSEL also has the appropriate civil aviation certificates and engines renovated for civil aircraft receive the appropriate documents after the renovation.

Most of the repairs and overhauls of devices are carried out on the spot on the basis of technologies such as: machining, shot blasting, heat treatment, welding, brazing, galvanic treatment and coating of metallic coatings-plasma sputting, HVOF supersonic spraying and Sermetel method, computerized flow measurement, static and dynamic balancing, and non-destructive testing conducted in various methods.
The Department also have jet engine test-beds up to 35000 pounds of thrust and turboshaft to 2500 HP.

BSEL's personnel are mainly specialists experienced in the military aviation of Israel, and many of them, as we have already mentioned are still active reservists, constant trained by both the military and industrial leaders such as Pratt & Whitney or General Electric Aviation.

We promoted the engine repair service together with the BSEL representative at our booth during this year's (International Defence Industry Exhibitions) MSPO fair in Kielce. (Report on page 8.)

Authorization to train operators of MX optoelectronic turrets

L3HARRIS™

Our new competencies

In August, our representative took part in a two-week training for the instructors who will then train operators of MX8 turrets. The training took place at the L3 Harris headquarters in Burlington, Canada.

The training consisted of theoretical and practical courses.
The theoretical part covered the construction and functioning principle of turret sensors, as well as diagnosing of any malfunctions. The extensive practical part, was devoted to issues related to controling the HD and IR cameras and a laser rangefinder, image optimization in all ranges and ongoing operation of the system.

The second stage of the training was the methodology of conducting trainings for the operators and technical staff, in accordance with L3 Harris standards.

Regardless of the type of turret, the operation is almost identical, i.e. all turrets work on the same software, and the differences result only from the type of applied sensor. This means that for a person who can operate e.g. the MX 10 turret, using the MX 8 or MX 15 turret should not be difficult. The manipulators are identical, and the functions assigned to the buttons and switches are the same.

Thanks to participation in the training, our company obtained the right to train operators of MX optoelectronic turrets. The received certificate allows us to train both MX operators and O level personel (operational level).

A visit to the headquarters of Bendix King

MUTUAL VISITS

At the beginning of July, we went to visit our American partner – BendixKing / Honeywell companies. It's the first time we have visited BendixKing headquarters, located in Albuquerque, New Mexico.

The main purpose of the visit was discussing our existing cooperation, ongoing joint projects and the possibilities of expanding our activities to the Automotive market.
This is related to the possibility of adapting some solutions, which have been successfully used in the aviation market for years, to land-based OEM and MOEM markets.

From the charming Albuquerque we went to the headquarters of Honeywell in Phoenix, Arizona. We went there by a private aircraft belonging to the American concern. During the flight, we had an opportunity to learn about the leading technology in the field of Bendix avionics – the AeroVue system, in which the company's aircraft was equipped.

Just two months after our visit to the U.S., the management board of BendixKing came to Poland with a return visit. In our headquarters in Mykanów and in Warsaw showroom, we were pleased to welcome: **Mr. Gregg Cohen, Vice President,** Mr. Freddie Zanoozi, Mr. Jiri Vitek, responsible for Central and Eastern Europe and his colleague, Mr. Vojtech Podhradski.

At the BenidixKing headquarters in Albuquerque, we were very welcomed by the BendixKing Management Board - from the left: Freddie Zanoozi - Vice President of International Business Development & Sales, Chris McKenna - Vice President of Business Development, Michał Sitek - Director of R&D Department (Drabpol), Gregg Cohen- President of BendixKing, Paweł Drabczyński - President of Drabpol and Hector Garcia – Vice President of Engineering.

A return visitin at our headquarters in Mykanów - from the left: President of BendixKing - Gregg Cohen, Michał Sitek- Drabpol, Vice President of BendixKing - Freddie Zanoozi, and Vojtech Podhradsky - Inside Sales Representative .

27th International Defense Industry Exhibition in Kielce

3-6 of September

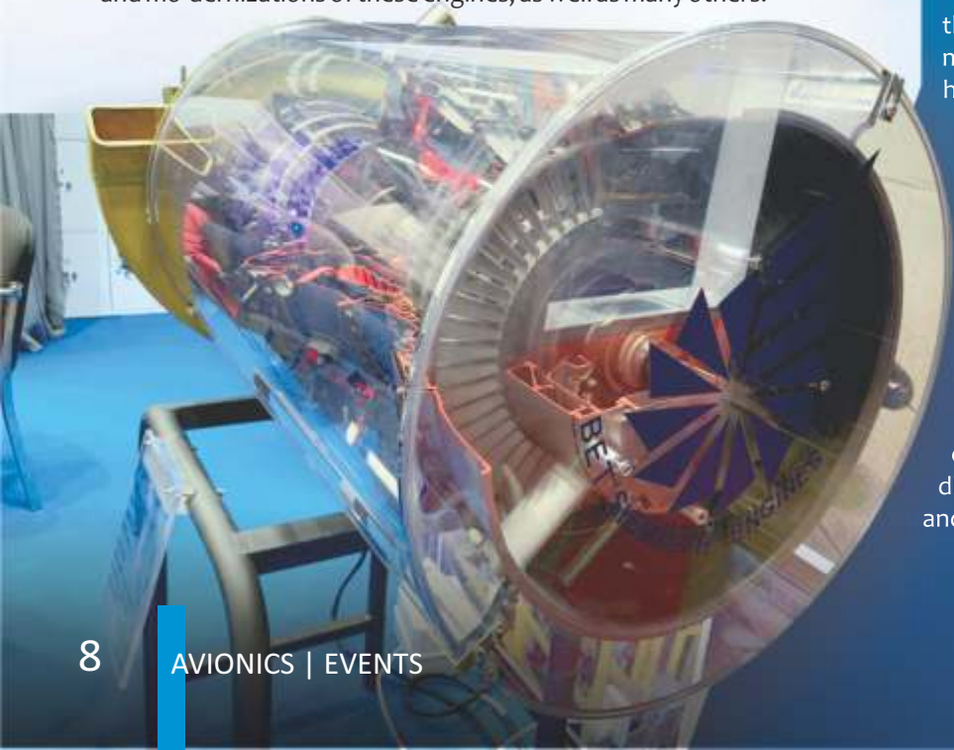
OUR OFFER FOR MILITARY AVIATION

This year's offer, dedicated strictly to the aviation sector –- combat aircraft, helicopters, UAVs, has been extended this year with new services for both military and civil aviation.

Thanks to the established cooperation, this type of service can be ordered directly to our company.

This was related to the signing of the contract with the Israeli company Bet Shemesh Engines (BSE), dealing with service of engines in both combat and civil aircraft.

As a result, together with BSE representative – marketing director, Mr. Shay Weiss – for the first time at MSPO, we promoted services in this area. At our stand, the mock-up of T700 turboprop engine was presented, which is operated on many helicopters worldwide. In Poland, this type is installed in Kaman SH-2G „Seasprite" and S70i „Black Hawk" helicopters. Bet Shemesh Engines company provides services, repairs and mo-dernizations of these engines, as well as many others.



Shay Weiss – Marketing Director of Bet Shemesh Engines

"Our interest in the Polish market was caused by the large number of modern aircraft and helicopters found here. So we were looking for the right partner to cooperate in this market.

Our choice was Drabpol. Why? Drabpol company has experience on the military aviation market, and above all has a group of engineers and technicians with competences confirmed by many American and European certificates.

Therefore, it is an ideal partner for us, guaranteeing efficient diagnosis of problems, substantive handling before and after overhaul, a wide contact base and efficient logistics to provide world-class service."

The aforementioned L3 observation system was also presented at the Leonardo stand where was supported by L3 Harris representative.

Leonardo, in cooperation with PZL-Świdnik and PGZ, presented the concept of the W-3 Sokół Next Generation helicopter, in which Wescam cameras are planned.

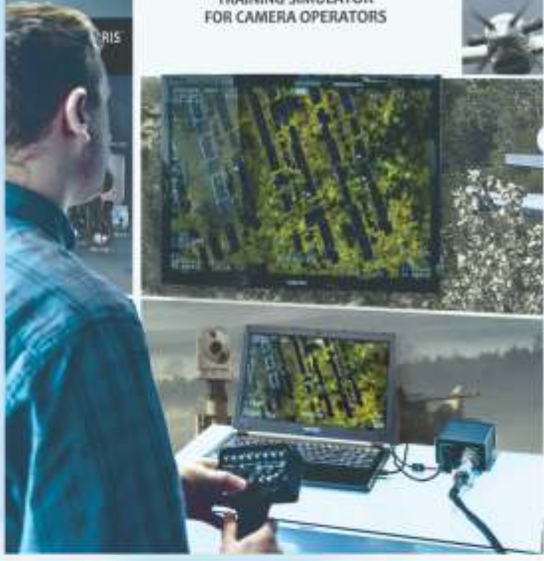
The Collins Aerospace fully digital avionics system intended for new helicopter has attracted our attention. The CA avionics include a glass cockpit, flight management system, synthetic environment imaging system, digital maps, terrain obstacle warning system, as well as a 4-axis autopilot, a new communication system, a digital engine control system and a monitoring system.

L3 Harris (formerly Wescam) observation systems are also strictly dedicated to military aviation, which we presented at the stand – including MX-10HD camera – small, multi-sensor, multispe-ctral imaging system.
This system is in use in the Black Hawk utility helicopter, which could be seen at the Sikorsky Aircraft booth.

The MX-10HD camera was presented on the Black Hawk helicopter, as well as at the Leonardo stand.

In addition, at our stand we presented a simulator for training L3 Harris system operators. This system simulated the flight with a system - just like in real conditions the operator would use the L3 observation system. Additionally, using the keypad, our guests could learn about the functions of the hand controller.
The image presented on the monitor contained a projection of what the crew / camera operator can see during the actual flight. The joystick made it possible to change the image magnification, change the view from an optical camera to a thermal imager, to remember a point of interest and then return to it and many other functions.

We would to remind that since the summer we are responsible for training of MX series systems operators and O-level servicing personnel.



The presented simulator imitated a flight with the L3 camera, identical as in real conditions, and image on the monitor contained projection of what the crew / camera operator could see during a real flight.

BendixKing

Bendix King avionics is also a permanent element of our exhibition - extremely popular in both civil and military aviation. This year, Bendix King introduced the AeroVue Touch system, which we have already written about in our last issue. This is the first touch flight display allowing to display all relevant flight information on one compact screen. The xVue Touch Smart Display system with AeroFlight Digital Attitude Indicator, i.e. a MFD touch display for map and engine data with backup, digital attitude indicator, was presented at our stand together with a representative of Bendix King - Mr. Jiri Vitek – who is responsible for European countries region.

We thank all our guests for visiting our stand during MSPO.

BendixKing's annual dealers' rally in Prague

September 24th

With a jubilee in the background

BendixKing

This year Prague hosted dealers of American manufacturer Bendix-King, who came to meet from Europe, the USA and Asia.

The management board of BendixKing was represented by President BK, Mr. Gregg Cohen and vice president, Mr Freddie Zanoozi.

Mr. Freddie Zanoozi, Vice President of BendixKing, presented the latest news on BK avionics at the congress.

The meeting was an occasion to get acquainted with the latest novelties, introduced to the market by Bendix King, as well as with the projects currently implemented in the world markets.

The Conference presented new, sophisticated systems, as well as individual products dedicated to light aircraft and aviation GA/BA.

The most important are the comprehensive glasskockpit solution, the AeroVue Touch system, with a popular touch screen set. Solutions for touch devices that BednixKing has introduced to its offer this year is much more.

These include the NAV/COM/FMS/GPS AeroNav 900/800 Series system, or the AeroCruze autopilot – also with a touch screen. From the latest news this year, the participants of the meeting also presented a digital indicator of type Standby KI 300, complementing the panel of the pilot with an electronic artificial horizon with indications of altitude, speed and vertical speed.

The meeting because it lasted only one day was very intense.

There was, however, a few moments to relax, which provided a undoubted boat trip on the Vltava River and admire the famous sights of Czech Prague.

This year's meeting was also an occasion to celebrate the 60 anniversary of BendixKing.
On our part we congratulate such a beautiful Jubilee. We are proud to be a strong BendixKing family.

New BendixKing systems

AeroVue Touch PFD display.

The family of AeroNav 800/900/910.

A New proprietary solution of our Design Office

Practical shelf for aircraft cabins

Responding to the needs of pilots our Design Office designed, and then made another usable solution, patented by our company - shelves for everyday items.

Design Office can design and print different versions of the shelf - devided into two equal or asymetrical parts or at all without divisions; with holes for pens / pencils etc. There are aircraft registration markings in the upper part of the shelf, whereas in the lower - a hanger for keys.

On client's individual request, we made a shelf without divisions. The shelf is designed to be installed in a place intended forthe aviation instrument (eg. instead of the end cap). There is no need for any additional and time-consuming cockpit modifications.

The shelf was made of the certified material for aircraft interior components - ULTEM 9085, that meets the most stringent material resistance criteria reguired by the aviation industry and regulatory agencies. ULTEM 9085 characterizes with a high ratio of strength to weight, as well as high thermal and chemical resistance. This is the only material in FDM technology with FST (toxicity-smoke-flame) indicator. It is fireproof, so it can be used in the most demanding work enwironments.

The shelf and other products are printed on Fortus 450mc printer. 3D printing machine park that we have is the advanced manufacturing system based on FDM technology (Fused Deposition Modeling). Thanks to servo systems and the working chamber heated up to 2000°C we can manufacture highly specialized tools, as well as functional and robust prototypes.

This is another solution that was designed and manufactured for pilots.

Our Design Officecreates projects from A to Z, in the following steps:

1. Creation of a graphic project based on professional software cooperating with 3D printing technology, from scratch based on the told idea.

2. In case of existing drawing, translating it into a 3D printing language.

3. In certain cases, performing a scan of the required space using the 3D optical scanner.

4. Finding errors, introducing functional changes and applying all necessary changes so that the final product can be approved for a given type of industry'

5. A full printout from the material that was dedicated to the given project and its stage (prototype or low-volume production).

6. The finished product undergoes the process of final aesthetic treatment.

Let us recall that in the summer, also on client's individual request, we made and mounted hangers for headphones for pilots of Robinson R44 helicopters.

The shelf, developed on the client's individual request has been installed on Cessna 182 aircraft by our Part 145 Maintenance Organization – as a part of performed modification.

EASA proposes cybersecurity regulations for product or part certification

STORY BY **LINDSEY MCFARREN**

Source: Avionics News, May 2019.

In February, the European Aviation Safety Agency published Notice of Proposed Amendment 2019-01 „Aircraft Cybersecurity." The NPA's objective is to mitigate the potential effects of cybersecurity threats on safety, citing consequences of intentional acts of interference with aircraft networks and systems. The EASA states that the proposal takes „into account the interdependencies between aviation safety and security, in order to mitigate the safety effects caused by potential cybersecurity threats."

The NPA specifies „intentional" acts, i.e., nefarious hacking of aircraft systems, differentiating it from existing rules related to aircraft safety.

The NPA will amend several certification specifications including CS-23, CS-25, CS-27, CS- 29, CS-E, CS-ETSO, and CS-P. It will also amend the related acceptable means of com-pliance and guida-nce material, as well as AMC-20.

Cybersecurity is currently only addressed in the EASA certification of new large airplane type designs and supplemental type certificates through a special condition. The amendments outlined in the NPA would expand cybersecurity protections to multiple certification specifications for different types of aircraft and aviation products.

These amendments will provide applicants for product or part certification appropriate guidance to reduce vulnerability to cyberattacks.

The NPA explains cybersecurity is „commonly understood as the protection of aviation information systems from intentional unauthorized electronic interactions, and the means to mitigate their consequences on safety."

The EASA participated in the Federal Aviation Administration's aviation rulemaking advisory committee on aviation systems information security/ protection working group. The NPA is meant to harmonize with the FAA, Transport Canada and National Civil Aviation Agency of Brazil cybersecurity initiatives, as all states of design including the EU, U.S., and Brazil that participated in the ASISP working group.

Jens Hennig, vice president of operations for the General Aviation Manufacturers Association, said while the FAA established the early special conditions that have been used to address cybersecurity over the past decade – primarily for transport category airplanes – the EASA is currently leading the way in establishing airworthiness standards for cybersecurity for other aircraft types.

The FAA has continued to work with the EASA since the ASISP working group provided its recommendations and is expected to publish a related advisory circular in 2019 and an amen-dment to Part 25 in 2020.

The FAA's philosophy for cybersecurity was published in a policy statement in 2014 (available at icao.int/cybersecurity/SiteAssets/ FAA/PS-AIR-21.16-02.pdf), establishing the criteria for issuing special conditions.

In 2017, the FAA updated the policy statement based on the recommendations from the ASISP working group. As Hennig explained, the draft regulations have a degree of proportionality built into them, as endorsed by the ASISP working group, to differentiate aircraft of different sizes and types: i.e., large airplanes, small airplanes, and large and small rotorcraft as well as different types of systems.

Further, in the rationale for specific language, the EASA distinctly limits the scope of the regulations to intentional unauthorized electronic interactions that may result in „adverse effects on the safety of the aeroplane," illustrating the

limitation by saying while operators may wish to protect personal information of passengers, the EASA does not consider that objective to be part of the certification process. In addition to aircraft and product certification requirements, the amendments recommend operators of a product or part report any security „occurrences" to allow impact analysis and corrective action. If impact analysis indicates a high potential for an unsafe condition, the product or part designer is to report that concern to the proper aviation authority.

The agency conducted an impact assessment that considered safety risk assessment, economic impact, proportionality issues, various options of implementation and more. The impact assessment of multiple policy options indicated amending the certification specifications and creating one related acceptable means of compliance, AMC-20, that would result in a one-stop, convenient source for applicants.

By amending the certification specifications with general requirements and expanding those with more specific information in AMC-20, the agency envisions certification specifications will remain stable while the AMC can be updated and evolve as technology evolves.

The EASA expects the changes to have no impact on the price of the final products, calling it a „positive to – neutral economic impact."

The EASA is also developing Part AISS – Aeronautical Information System Security – that will be a new requirement of management systems for any organizational approval in Europe, including approvals for continuing airworthiness organizations and design approval holders. The EASA plans to publish an NPA for Part AISS later in 2019, according to Hennig.

The EASA is also developing Part AISS – Aeronautical Information System Security – that will be a new requirement of management systems for any organizational approval in Europe, including approvals for continuing airworthiness organizations and design approval holders.

"We have reached a level of maturity in addressing cybersecurity from a regulatory perspective as shown by this recent action by EASA, but we need the regulators to continue to work toward harmonization for the airworthiness regulations and associated standards," Hennig said. "It's especially important that the FAA prioritize its pending rulemaking to ensure common requirements between the FAA and EASA can be realized in the next couple of years."

The EASA is accepting comments through May 22 through its automated comment response tool and anticipates finalizing the process in the third quarter of 2019 with publication of certification specifications, acceptable means of compliance, and guidance materials.

Following the cooperation with Gogo Business Aviation, our product portfolio has expanded to include solutions for business aviation, such as on-board satellite connectivity and multimedia systems, broadband internet or wireless systems that guarantee entertainment and information on demand.

All these systems can fuction together due to Gogo AVANCE platform that is the "brains on board" powering all Gogo systems. This combination of hardware and software enables personalization, control and delivery of a fully integrated cabin experience- for any aircraft type, size or budget.

AVANCE makes connectivity easier and more powerful for passengers to use, while giving operators unprecedented flexibility and customization capabilities.

GOGO AVANCE PLATFORM

AVANCE™

BRAINS ON BOARD

Iridium Certus - Global voice and internet

The new broadband Iridium Certus communication service, that increasesthe speed and power of the Iridium NEXT global satellite network, is dedicated to passengers who want to stay in touch during flight time with phone calls and internet productivity.

Gogo's Certus network is an ideal connectivity solution for small and midsized business aircraft, delivering high quality, multi-channel voice and internet with global coverage. It's faster internet with the same reliable gate-to-gate/pole-to-pole coverage of the Iridium network. Low latency voice and worldwide coverage also makes it an ideal complement for Gogo Ku or other Ka SATCOM solutions.

Gogo Ku - a higher standard of satellite connectivity

Gogo Ku (coming soon) enables you to stay in touch with everyone and everything, as you fly over land and over sea.

Gogo Ku is the next leap in our connectivity innovation outperforms other satellite solutions in delivering an uncompromising, unparalleled blend of global inflight broadbandspeed, coverage, reliability, capability and growth.
For passengers, it means business aviation without boundaries: streaming, VPN, email, video conferencing, music, movies, TV, and any other digital demand you can think of. For crew, it means better communications and access to information.

GOGO KU offers:

UP TO **25** Mbps
take off to landing experience

100+ satellite ecosystem forward compatible

98%+ global coverage, including equatorial regions

200+ regulatory approvals obtained worldwide

0 compromise

GOGO VISION - inflight entertainment & information

Integrated into every Gogo AVANCE system, Gogo Inflight ingormation and entertainment (IFE) elevates the passenger experience and is often a competitive differentiator.

Gogo Vision's moving maps, destination weather, news clips, licensed TV episodes, Hollywood movies, and magazine library give passengers an immersive, on-demand IFE experience while keeping costs in line.

GOGO TEXT & TALK

Phone calls and text messages are still the most common way we communicate. And the same holds true for executive travelers.

With Gogo Text & Talk, you can keep the conversation going and use your own smartphone to call and text in the air, just like you do on the ground. It uses your own number, so there's no need for two-step digital routines, call forwarding protocols or preprogrammed extensions.

Smart cabin systems

Build on the ADVANCE platform, Gogo Smart Cabin Systems (SCS) take the functionality of a smart routerhelp to integrate and personalize the cabin according to customer needs.

SC Elite

SCS Elite is the „King of the cabin" – a solution perfect for worldwide aircraft that already have a diverse mix of cabin technologies. It fully integrates a smart router, inflight entertainment and information service, multi-network management, CMS access, and much more.
The result is a cabin experience that's easier for people to use.

SCS Media

SCS Media lets you easily offer passengers a branded, stunning inflight entertainment experience featuring blockbuster movies and TV, plus news, magazines, fight maps, weather and more. It can serve as a single-bearer route, but no connectivity is needed.

Offered systems guarantee in-flight connectivity and entertainment at the highest, reliable level, and thus meet the expectations of both light business aircraft owners and global aviation corporations.

News for GA – AWIONICS

GARMIN

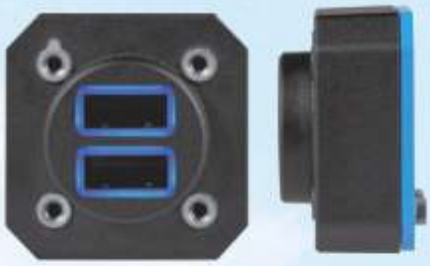
GSB 15 charger
– developed for pilots

Responding for the pilots' demands, Garmin released a small and light battery charger intended for aircraft.

This device contains two type A charging ports with 3A (18 W) simultaneous charging each. Each GSB 15 port can charge two full size tablets while using them at full brightness. GSB 15 charger is supplied by aircraft's electrical system (14 or 28V).

There is built-in protection against circuit and temperature overloads. The charger contains configurable halo lighting on the plugs makes them easy to locate and access in a darkened cabin or cockpit.

There are two optional mounting plates available that can be easily accessed in limited space places. First of them is equipped with connector located on the back which is an ideal choice for the panel installation, the second version has connector located on the lower side and is intended for installation on the cabin's sidewalls.



The layout of GSB 15, its compact design and the light weight mean the device can be installed in the every cockpit and cabin.

The charger has a FAA TSO and EASA ETSO authorizations.

New GNC 355 navigation system

In the summer, a navigation system with Localizer Performance will appear on the market, supporting LPV approaches, equipped with a built-in Comm radio.

Thanks to the new GNC 355 system, pilots can use the WAAS / SBAS GPS support function, while implementing a modern radio into existing avionics equipment. The system has the Supplemental Type Certificate (STC), dedicated to class I / II aircraft weighing 2.721 kg or less and light EAB aircraft.

Operators can easily implement the new system into existing equipment due to the standard dimensions of the device. A vivid and colorful display is not a problem for users, and the double coaxial knob and the „home" button make the display operation simple. The user interface has been adapted to the size of the display, without losing the menu structure. Pilots have easy access to various functions, maps, flight plan, nearest waypoint, procedures, or frequency data - all via a touch display.

What's more, it is possible to create user-defined fields and shortcuts, which allows quick access to necessary information.

Advanced IFR approach

Equipped with WAAS / SBAS / IFR functions, GNC 355 gives pilots the opportunity to use the benefits of flying with LPV minima and RNAV approaches (Area Navigation Approaches). Many of these functions are vertical guidance approaches up to 200 feet above the ground. Pilots can also use the touch screen and moving maps to generate personalized patterns in the navigation system's database or to create defined waypoints that can easily be introduced into a flight plan. GNC 335 also offers lateral and vertical approach assistance during a flight performed in accordance with the rules for VFR flights.

High Power Comm functions

Two models – GNC 355 and GNC 355A - are available with 25kHz and 8.33kHz inter-channel spacing. Using frequency data, airport weather, ARTCC and FSS, finding a frequency and uploading it only requires making the right choice from the items on the airport's information page.

The device also has easy access to recently used, nearby and saved frequencies. With built-in frequency monitoring, pilots can listen to other frequencies while remaining on their channel, e.g. monitoring ATIS messages while operating on air traffic control frequencies. The aerodrome ID and frequency type are displayed below the frequency so that pilots can communicate confidently.

The cockpit's integration

The wide range of interface options includes G3X Touch for certified aircraft and those in the „experimental" / „special" class, the G5 system and the GFC 500 and GFC 600 autopilots, including those made by other manufacturers.
Heading deviation and roll control outputs can also be combined with the GFC 500 / GFC 600 autopilots and selected third-party autopilots to perform procedures such as holdings, curved flight to a specific position (RF), and missed approaches. Aircraft owners can also keep many of their existing instruments, audio panels and CDI / EHSI indicators such as the KI 208/209 devices.

Connext Cockpit Connectivity and Advanced ADS-B „In" Display

Additional options include the ability to pair GNC 355 with a two-channel ADS-B (Automatic Dependent Surveillance-Broadcast) system, such as GTX 345 or GDL 88. When paired with these products, GNC 355 has the ability to display a free FIS-B and ADS-B traffic targets subscription and offers TargetTrend and TerminalTraffic technologies. The Wireless Connext communication system gives the ability to send a flight plan via Bluetooth to and from connected portable and mobile devices equipped with Garmin Pilot and FitPlan Go applications. GPS position data and back-up attitude information may be displayed by other compatible products. Pilots can also pair Flight Stream 510 to access wireless benefits of the Garmin Database Concierge, which uploads information from the Garmin Pilot to GNC 355 in minutes.

Modern Boeing 737-200 flight deck

Universal Avionis, our American partner, has signed a contract with the Nolinor Aviation – a charter airline based in Mirabel, Canada, operating passenger charter and cargo services within Canada and to the U.S.

With the company's Boeing 737-200 fleet, each aircraft can accomodate up to 119 passengers in a full passenger configuration or can be configured to accomodate a combination of passengers and cargo, or as a full cargo freighter.

Ten of Nolinor Aviation's Boeing 737-200 aircraft are currently undergoing a modernization program to upgrade avionics with new UA EFI-890R advanced flight displays and FMS UNS-1L with SBAS UA function. The aim of modernization is to increase dispatch reliability and mission completion.

An SBAS-capable FMS system has become a must for commercial aircraft operating in Canada's north where weather can be challenging and the ability to fly Area Navigation (RNAV) (GNSS) Localizer Performance with Vertical Guidance (LPV) Level of Service (LOS) approach procedures are often necessary to complete flight operations. The UA UNS-1Lw SBAS-FMS's combination of analog and digital inputs/outputs makes it an ideal fit for the B737-200 aircraft. In addition, gravel runways included in the FMS Navigation Database, as well as True North course approaches, and FMS Temperature Compensation (TEMP COMP) were all sought-after features offered with the UA SBAS-FMS.

The EFI-890R Advanced Flight Display upgrade addresses equipment obsolescence and the increasing difficulty in supporting older electromechanical instruments, greatly improving safety and reliability.

This UA avionics upgrade will help Nolinor Aviation meet the needs of mining companies and transporting more than a hundred passengers to extremely remote villages only accessible by air.

An approach in Mary River, NU (CMR2) in the north section of the Baffin Island

Yves Bergeron, Director of Operations for Nolinor Aviation

"We have been highly satisfied with the recent installation of the EFI-890R and UNS-1Lw SBAS-FMS in our B737-200. With seamless integration in our cockpit, we've benefited from increased accuracy in our flight operations as well as enhanced situational awareness for our pilots. We are now benefiting from this system's reliability, which greatly reduces aircraft downtime."

News for BA – AWIONICS

Collins Aerospace

Novelty for passenger compartment

The Venue™ cabin management system providing management for both electronics in the cabin and on-board entertainment for aircraft passengers, as well as Stage - the wireless in-flight entertainment platform, which enables free transfer of preferred content throughout the cabin during the flight are becoming increasingly popular in Europe, Middle East and Asia. The new Venue system is supposed to be implemented on Dassault Falcon aircraft, which will be upgraded from FCMS1 system, and on Bombardier Global aircraft with the existing CES system. Sharing of wireless content is to take place on demand

The transition from FCMS1 to Venue will occur on Dassault Falcon aircraft.

The solution to the GPS GLU problem

On June 9, 2019, the CA team noted that some GPS-4000S and GLU-2100 devices had operating disruptions, resulting in the loss of GPS information in some aircraft.

The issues have been temporarily resolved and the final software patch is expected to be completed by the end of 2020.

Novelties in regulations

It's official! Based on the text published in EU 2019/1170, most business aircraft are exempted from the ATN-B1 modernization. The new regulations exempt aircraft with a maximum certified capacity of 19 passengers or a maximum certificated take-off mass of 45,359 kg (100,000 pounds) and whose airworthiness certificate was issued before February 5, 2020.

Implementation of PBN in ATO

Flight In accordance with PBN procedures

On August 25, 2020, the Polish Civil Aviation Authority (ULC) set a cut-off date after which it would not be possible to conduct IR training without a PBN and after which the entry of an IR license entitlement would automatically mean that the pilot was prepared to fly in the PBN.

Performance-Based Navigation (PBN) is an area navigation that allows to determine the position of an aircraft with specific accuracy for a given phase of flight using any configured navigation system that meets specific requirements such as accuracy, integrity (reliability), continuity, availability and functionality.

PBN allows for flights of aircraft along any flight route within the range of ground navigation devices or within the limits of the capabilities of autonomous devices, or using a combination of these devices.

The Performance-Based Navigation (PBN) concept was presented by ICAO in 2008 in the third edition of IACO Doc 9613 „Performance-based Navigation Manual".
The PBN concept is a development of the ICAO Required Navigation Performance (RNP) concept. The fourth edi-tion of Doc 9613 from 2013 is currently in force.

As a result, all ICAO member countries were obliged to develop PBN implementation plans. Implementation of the PBN idea requires the involvement and cooperation of many aviation entities, such as:

- aircraft manufacturers,
- avionic equipment manufacturers,
- authorities providing air traffic control,
- agencies designing the airspace,
- airport managers,
- air operators,
- pilot training organizations,
- pilots.

Until 2016, operators who had previously obtained appropriate operational approval were responsible for preparing their crews for flight operations based on PBN.

The performance of PBN operations required the operator to obtain approval by the aviation authority for relevant navigation specifications.
From August 25, 2016, after changing the EU regulations, only operators who want to perform RNP AR APCH or RNP 0.3 operations, i.e. „Complicated PBNs" must be approved by the Aviation Authority in the form of an entry in the AOC Operational Specification or List of Specific Approvals (for non-AOC).

SUMMARY

The condition for obtaining the extension is: approval for conducting IR training or integrated into ATPL (A); notification of relevant changes to the operational and training instructions describing the general principles of training in PBN; submitting a change to the training program; developing and possessing relevant training materials and providing access to them for trainees.

The database of the aircraft or simulator used for training in PBN should be current and constantly updated. The flight manual or the GNSS receiver manual should include a chapter on „GNSS / WAAS" or „GNSS / EGNOS", which will clearly confirm the ATO's ability to conduct practical training on LP and LPV approaches.

Prior to admission to training on the simulator, ATO must provide objective evidence that the device has been adapted by the manufacturer to conduct training in the field of PBN, properly checked in this respect by ULC inspectors, and the device certificate has been appropriately extended.

A „Separate" training in PBN should consist of a theoretical and practical part.

The theoretical part should last at least one full training day - 1/2 day: GNSS - rules and related errors, available satellite constellations and their development, rules for improving accuracy; 1/2 day: approach rules in PBN, legal requirements and restrictions, Standard Operating Procedures PBN, maps, checking systems in preparation for flight and during flight, used for navigation in PBN.

The above means that training organizations that will not supplement programs, instructors, aircraft fleet or access to the simulator, allowing for conducting training involving PBN, by 25 August 2020 at the latest, will not be able to continue training for IR and integrated training for corporate pilot licenses.

The practical part (full range LNAV-LNAV / VNAV-LP-LPV) for GA pilots with IR qualification (A) and without PBN experience should be carried out by an authorized instructor on a properly equipped aircraft or on a properly approved simulator (FNPT II minimum) and should consist of 5 PBN approaches (manual, on autopilot, without and with incorrect instructions / warnings).

Latest news - 3rd Quarter 2019:

- To Piper Seneca SP-CSL aircraft, we provided avionics, including: Glass Cockpit G500 Txi, GPS/NAV/COM GTN 650, G5 display and two GEA 110's.
- Robinson R44 helicopter has been equipped with AV-300 configuration module from Garmin Adams Aviation.
- On Cessna 172S LY-EET we replaced battery in ELT Artex ME406 .
- A new battery has been installed in ELT 406 Artex transmitter on Turbolet L-410 SP-TPA aircraft of the Polish Air Navigation Services Agency (Polska Agencja Żeglugi Powietrznej).
- Beechcraft King AirC90A aircraft will be equipped with Garmin avionics, such as: two GTX 345R transponders, GPS/NAV/COM GTN 650 and GPS/NAV/COM GTN 750 systems, GMA 35 audio panel, GMA 340 antenna and two GA 35 antennas. Our Part 145 Maintenance Organization is currently preparing the assembly of these devices.