Update to AC 20-138 Addresses SBAS, RNP AR

In late September, the Federal Aviation Administration (FAA) released much-anticipated guidance material for the airworthiness approval of positioning and navigation avionics equipment. It includes the following:

- Global positioning system (GPS) sensors, including those incorporating satellite-based augmentation systems (SBAS)
- Area navigation (RNAV) equipment, including advanced functions and RNP Authorization Required (AR), formerly referred to as Special Aircraft and Aircrew Authorization required (SAAAR)
- Barometric vertical navigation (baro-VNAV) equipment


Future certification approvals of Universal's line of WAAS/SBAS-FMSs will be affected by this AC. A service letter outlining compliance of the FMS to the airworthiness considerations contained in AC 20-138B is expected to be released by Universal Avionics by the end of 2010 (service letters may be accessed from www.uasc.com/support). Note that the guidance information outlined by the AC is intended for new approvals and is not intended to modify, change or cancel existing equipment design or airworthiness approvals.

To download a copy of the AC, visit www.faa.gov and enter keyword search “AC 20-138B”.

New Product News

Training Aids for the Next Generation of Pilots

Bringing WAAS/SBAS-FMS into the Classroom

Upperclassmen in Embry-Riddle Aeronautical University’s degree program for professional pilots will soon be training on a Flight Management System (FMS) software training package developed by Universal Avionics.

Embry-Riddle’s Aeronautical Science majors, both fixed-wing and rotary-wing students, will receive training in the Prescott campus Airway Science lab equipped with Universal Avionics’ FMS software training package. The training system enables flight students to experience the most advance technology including the FAA Wide Area Augmentation System (WAAS). While learning on a simulation, flight students utilize the same flight deck controls that the pilots of any high performance aircraft working in the industry today would encounter.

“Embry-Riddle’s aeronautical science and aerospace engineering programs are among the best in the world, and the school consistently graduates students who become highly-respected leaders in the aviation community,” says Dan Reida, Universal Avionics Vice President of Marketing and Product Support. “Universal Avionics is delighted to be a part of this program.”

With the influx of WAAS approach procedures in the National Airspace System, it is essential that today’s pilots have experience and familiarity with these procedures and the equipment used to fly them. Even though the operation of many WAAS-enabled avionics on the market today is not considerably different than standard GPS or FMS systems, it is a relatively newer technology some operators have not yet witnessed. At Embry-Riddle, pilots are able to learn on the most advanced equipment in the market and be better equipped to demonstrate the benefits of this new technology as they begin their careers in the industry.
In Work: New All-Digital Flight Deck Package for the Falcon 900B

Universal Avionics has partnered with authorized dealer Greenwich Aero-Group’s Western Aircraft to develop a unique digital cockpit solution for the Dassault Falcon 900B aircraft. The upgrade package replaces 25 older, analog instruments with five EFI-890R Flat Panel Displays, including engine indication, dual UNS-1Fw FMSs for WAAS/SBAS/LPV capabilities and dual Radio Control Units (RCU). Replacing older, analog equipment with digital instruments has proven to significantly improve reliability and reduce aircraft downtime.

Options that will provide improvements in situational awareness include Vision-1® Synthetic Vision System and the Application Server Unit (ASU) for electronic charts, graphical weather, video and checklists.

FAA Supplemental Type Certificate (STC) approval is expected mid-year.

Cockpit Upgrade Extends Life of British Antarctic Survey’s Dash 7

This de Havilland Canada DHC-7 (Dash 7), operated by British Antarctic Survey (BAS) was recently upgraded with a four EFI-890R Flat Panel Displays, dual UNS-1Fw WAAS/SBAS-FMSs with 5” CDUs, TAWS, dual Vision-1® Synthetic Vision Systems, dual Radio Control Units (RCU), and dual Application Server Unit (ASU) for charts, checklists, weather, and video. The aircraft also features multi-mission FMS software to accommodate a variety of transport and science missions BAS conducts. The upgrade brings a host of new capabilities and extends the life of this rugged turbo-prop.

Based in Cambridge, United Kingdom, BAS is a component of the Natural Environment Research Council. It has a long and distinguished 60-year history of carrying out research and surveys in the Antarctic and surrounding regions. BAS efforts are supported by a fleet of five aircraft; four DHC-6 Twin Otters and the Dash 7 featured here.

One of the primary roles of the Dash 7 aircraft is to provide an ‘air-bridge’ between Rothera Research Station in Antarctica and airports in the Falkland Islands and Punta Arenas, Chile. It also operates to and from the “blue-ice” runway at Sky Blu base. The addition of TAWS, Vision-1® and WAAS/SBAS-FMS provide safety enhancements beneficial to its operations in extreme weather conditions.

Integration was a cooperative effort between Voyageur Airways, North Bay Ontario, and Avionics Design Services of Midland Ontario, and supported by dealer Kitchener Aero Avionics.
Notes from Product Support

The Importance of Proper FMS Shutdown

Q: Why can’t I use the avionics master to turn off the FMS?
A: The proper method to turn off the FMS is to use the shutdown or standby mode procedure. But do you know why? The answer has less to do with the potential for voltage spike damage than it does with erratic behavior once power is reapplied.

Using the avionics master power switch or “pulling the plug” creates what the FMS perceives as a power failure. Aside from the three different responses to a loss of power (which is based on time duration of power loss), there could be other consequences. (Refer to the Operator’s Manual for more about responses to power loss.)

If avionics master power is removed while the FMS is in the process of cross-filling or synchronizing data or in the process of a standby shutdown, the FMS may not operate properly upon the next start-up. Even if no other “processing” is taking place, it is possible that a CDU DATA BUS FAIL message may present itself upon power-up. When this occurs, a proper shutdown will have to be performed to remedy the condition. For these reasons, Universal Avionics recommends performing the system shutdown or standby mode procedure at every power down.

System Shutdown Procedure

1. Press the [ON/OFF/DIM] key. The dimming control window will be displayed.
2. Select LSK [5R], OFF/STBY.
3. Press LSK [1R], CONFIRM OFF.

Tech Reps Rank #1 in AIN Product Support Survey

Universal’s tech reps scored the highest among their peers in the 2010 Aviation International News (AIN) Product Support Survey, which was published in the September 2010 issue of the magazine.

Overall, Universal Avionics ranked second and presented one of the greatest improvements in overall score from last year’s survey.

Two years ago, the company made several internal changes aimed at improving the customer experience. Consolidation of product support and repair activities and the implementation of an organization-wide customer relationship management system were two such moves. The results have been encouraging, as demonstrated by this comment from the survey:

“I love calling Universal Avionics,” wrote a Citation Bravo captain. “A human answers the phone and quickly and accurately provides you with the answers to your questions. Their customer service is absolutely amazing! Other companies should follow their example.”

—AIN, September 2010 Issue

Thank you for your support; all of us at Universal Avionics look forward to another great year of serving you.

Software and Hardware Updates

**EFI-890R/MFD-640**

EFI-890R Mod 10 and MFD-640 Mod 13 released in October 2010. Hardware change eliminates flicker that may occur at low and high luminance levels in LED backlight EFI-890R and MFD-640 models.

**FlightReview**

Version 1.0.1 of FlightReview Flight Plan and Data Reduction software released December 2010. Minor software change adds an auto-update feature for future software releases and allows Google Earth™ to display in the user’s native language.

Service Bulletins are published for all software releases and hardware modifications. Visit www.uasc.com to view the Service Bulletin for the software and hardware updates listed here, in addition to associated Service Letters and archived Bulletins.
Celebrating the Delivery of 20,000 FMSs

Universal Avionics marked the delivery of its 20,000th Flight Management System (FMS) at the 63rd Annual NBAA Convention and Trade Show in October. Universal’s President & CEO, J.L. (Ted) Naimer presented the 20,000th FMS to Mr. John Mactaggart, President & CEO of Field Aviation Company Inc., Mississauga, Ontario, Canada. Field Aviation is Universal Avionics top North American dealer for 2010.

Universal Avionics has led the industry in advanced navigation solutions for nearly 30 years, and its “UNS” systems are installed in over 100 aircraft types operating worldwide. Mr. Hubert L. Naimer, Universal’s late founder, originally conceived of a multi-sensor “master navigation system” as early as 1976. He formed Universal Avionics (originally Universal Navigation Corporation) in 1981 to pursue this vision. The company unveiled the industry’s first FMS, the UNS-1, at the 1982 NBAA show in St. Louis. The first customer delivery was in March 1983 with dual FMSs installed in a Falcon 50.

While Universal Avionics is most known for being a leader in developing Flight Management Systems, it has expanded into a host of additional avionics equipment throughout the years. Today, it offers solutions for business, transport and commercial aircraft with equipment designed for retrofit applications and original equipment manufacturers. We look forward with great anticipation to designing future generations of advanced navigation and display solutions.

© 2011 Universal Avionics Systems Corporation. All rights reserved. The Universal Flyer is intended for general information purposes only. Universal does not assume or accept responsibility for any use of such information. Universal technical manuals and operator’s manuals take precedence over the content of this publication.