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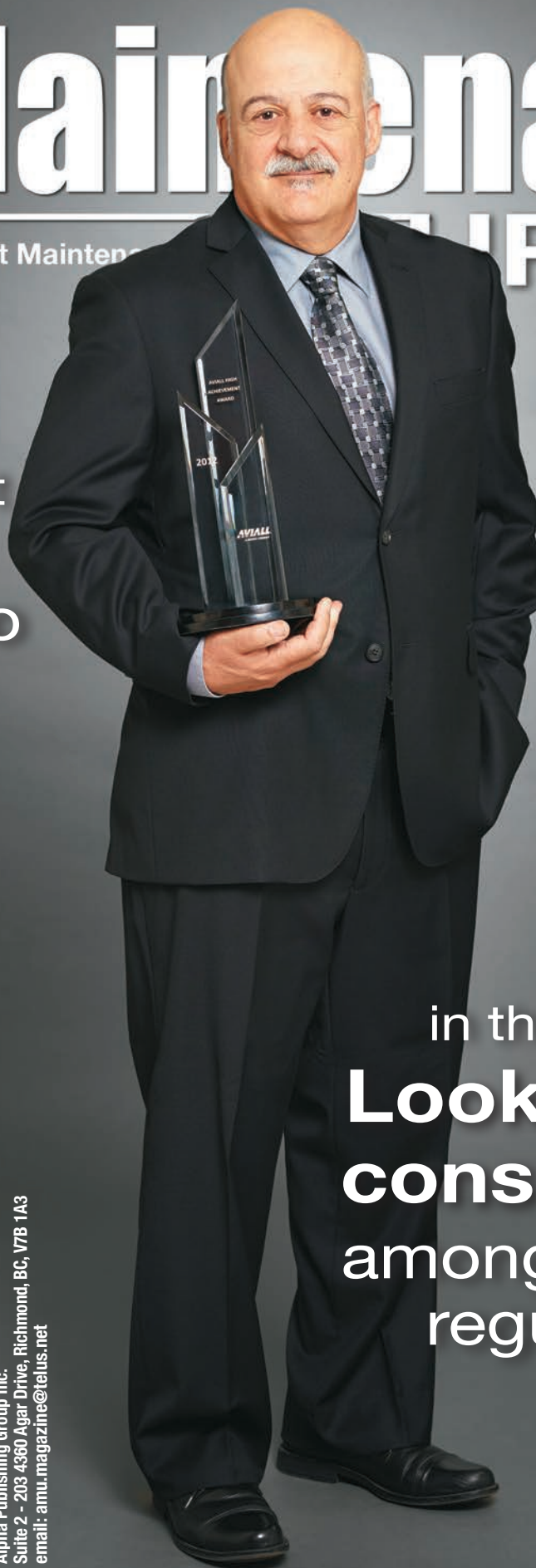
The Magazine for Aircraft Maintenance

Transport Canada Approved for R/T



AviAll High
Achievement
recipient

Sam Longo



PAMA
and **AME**
news

in this issue:
**Looking for
consistency
among aviation
regulators**

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Awards & Awards

Just as the October/November 2012 issue was about to go to press, we here at Air Maintenance Update learned that we had been given the honour of receiving the Clare Leavens Award from the Ontario AME Association. At the top right of this page is a photo of Sam Longo presenting the award to our publisher, Bill Carter. In the last issue I stated what the award is and what it stands for, but who was Clare Leavens?

Well, in 1927, Clare and his two brothers, Arthur and Walter, began a barnstorming operation in Southern Ontario and named it Leavens Brothers Air Services. For the next 84 years, Leavens was a Canadian aviation institution, whether in its WWII pilot training role, as an Aeronca and Taylorcraft dealership, or as a propeller, engine, and component overhaul shop. Clare Leavens was honoured by having this award named after him and his contribution to aviation.

But the Clare Leavens Award was not the only award presented at the Annual Ontario AME Symposium. Gracing the cover of this issue is our long-time contributor Sam Longo, holding the first-ever Aviall High Achievement Award. This award is given to an Ontario AME or individual associated with the aircraft maintenance business who has consistently shown a positive attitude, a high level of professional skill in their particular work, and leadership attributes which serve as an inspiration to young people. I can't think of a more worthy recipient. Sam has over 35 years experience in the business and holds both a Canadian AME and American A&P license. In the 1970s and '80s, his talents were employed by Nordair, deHavilland Canada, and Air Canada before he turned his focus toward passing on his knowledge to the next generation as a professor in Centennial College's Aerospace Department.

Sam's AMU Chronicles has been included in this magazine for many years; his contribution is sometimes humorous and at other times poignant, but always appropriate. Thank you, Sam, for all you've contributed to this magazine. You make my work easy, and I hope there are many more years of your column to come.

— Ian Cook, Editor

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Aviall High Achievement Award recipient Sam Longo presents the Clare Leavens Award to Bill Carter, publisher of AirMaintenance Update, for the magazine's ongoing contribution to Canada's aviation industry.

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AirMaintenance Update

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Upcoming Events

CANADA

Canadian Aerospace Summit

December 5 – 6, 2012
Ottawa Convention Centre
Ottawa, ON
www.aiac.ca/summit

Pacific AME 30th Year Celebration and Maintenance Symposium

January 16 – 19, 2013
Sheraton Vancouver Airport Hotel
Richmond, BC
www.pamea.com

Central AME Association Symposium and Trade Show

March 6 – 8, 2013
Victoria Inn
Winnipeg, MB
www.camea.ca

Western AME Association Maintenance Symposium

March 13 – 15, 2013
Coast Plaza Hotel
Calgary, AB
www.wamwa.com

UNITED STATES

13th Annual Great Lakes Aviation Conference

January 25 – 26, 2013
Eastern Michigan University
Ypsilanti, MI
www.greatlakesaviationconference.com

First State Chapter - PAMA Maintenance Symposium

February 9, 2013
Deerfield Country Club
Newark, DE
www.firststatepama.com

Northwest Aviation Conference & Trade Show

February 23 – 24, 2013
Puyallup Fair & Events Center
Puyallup, WA
www.washingtonaviation.org

Montana Aviation Conference

February 29 – March 2, 2013
Copper King Hotel
Butte, MT
mdt.mt.gov/aviation/calendar

Heli-Expo 2013

March 4 – 7, 2013
Las Vegas Convention Center
Las Vegas, NV
www.rotor.com

56th Annual Aircraft Electronics Association International Convention & Trade Show

March 25 – 28, 2013
MGM Grand Resort & Convention Center
Las Vegas, NV
www.aea.net

INTERNATIONAL

Avionics Europe

February 20 – 21, 2013
Hall 4, MOC Event Centre
Munich, Germany
www.avionics-event.com

Middle East Business Aviation Summit

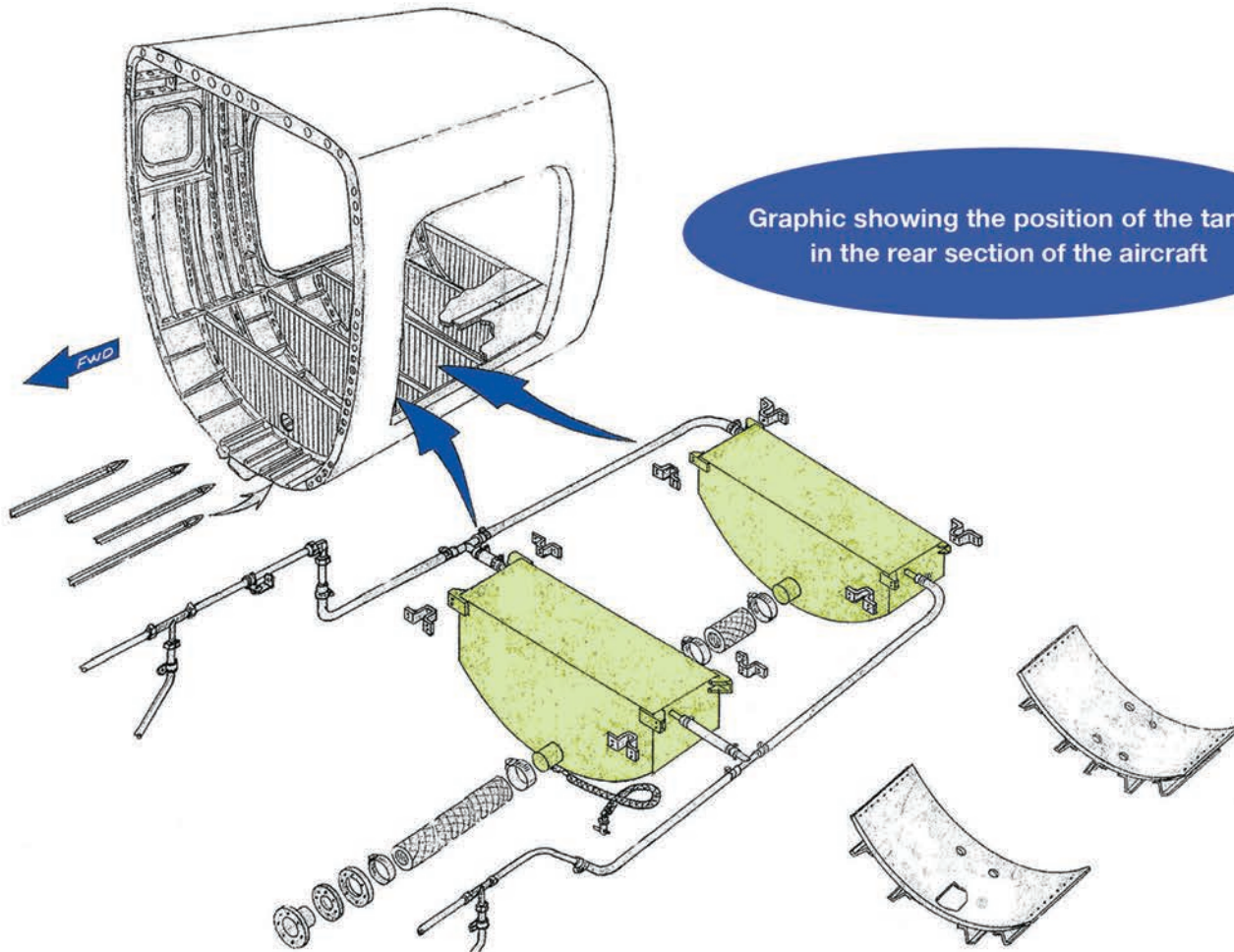
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www.meba.aero

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Letters from Readers

The following was sent to Norm Chalmers via AirMaintenance Update, and Norm felt it should be included as a letter to the editor. Keep up the good work, Norm.

— Ian Cook, Editor

Dear Mr. Chalmers:

Thank you for addressing and publishing my concern regarding importation of aircraft using acceptable data. We might have sparked a little flame under my TC Quebec Region's seat in that my new PMI now wishes to revisit my exemption package to see if some or all of the items on it can be made acceptable to Aircraft Certification and withdrawn. He even allowed me to formulate my presentation without going through an MDM, but rather deal directly with him. I had put together a package on each item using my internal Major Modification and Repair Report and included the following:

- the introduction and explanation of the previous work performed by the Modification Center (10 by Hawker Beechcraft and two by General Dynamics)

- a copy of the FAA Form 337 with blocks 6 (Repair/Mod Center certification) and 7 (DER certification) duly signed
- Supplemental FAA Form 8110-3 supporting drawing outlined in the 337 duly signed by the DER
- log book insertion by the Mod/Repair Station
- where applicable, any Continuing Airworthiness documents (i.e. Maintenance Manual Supplements) and Flight Manual Supplements.
- reference to Fire Blocking and Burn Test Reports

I believe I have all that is necessary according to our bi-lateral agreement with the FAA to have all of these items accepted. I will keep you posted on the outcome.

— Martin Grechan,
Director of Maintenance
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Dorval, QC

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STCs & new products

Innovative Solutions & Support announces Flat Panel Display System

Innovative Solutions & Support, Inc. has announced that the company has received an FAA Supplemental Type Certification (STC) of its Flat Panel Display System for use on Classic B-737 aircraft. The STC covers the B737-300/-400/-500 series aircraft and provides operators with a low cost, low down time retrofit of their flight deck avionics with a modern pilot and copilot suite of high resolution multi-color LCD flat panel displays.



For information visit www.innovative-ss.com

Comtek develops Floor Upgrade Packages for Bombardier Dash 8

Comtek Advanced Structures

has developed several floor upgrade packages for the Bombardier Dash 8 Q400 aircraft. These packages are available for the forward entry, aft entry, and the aft upper baggage bay where high levels of traffic and stress during regular use result in these areas needing to be replaced or repaired frequently. These floor panel upgrades use more robust materials such as heavy-duty honeycomb core to increase stiffness and durability and a mat overlay to reduce surface wear and increase impact resistance.



For more information visit www.comtekadvanced.com

Schweiss Doors develops new "Red Power" Hydraulic Pump

Schweiss Doors has announced that they have developed a new, more powerful and smoother running hydraulic pump system which goes by the trade name of "Red Power." The new pump comes in a compact unit, ready to be mounted where the buyer wants it – on a wall, top-hung, floor, or back room. Its power comes from a top quality LEESON motor and offers superior electrical components. In case of electrical failure, a DC battery, tractor hydraulic, or a drill with a 7/16 hex head can be used to raise or lower the door. For more information visit www.schweissdoors.com



Bogert introduces Leak-Proof 90-Degree Oil Quick Drain Probe

Bogert's 90-degree probe for the AVI-BJ107 drain valve, used on many Continental aircraft engines, gives an alternative to the high priced AVI probe and it includes some improvements too. The new probe has an O-ring seal around the valve body making it leak proof while also locking the probe to the valve body. Also, it is actually shorter than the original AVI-BJ107B probe making it easier to install and use. This probe is a high quality and low cost alternate to Piper part number 481-359, Beechcraft part number 107-B and Auto Valve Inc. AVI-BJ-107B. For more information visit www.bogertaviation.com



New Snap-On Catalogue is largest ever

For easy-to-find, updated information on all of Snap-On Industrial's professional products, there's only one place to look – the new Snap-on Industrial catalogue. The 800+ page catalog includes performance and specifications on all Snap-On Industrial tools and equipment. The new catalogue is available in bound (BNDCAT1200i) or 3-hole (3CAT1200i) format for ease of use.

For more information about the new catalogue, or to receive your free copy, call 1-877-740-1900; email order@snapon.com; or visit: www.snapon.com/



iPad EFB Apps get real-time data with flyTab Aircraft Interface Module

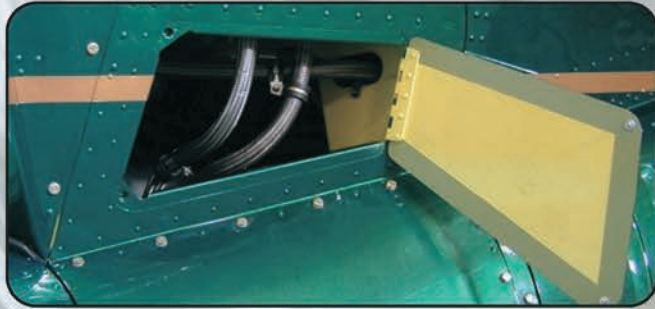
iPad Apps can now receive real-time flight data through the flyTab Aircraft Interface Module (AIM) developed through a collaboration of ASIG (www.asigllc.com) and Shadin Avionics. Data formats that can be streamed to the iPad EFB Apps include ARINC 429, RS-232, RS-422, RS-485 and discrete data. Using Shadin's Avionics Interface Systems (AIS) converter platform, additional interfaces can be easily added and certified. For more information visit www.shadin.com



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ASSOCIATED AIR CENTER AWARDED CONTRACT FOR MID-EAST CUSTOMER

TEMPE AZ, October 1, 2012 — Associated Air Center (AAC), StandardAero's Large Transport Category VIP Completions Center in Dallas, Texas, has signed a contract for the VVIP interior completion of a wide body aircraft for a Middle-Eastern country. Today's announcement represents the first Boeing 747-8i series completion for AAC and marks its sixth wide-body completion project. To date, Associated Air Center has also successfully performed 81 narrow-body/single aisle aircraft completions.

"Today's announcement is a major win for the AAC team," said Chris Schechter, Vice President & General Manager, Associated Air Center. "It offers a long-term work and demonstrates that we are in the wide body business to stay, with two large interior completion projects in our hangars."

Jack Lawless, StandardAero's Chief Operating Officer and President of Associated Air Center, also commented on the team's victory, adding that the occasion "demonstrates AAC's credibility within the industry to effectively manage and execute large and complex interior modifications as well as underscoring AAC's strong and long-standing cooperative partnership with Boeing."

The contract was signed on September 19, 2012. AAC will take delivery of the green aircraft during the fourth quarter of this year. For more information visit www.dubaiaerospace.com.

PIPER, ATP: AGREEMENT FOR FUTURE MAINTENANCE DATA

VERO BEACH FL, September 19, 2012 — Piper Aircraft, Inc. and Aircraft Technical Publishers (ATP) have announced that beginning December 5, 2012, access to all Piper maintenance publications and regulatory documents will be

available exclusively through the ATP Aviation Hub Online Service and ATP's NavigatorV Desktop Platform. Until that time, Piper customers can access Piper's manuals and technical publications through Avantext, Inc., which will continue to serve as Piper's exclusive distributor of all Piper maintenance publications and regulatory documents until December 4, 2012.

ATP's single integrated solution offers several advantages for users, including learning one simple software platform for publication access, daily revision updates to all content, and eliminating the cost of installing and managing software. Maintainers can streamline parts procurement and reduce transcription errors by creating a parts list to be ordered by extracting information directly from the illustrated parts catalogue or any technical publication.

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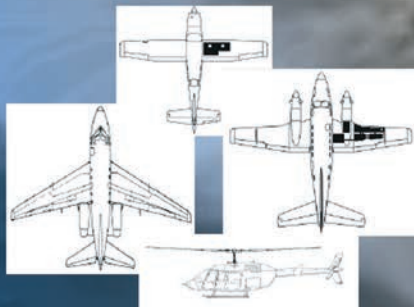
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ality applicable to their specific aircraft. Delivered over the World Wide Web the ATP Aviation Hub Online Service combines innovative technology, industry expertise and expedited information access to promote safety and compliance. For more information visit www.atp.com.

AIAA BESTOWS AWARD FOR HONDAJET DESIGN

GREENSBORO NC, Sept. 19, 2012 — HondaJet Designer, Michimasa Fujino, was presented the 2012 American Institute of Aeronautics and Astronautics (AIAA) Aircraft Design Award. Fujino is president and CEO of Honda Aircraft Company, Greensboro, NC, which produces and sells the HondaJet, an advanced light jet aircraft that delivers class-leading performance, fuel efficiency, comfort and quality. The AIAA Aircraft Design Award is considered the most prestigious recognition for aircraft designers in the world.

Fujino received the award on September 18th at a luncheon held as part of the 12th AIAA Aviation Technology, Integration and Operations (ATIO) Conference and the 14th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference, running September 17th to 19th at the Hyatt Regency, Indianapolis, IN.

The AIAA Aircraft Design Award honors a design engineer or team for the conception, definition or development of an original concept, or career contributions leading to significant advancement in aircraft design or design technology. According to the AIAA, Fujino is being recognized for “pioneering the unique optimum over-the-wing engine mount (OTWEM) configuration that reduces wave drag and increases drag divergence Mach number. This engine mount configuration significantly increases cruise efficiency, and at the same time, maximizes cabin space without increasing the size of the aircraft.” During development of the HondaJet, Fujino published several technical papers on theoretical design methods and experimental results to prove this unique design concept. He also contributed to AIAA by presenting several lectures on aircraft design and

development at universities and industry conferences. For more information visit www.hondajet.com.

WEST STAR EFVS DEALER FOR CHALLENGER 604/605

EAST ALTON IL, November 13, 2012 — West Star Aviation has announced the availability of the Enhanced Flight Vision System (EFVS), known as Hud Vision Access (HVA) for Challenger 604 and 605 aircraft. Certification of the system is expected January 2013.

The HVA system consists of three LRUs and provides numerous benefits to the operator, including safer operation in low visibility, enhanced situation awareness, terrain avoidance, and runway incursion detection. The most prominent benefit to the operator is the lower landing credits to minimums of 100 feet above the ground, which is half of the typical ILS approach. Lower minimums allow operators access to areas where other aircraft and operators cannot land. Operators can get these lower minimums by installing and using the

HVA system; there are no additional certifications or special training required.

To further enlighten the aviation market of the importance of EFVS, the FAA will be issuing low visibility operation rules during the next two years, which will speak to safer operations for all modes of flight with EFVS installed. For information visit www.weststaraviation.com.

CANADIAN APPRENTICESHIP FORUM TO CONTINUE

OTTAWA ON, October 29, 2012 — The Canadian Apprenticeship Forum (CAF-FCA) will continue operations beyond March 2013 when funding through the federal Sector Council Program ends. Following news that the Sector Council Program was being wound down in July 2011, CAF-FCA assessed feedback that indicated the need for a renewed mandate to promote careers in the skilled trades across Canada.

More information about membership levels and benefits are available at www.caf-fca.org. ■



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1. It is used to approve or certify that new and used parts meet conformity requirements from the original airworthiness side of the FAA.

2. It is also used to certify approval for return to service following maintenance from the recurrent airworthiness side of the FAA.

Functions of Form 8130-3

Since the early 1990s when the form was revised to meet both these purposes, there has been some confusion about who is authorized to use the form and what the form actually signifies when it is received. The purpose of this article is to clarify the two distinct functions of FAA Form 8130-3 and identify what you should look for to determine its intended use.

The Original 8130 Form

To start with, it is important to provide a definition. Aviation products have been separated into three different classes, dependent upon the complexity and/or use of the product, and are defined as Class I, II, and III products by 14 CFR Part 21.321, which has remained unchanged since March 1979.

(1) A Class I product is a complete aircraft, aircraft engine, or propeller, which:

(i) has been type certificated in accordance with the applicable Federal Aviation Regulations and for which federal aviation specifications or type certificate data sheets have been issued, or

(ii) is identical to a type certificated product specified in paragraph (b)(1)(i) of this section in all respects except as is otherwise acceptable to the civil aviation authority of the importing state.

(2) A Class II product is a major component of a Class I product (e.g., wings, fuselages, empennage assemblies, landing gears, power transmissions, control surfaces, etc.), the failure of which would jeopardize the safety of a Class I product or any part, material, or appliance, approved and manufactured under the Technical Standard Order (TSO) system in the “C” series.

(3) A Class III product is any part or component which is not a Class I or Class II product and includes standard parts, i.e., those designated as AN, NAS, SAE, etc.

(4) The words “newly overhauled” when used to describe a product means that the product has not been operated or placed in service except for functional testing since having been overhauled, inspected, and approved for return to service in accordance with the applicable Federal Aviation Regulations.

Back in the old days, FAA form 8130-3 was used strictly for the purpose of exporting Class II and III parts. The certification for export approval for these parts came from the FAA or an FAA designee (DAR). These Export Certificates of Airworthiness were needed when a foreign customer called and asked us to ship a Class II or Class III part. We would then call the local FAA or a DAR with which we had established a relationship, and ask them to issue the 8130-3 certificate for the part(s).

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We then placed the 8130-3 certificate with the part and shipped it to the foreign customer. That procedure has not changed much. However, the form has changed immensely and its purpose has become a bit more complex.

(5) The beginning of the new 8130 tag

Some time about 10 to 12 years ago the FAA began the process of synchronizing with foreign governments, specifically European countries whose aviation is governed by the Joint Airworthiness Authorities (JAA). This harmonization effort was the beginning of the new FAA form 8130-3 Airworthiness Approval Tag. The thought behind this was that if implemented correctly, the form 8130-3 would serve the same purpose as the JAA Form 1. The idea was to give the new FAA form the same look and feel as the JAA form, creating some form of harmony. It seemed that JAA Form 1 had become the primary means of communicating the airworthiness status of parts within the European Community. The FAA, not wanting to create more philosophical distance between themselves and their European counterpart, was looking for an instrument to create some commonality with the JAA. Thus began the reinvention of the venerable 8130-3 form. Basically, although they changed a couple of terms, they copied the JAA Form 1, and what ya know: a new 8130-3 form was developed.

I am sure that the FAA was really proud of their changes to the old 8130-3 form. Now this was truly a dual-purpose form. The new 8130-3 would not only be used to certify exported parts, it would also meet the 14 CFR Part 43 requirements for

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approval for return to service following maintenance, creating for the first time in the US a common approval for return to service form (tag) other than the FAA Form 337. Of course, the 337 form could only be used for major repairs and major alterations. Good job guys; one dual-purpose form.

However, it is the intended multiple utility of the new 8130-3 tag that caused some confusion. The same form could now be used for two purposes. It's not a bad thing to have the same form for two purposes, but neither of the two uses of the form could be performed or certified by the same person. The Export Certificate of Airworthiness or conformity certification is still required to be completed by the FAA or a designee, while the approval for return to service could be done by a repair station or properly certificated air carrier.

Now, while it's not too confusing for those who can complete the form, it can be confusing to those who depend on the form for specific purposes. Here is a possible scenario: Let's say that the 145 repair station for whom I work has a part that we overhauled, and as a repair station, issued an FAA form 8130-3 to certify the approval for return to service.



... the 8130 has now become the end-all form. “Does it have an 8130?” “You bet,” we say. Perhaps not knowing his specific need, we assure him that the part does come with an 8130-3 airworthiness approval tag ...

The part is on the shelf and very clearly displays an FAA form 8130-3 airworthiness approval tag. Next, we receive a request for that part from a company in France. Looking at the inventory on the computer, we tell the customer that indeed we have one in stock and can ship it today. Knowing that he needs an Export Certificate of Airworthiness, our French customer then asks, “Does the part have an 8130?” “You bet,” we say. Perhaps not knowing his specific need, we assure him that the part does come with an 8130-3 airworthiness approval tag. He then asks us to ship the part, and not only does the part arrive in France without the correct Export Certificate of Airworthiness, but, *sacre bleu*, we have now added to international tensions.

The bottom line is that the 8130 has now become the end-all form. “Does it have an 8130?” is the question I am always asked, but having an 8130-3 tag is only the beginning. We must know why we need an 8130-3. Is it for the purpose of exporting a part, or is it only for the purpose of assuring that we are not getting a part that is unapproved?

(6) Things to watch

There are a few things to be aware of in this 8130 minefield.

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Next, review the signatures . . . Although “removed serviceable” is an appropriate statement, the method used to determine the parts serviceability must be included AND the repair station must be rated to perform those methods . . .

First, know what the form can and is used for. Don't become complacent with the use of 8130-3 tags. Get a copy of FAA order 8130.21B Procedures for Completion and Use of FAA Form 8130-3, Airworthiness Approval Tag. Look through it and keep it handy if you are in the parts side of the business so that you can refer to it when questions come up.

Next, review the signatures. Look at each 8130-3. Signatures on the left side of the form must be that of the FAA or an FAA designee. Those on the right must be that of an FAA repair station or an air carrier (in certain cases).

And finally if a repair station or air carrier has signed the right side, be sure they hold the appropriate ratings for the maintenance for which they are signing. I have found that some repair stations think that they can use an 8130-3 to signify removed serviceable. Although “removed serviceable” is an appropriate statement, the method used to determine the parts serviceability must be included AND the repair station must be rated to perform those methods.

(7) Manufacturers and Repair Stations

An FAA form 8130-3 received with a new part from the manufacturer (Rolls-Royce, Pratt & Whitney, Bell Helicopters) is considered proof, and documents that the part came from the manufacturer – the same as a letterhead packing slip with a conformity statement. In this case, the certification is for the benefit of the receiver of the part (repair station) more than the owner of the repaired aircraft, and a copy should be kept with the original purchase order. An FAA Form 8130-3 received from a repair station as approval for return to service with the part, should first be scrutinized to ensure the repair

station is authorized to sign for the approval for return to service, then the airworthiness approval tag should become a part of the aircraft permanent records as required by 14 CFR Part 91.417.

(8) The Source

Additional resources:

- FAA Order 8130.21B “Procedures For Completion and Use of FAA Form 8130-3, Airworthiness Approval Tag.”
- Advisory Circular AC 20-62D “Eligibility, Quality, and Identification of Aeronautical Replacement Parts”

So my faithful students, once again we are at the end of our training session for the day. Hopefully, you learned some interesting and new facts about the terms and acronyms we use on a daily basis. And once again I urge you to use the preceding CK to the best of your ability. Finally, remember even the best pilot can't fly until you say it is ok to fly.

MIKE BRODERICK is Vice President of Business Development at Helicopter Engine Repair Overhaul Services (HEROS). Over the past 35 years, he has served as a shop technician, engine shop supervisor, Engine Program Director, Director of Maintenance, Director of Operations, and owner of a Rolls-Royce engine overhaul and MD Helicopter component overhaul shop. He is a certified A&P, and holds a Bachelor of Science degree in Aviation Administration. As well, Mike has been appointed as an FAA representative for the FAA Safety Team (FAAST) and is a member of the HAI Tech Committee. Mike is a regular contributor to Air Maintenance Update. ■

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PAMA SoCal Chapter



September 2012 Meeting Wrap: Thank You Nate Klenke, Senior Modifications and Completions Sales Representative.

The SoCal Chapter would like to thank Nate and all at Duncan Aviation for their time and generosity in hosting the September 11, 2012 chapter meeting, dinner, and excellent technical presentation on "Painting Business Aircraft" at the 94th Aero Squadron Restaurant in Van Nuys, CA. To learn more about Duncan Aviation or reach Nate directly: www.DuncanAviation.com or Nate.Klenke@DuncanAviation.com.

September Scholarship Fund Raffle Drawing: \$319

Thank you chapter supporters: Aero-Nasch/Jet Brella, Business Aerotech, Consolidated Aircraft, Extraord-N-Air, Helicopter Accessory Svcs, HRD Aerosystems, Mather Aviation, Standard Aero LAX, Triumph Instruments, Zee Medical. All proceeds from raffle ticket sales benefit the SoCal PAMA Scholarship Awards Program.

Job Opening to Post?

Get the word out through SoCal PAMA. Send your postings to DanWRamos@verizon.net, including company name, logo, position title, location of position, and contact information. The SoCal chapter offers employment and educational opportunity postings free of charge on its website to the aviation maintenance community worldwide.

Scholarships

The 2013 SoCal PAMA A&P/Continuing Education Scholarship applications are coming to the SoCal PAMA website: www.SocalPAMA.org. Application Deadline: May 1, 2013. Awards: June 11, 2013

SoCal PAMA Website: Advertise Your Company

Advertise your company at SocalPAMA.org. It's only \$50 for 12

months. Contact Nikki King or Gail Erwin for posting a new ad. Renewal fees and artwork updates: nikki@extraord-n-air.com, gailjerwin@verizon.net. The SoCal chapter offers aviation event postings free of charge to the aviation maintenance community worldwide.

SoCal Board of Directors & Assistant Directors

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- Bill Johnston, Vice President, wjohnston@raytheon.com
- Dan Ramos, Treasurer/Website/Broadcasts, danwramos@verizon.net
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- Veronica Lozano, Asst. Meeting & Raffle Prize Coordinator, veronica@rotorcraftsupport.com
- Phil Samuelian, Website/Photography, psamuelian@me.com

PAMA Mission Statement

The mission of PAMA is to promote continuous improvement in professionalism and recognition of the Aviation Maintenance Technician through communication, education, representation and support.

SoCal PAMA News

Dan Ramos, Publisher; Gail Erwin, Editor

PAMA Hartford-Springfield



September Chapter Meeting Follow-up

Thank you to all in attendance of the September Chapter Meeting at the Skyline Restaurant in Windsor Locks, CT!

A big thank you goes out to our speaker Chris Holder, Eastern US Sales Manager for Concorde Battery, who gave a very informative and enthusiastic presentation on the care and maintenance of lead acid batteries. This presentation not only served as a welcome refresher of good everyday practices when servicing and handling lead acid batteries, but also provided a peek into the manufacturing and testing processes performed at the West Covina, CA, Concorde facility.

During the presentation, there were intriguing discussions regarding the potential use of Lithium Ion batteries in general and commercial aviation in the near future. Throughout the evening, Chris took time to cite many of the fine points of Concorde batteries over the competitors. One point that stuck with me most is that each and every battery that comes out of the Concorde Battery facility is hand-constructed and tested by Concorde personnel, and is 100% guaranteed to work when it is packaged and shipped out for customer use.

In addition to the knowledgeable words of our presenter, each person in attendance at the meeting also received a Dale Crane Maintenance Technician Spiral-bound Pocket Handbook, courtesy of the fine folks at Concorde Battery.

PAMA First State



Chapter News

The chapter has filled the remaining chapter meeting guest speaker spots until summer:

- January — Dallas Airmotive
- February 9th (Saturday) 8 a.m. — Maintenance Symposium
- March — Jet-Care: Hydraulic & Oil Analysis Services as Preventive Maintenance
- April — CAMP
- May — Sharp Detailing

Planning is underway for the First State Chapter PAMA Maintenance Symposium on February 9, 2013 at the Deerfield Country Club in Newark, Delaware. One of the most important aspects of this eight-hour maintenance training is that we keep it accessible to everyone. That is why this will always be a FREE event and will always be conducted on the weekend so everyone can attend. The day will include breakfast, lunch, and an after event cocktail party, all for free. Last year, we had 350 people attend our 10th Annual PAMA First State Chapter IA Renewal and Maintenance workshop. This was co-sponsored by Dassault Falcon Jet and ICG. Each technician received eight hours towards their AMT award and IA renewal.

As part of our show, we also have a mini trade show. Last year, we had 36 vendors set up in the trade show area. Registration for attendees and sponsors began December 1, 2012. All attendee registrations will be done online at www.firststatepama.com. An email was sent out

to everyone December 1, 2012 with instructions on how to become a sponsor of this event and obtain a table at our mini trade show. If you have any question on the symposium, please do not hesitate to call John Agnew, President, at 302-983-0042.

11th Annual First State Chapter PAMA IA Renewal / Maintenance Symposium (2005, 2009 Chapter of the Year)

Saturday, February 9, 2013 8 a.m. Sharp:

Eight Hours of FAA approved IA Training. All day trade show with 32 vendors showing their products and services. Deerfield Golf & Tennis Club; 507 Thompson Station Rd., Newark, DE 19711; 302-368-6640

- Breakfast starts at 7 a.m.
- Training sessions start at 8 a.m.
- Full Buffet Lunch served noon – 1 p.m.
- Training sessions end at 5 p.m.
- Happy hour drinks and hors d'oeuvres: 5 p.m.
- Door prizes all day

ALL FREE. Registration starts December 1, 2012 at www.FirstState-PAMA.com

Vendors interested in sponsorships for this event or tables at the trade show can contact John Agnew, President, at admin@firststatepama.com or 302-983-0042. Last year's attendance: 350

Canadian Federation of AME Associations



Newsletter – October 2012

The Canadian Federation of AME Associations (CFAMEA) held their Annual General Meeting October 21 – 22, 2012, in Toronto, where members from the regional associations gathered on the first day to review their progress for 2012, set objectives and priorities for 2013, and select a new leadership team.

Hearty congratulations to Ole Nielsen, nominated as the next president of CFAMEA, replacing Ben McCarty who decided to step down following his many years of devoted service. Ole will be supported by CFAMEA Vice President, Rod Fisher from the Western AME Association.

The second day was devoted to discussions with Transport Canada. Jeff Phipps, Chief Operational Airworthiness, provided an update on the new organizational structure now in place at Transport Canada, along with an update on the CARAC process, regulatory exemptions pertaining to aircraft maintenance and a recovery plan to eliminate the backlog in the Notice of Proposed Amendments (NPAs) to the Canadian Aviation Regulations. Martin Eley, Director General

Civil Aviation, spoke about the implementation of Safety Management Systems. Additional discussions were held on the subject of Fatigue Risk Management (FRM), offering CFAMEA the opportunity to express their candid views that proposed regulations on FRM would be unmanageable.

And as we transition to a new leadership, we want to express our thanks and gratitude to Ben McCarty for the energy and time he has devoted to raise the visibility of AMEs, both with regulators and within the aircraft maintenance industry – and for evolving CFAMEA to what is it today: the bona fide organization representing AMEs in Canada.

CFAMEA is comprised of representatives from each of the regional associations, namely: 1) AME Association of Ontario, 2) Pacific AME Association, 3) Western AME Association, 4) Central AME Association and 5) Atlantic AME Association.

Sincerely,
 Board of Directors
 Canadian Federation of AME Associations



From the Tower

Bob Rorison President

Why belong to PAMEA? The question has been posed since 1983 when PAMEA began, and directors have been answering to the best of their ability ever since. This same question has been asked in every other trade or professional association as well. Below is one of the best articles I have seen written on the subject.

Why Belong to an Association?

How many times have you been asked to join an association or asked why you belong to an association – or what can an association “do for me?” Theodore Roosevelt put it very aptly when he said: “Every man owes a part of his time and money to the business or the industry in which he is engaged. No man has a moral right to withhold his support from an organization that is striving to improve conditions within his sphere.”

Since it costs money to belong to an association, it is logical to ask: “What can an association do for me?” A probable answer could be “nothing”. An association can do things with you (with your support, expertise, cooperation, etc.), but not for you, per se. Apply the same principles to your business – it can’t do anything for you unless you do something for it. You invest money in a business as well as your time and energy. The degree of success depends on the talents, time, and energy expended, even more than the amount of money invested.

The same holds true for associations. The dues-dollars represent an investment, just as it does in one’s business. There are certain functions and services that the association, acting in consort with its membership, can perform – but to be successful in its efforts, the association requires the support and involvement of its members. It needs the collective thinking of all concerned to formulate plans, and it requires the physical effort of its membership to put those plans into operation.

A recent survey indicates that 85% percent of all economic failures were of firms not connected with a trade association. It would appear also that the businessman or woman who rebels against paying association dues is always the first to criticize and to say an association does him or her no good. However, he or she is always on the front line to take the benefits that come his or her way as a result of the association and its dues-paying members.

These benefits don’t just happen. They are the result of a lot of hard work and effort by the great number of individuals who devote time and energy to get the tasks done. Just as 100 individuals going their separate ways in trying to dam a river, dig a tunnel, or build a highway would result in disorganized chaos, so it is with industry aims that lack the power of an association effort. But, just as the efforts of those 100 individual (organized under a single leadership with mutually agreed plans and specs) can dam that river, push a tunnel through, or get a highway down – so goes an association function, by taking many small parts and joining them into a cohesive mass that gives the group power. But, there is more to association membership benefits. One, which is a pure bonus, is the benefit of business coming one’s way simply because of membership. Given equal cost and service,

association members just naturally prefer to do business with those who share the load of maintaining their group. Many have found that this “fringe” benefit will more than offset dues and other costs of participation. That makes it a refutation, so to speak, of the old adage “you can’t have your cake and eat it too”.

Granted, the benefits of association membership are many and varied and there still are those who fail to see how it will benefit them. My answer to this group is simply: “Come on in and find out. Get your feet wet.” Associations, after all, are a lot like insurance. When one has no problems, one has no need of insurance. When someone does have a problem, if he doesn’t have insurance, it’s too late for it to help. Our industry (contracting) has many potential problems in labour relations, government dealings, environmental problems, etc. The contractor who comes face to face with one of those problems before he joins an association will be just like the man with no fire insurance, watching his house burn down.

Note: This article was written by John Bebeck, President of the Engineering Contractor’s Association. It appeared in the July 1978 issue of Journal of Commerce.

Did you become an AME because you wanted a job, or did you become an AME because you wanted a career? If your answer is “CAREER”, then you will understand the benefits as described above, of belonging to an association. The people who belong benefit, and the people who get involved, benefit ten-fold over their counterparts. It is said that PAMEA members are only representing AMOs, not AMEs. If you look at it one way, that may be true, because PAMEA members are leaders; they get involved, make change, have connections, and they rise to the top on every occasion. If you want to be a great AME, belong to PAMEA, where the great people are. If you want to be a leader, consider a position as a director in PAMEA, where great learning and preparation for leadership are presented, and where connections are made.

PAMEA 30th Annual Maintenance Symposium

“What if we gave a party and no one came?” With only a short time to go, the symposium committee members are beginning to worry that they have committed PAMEA to the 30th anniversary birthday cake and there will be no one coming to eat it.

The program is falling into place and there will be lots of choices. Wednesday will see two half-day workshops that will receive separate training certificates. The first one, on Wednesday, January 16th, from 8 a.m. to noon is “Safety Management Systems Made Simple and Useful.” Even if you are not required to have an SMS, this workshop will illustrate how an organization can reduce its costly human errors, as well as other threats that cost money when they bite. A functioning SMS is good for the bottom line as well as demonstrating that safety is actually a top priority of your company.

The second workshop will run from 1 p.m. to 5 p.m., and deals with “Advanced Human Factors for Humans.” It will look at the role

that the attitude of the person plays in human error. Company culture and norms will also be analyzed for their role in accidents. The participants of each workshop will receive a certificate of attendance.

The symposium will have a full slate of sessions on Thursday (January 17th) and Friday (January 18th). Saturday morning (January 19th) will see a panel, re: AME/aircraft owner maintenance issues and a Transport Canada forum where any issue, concern, or question can be brought up and resolved or at least discussed.

Our annual general meeting will be held on Thursday afternoon and will have several items that the membership must vote on. Thursday evening will see the banquet with several awards given out, and our special guest speaker, Kevin Psutka, president of COPA, speaking on professionalism.

Following this, there will be two mystery entertainers enlightening us on "When you married me, you married aviation" and for the confirmed bachelor, "Why the Wright brothers never got married." While there is no certificate for this, there will be a door prize, so bring

your significant other in order that they can understand what they will get, or have got themselves into.

Your association has lost money over the last two symposiums, and if we are unable to at least break even, there is a sad possibility that this could be the last symposium. The cake has been purchased and the candles are being lit. Please do your part and come as well as encouraging others to attend.

This year the symposium committee is arranging to have the best speakers on the most important topics. The topics range from "why batteries explode" to "how to stay out of jail". We have the most knowledgeable representatives of some of the OEMs and the best AMOs who will bring us up to date with "what is happening to our equipment" in the rest of the world.

The Feds are coming in a big way with information and advice to help us work through the system. Every person out there who has, or is considering, a career in aviation needs this information to make competent decisions.



AME Association of Ontario

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email: association@ame-ont.com website: www.ame-ont.com



Annual General Meeting

The Annual General meeting of the AME Association of Ontario was held at the Meadowvale Conference Centre in Mississauga on October 18th. Approximately 50 members and observers were on hand to receive the Board of Directors' Annual Report. The new Northern Region Director, Sheldon Wabich, was introduced.

Warren Couch, association president, and Sam Longo, vice-president, briefed the attendees of the many activities and benefits of our association including: free subscriptions to four aviation magazines, reduced AME related insurance rates, free admission to the Canadian Warplane Heritage Museum, and special training courses. Treasurer, Jasper Megelink, presented the financial statements, which showed a balance consistent with previous years.

The Board of Directors meet monthly and welcome association members who wish to attend. The board's goals are to grow membership, educate, communicate and provide balanced finances with a disciplined budget. We provide scholarships to students at the various aviation programs and we serve on the Program Advisory Committees of four colleges.

Long-term service awards were presented to members who have been supporting the association for 20, 25, and 30 years. Although our association received its charter 28 years ago, the original members first joined 30 years ago, and were instrumental in the setting up of the

by-laws and in obtaining the letters patent giving birth to the association as it exists today. Many thanks to these members who continue to support us: H. Frank Gropler, Will Boles, Robert Horne, Tim LaBute, Leo Veilleux, Jim Fowler, Bill Pepler, and William G. Alexander.

Annual Symposium and Workshop

A very successful annual AME Symposium and Workshop was held at the Delta Meadowvale Conference Center in Mississauga, October 18th and 19th. Fifty-three booths were set up, and over 300 people attended the two-day workshop. Twenty-one sessions were scheduled for the attendees to choose from.

A new presentation this year was a 45-minute session that gave vendors five minutes each for a show-and-tell to highlight their product or services. This proved to be a lively and entertaining way to start off day two of the workshop.

The evening awards banquet was sold out. Winners of this year's awards were: Clare Leavens – Air Maintenance Update Magazine; Gordon B. Rayner – Tak Chiu, Robert McCombie, Dick Elliot; AME Hall of Fame – Norm Etheridge; and our newest award, the Aviall High Achievement Award, – Sam Longo

Sincerely,
Board of Directors
www.ame-ont.com

Western AME Association



President's Report

Well, another quarter has flown by. The Western AME Association has been very busy, and the directors are pleased to report that our website is up and running. It is by no means complete yet, but the basics are there. This was a long process, as we switched web providers and had to design a site from scratch. We would like to thank all who participated in the set up process and especially Dave Patton and Manage wise. Dave has volunteered to take training, and will in essence, be our content manager.

Our symposium committee has been very busy, and for those of you who do not know, Symposium 2013 is back in Calgary next year at the West Coast Plaza Hotel and conference centre. Everything is coming together well and it could be one of the best ever. All the details are on our web page along with on line registration. Book early, as most engineers I know would like to attend. Mini courses have not been finalized yet, but will be posted as presenters confirm their attendance.

At this time we would like to present Zolton Zubko of Discovery Air, and Jeff Reid with Westjet as appointed interim directors of WAMEA until they can be voted in at the next annual general meeting at the Calgary symposium in March 2013 at the West Coast Plaza.

As president I have been in attendance at the Prairie Northern Region Aviation Safety Council held in Yellowknife, and would like to congratulate all the AMEs in our region. Not once in all the presentations and accident overviews was maintenance mentioned as a contributing factor. Keep up the excellent work.

I just returned from Toronto and the CFAMEA national meeting. A lot of important issues were discussed. The minutes will be posted on the WAMEA website shortly.

One issue that was discussed at length was SI (staff instruction) 07 on fatigue risk management for engineers. We have taken the stance as directors of WAMEA and the national governing body of CFAMEA that we do not need it, it is not necessary, and it should be up to the individual maintenance organizations to write in their procedures or policies manual their limitations, and worker expectations. We are of the opinion that FMRS SI-007 will become large and obtrusive, not scalable, and will not take into consideration specific operator mission profiles. All the directors as well as Mr. Gordon Dupont from System Safety Services (who was in attendance) are of the opinion that fatigue risk management is covered extensively in our human factors training. This was brought to the attention of the director general civil aviation,

Mr. Martin Eley, who also attended the Monday meeting. It was an honour to have the director general in attendance and shows that they take our opinions into consideration.

At this time, the CFAMEA board of directors is looking for direction from the industry as to where to go with the issue of provincial Red Seal approval for the engineer in training (formerly apprentice). Because an AME license is not recognized provincially as an apprenticeship trade, prospective students are missing out on a substantial amount of provincial training sponsorship monies. CFAMEA had agreed previously to proceed with the Red Seal approach, but when brought to the WAMEA directors, there was a lot of non-support for this direction. I personally feel that, as a national body, we should approach the provinces to re-write portions of the provincial legislation to include aircraft maintenance engineers in training as a recognized profession.

On day two of our CFAMEA annual general meeting, presentations were made by Jeff Phipps of Transport Canada on the internal restructuring of Transport Canada. He gave a very good presentation on what TC is looking for as to high, medium and low risk companies for surveillance under SI/SUR-001 and the whole PVI process. It was interesting to note that transport surveillance is still interested in how safe a company is, and their compliance with air regulations, but also how the commercial operators are structured, the turnover of accountable executives, as well as how safety systems are presented to the employees and their understanding of them.

Another good point that Mr. Eley brought up is that the new issuance of NPAs (notice of proposed amendments) to the air regulations will adopt the approach of the FAA, NPRM (notice of proposed rule making), and adopt a cost section as to what a change may cost the industry as a whole.

We are working for you and appreciate any comments you wish to make. Comments that affect the engineer in training can be sent directly to me, as I am on the CFAMEA committee for the Prairie Northern Region to find out what the industry wants regarding this issue.

Create a safe day

Rod Fisher
President WAMEA
V/P CFAMEA
Email: fishr@sasktel.net

Looking for consistency among Aviation Regulators



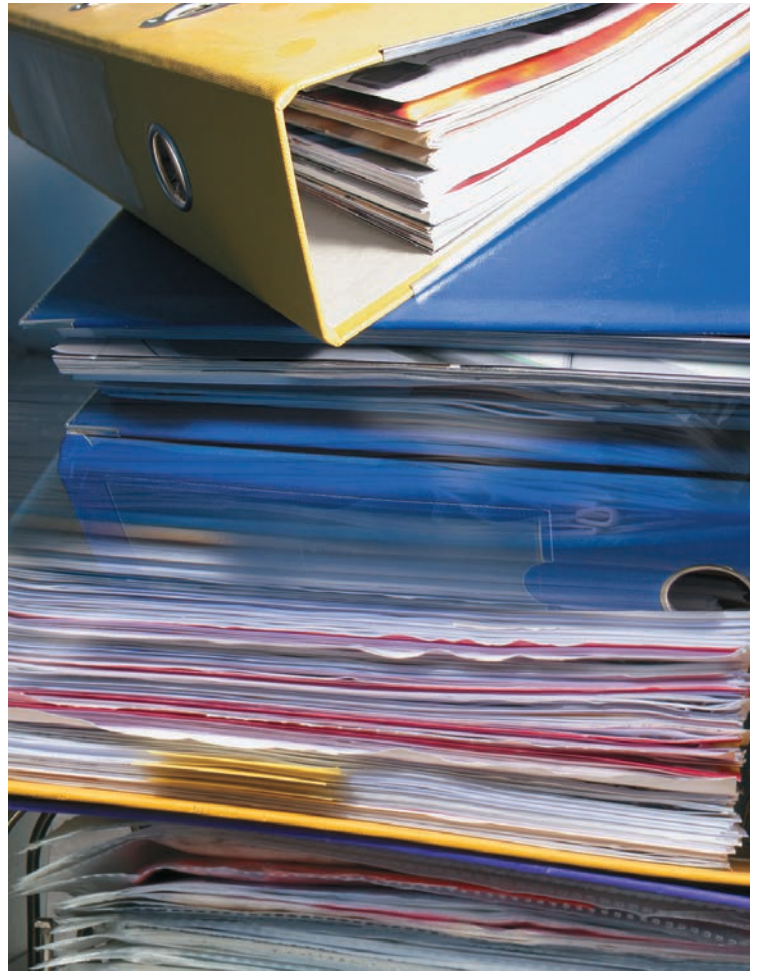
BY NORM CHALMERS
Pacific Airworthiness Consulting

Once again, we start out with

a letter from a reader. Martin Grechan wrote his “Letter To The Editor” (see page 6), and Ian, our editor, parsed a portion to me to use in my column, for which I thank him. In the second part of his letter, Martin brings us up to date regarding some of the results of his extensive research regarding his specific aircraft importation. He also brings up some new areas of requirements and perturbation. I suggest you read his letter as an introduction to this article.

The two significant topical areas that I point out are the technical web of requirements and the communication with the regulator (tewerecore). I believe you will find it all relevant and educational. I have reserved my comments for the end. Read on. **Martin writes:**

However, this may have opened another interesting can of worms that you may find interesting. It has to do with my interior furnishings and equipment. But a little background first.



My aircraft is serial number 258572, built in 2002. Up until serial number 258582 (10 aircraft after mine), Hawker Beechcraft completed all of their interiors and furnishings using the FAA Form 337 format as previously discussed, since every customer had different custom design features that they requested for their aircraft interior. It was only because the Europeans (EASA) did not accept this form of reporting but demanded that all interiors and furnishings be put on a serialized STC that Hawker Beechcraft finally submitted to and created LSTCs from that point on. If you look at the guidelines on TP13169 – Aircraft Importation Checklist paragraphs 3.1.4 and 3.2.6, they ask for an “approved configuration” based on a review of the type design and approved drawings.

The underlying word here is “approved,” which in my case, up until serial number 258582, Hawker Beechcraft only submitted FAA Form 337s and used Acceptable Data (not approved) to have their aircraft certified and given an American C of A. The irony here is that until a couple of years ago all aircraft were successfully imported into Canada based on the 337 format. How can Transport Canada retroactively demand that I have an LSTC, when at the time of aircraft certification, none existed? This, however, has led to another quagmire.

I bring your attention to the following reference documents:

- Canadian Airworthiness Manual Chapter 525.809 – Emergency Exit Arrangement
- FAA Memorandum dated October 17, 2008 (Memo number: ANM-115-08-02)
- Civil Air Regulation 4b.362, Title 14 Code of Federal Regulations (14 CFR) paragraphs 25.803(a), 25.809 (a), (b), (c) and 25.813 (c)
- Transport Safety Board of Canada Report Number A05Q0024

This deals with the issue of how the industry interpreted the accessibility for exiting the aircraft using the emergency escape hatch/door on transport category aircraft, specifically corporate aircraft, and how the FAA and Transport Canada, up until recently, accepted these alternate means of compliance using placards for stowing the seats which occupy the area adjacent to the escape hatch.

In reading the memorandum and with reference to Transport Safety Board of Canada Report Number A05Q0024, it is evident that the industry did not interpret the original mandate of having the access to the escape hatch completely unobstructed. Yet the FAA and Transport Canada up until now still accepted aircraft that had movable seats occupy this space. Now Transport Canada wants to see if my present configuration – which was designed, built, and certified 10 years ago – complies with this “clarification”

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as mentioned in the FAA memorandum. In retrospect, it can, but it would leave the amenities of the cabin configuration, as well as passenger comfort, in disarray. My operations people rightly conclude that if we are forced to comply with this request, then too should all other aircraft owners who have the same configuration. Our argument is, if Transport Canada wishes to make this unobstructed configuration mandatory they should issue a blanket Airworthiness Directive to all aircraft owners and operators to ensure that their cabin configuration complies with the initial intent of the standard as mentioned above and rejects all previous methods of compliance which used wording to arrange the seating for take-off and landing, and during emergencies.

Though I fully agree with the intent of the letter of the memorandum on a safety standpoint, I also believe that the owner/operator should not be made to correct the misgivings of the aviation authority with regard to older aircraft (prior to 2008) which have their interiors fashioned contrary to the information in the memorandum dated in 2008.

Just as a footnote, on a recent visit to a Hawker Beechcraft maintenance facility in the US, I was able to look into the interior of a recent Hawker 850 that was just two years old (built 2010). It had the same configuration as mine, with placards placed on the seat adjacent to the escape hatch instructing the occupant on take-off and landing seat positions. This aircraft was still given an FAA C of A, which to me, means that neither the FAA nor its representatives follow their own memorandums and interpretations. Where does this leave us today?

I thank you once again for shedding light on some contentious issues. I know both government and industry should be on the same page, but often too many exceptions can lead into this kind of misinformation, and ultimately can create costs, both with regard to financial and human issues.

— Martin Grechan

Thank you very much, Martin, for sharing that with us. Not many AMEs or other maintenance professionals do this amount of research. This is an excellent example of the lack of consistency amongst our aviation regulators. This has always been a problem, and always will be, as long as Transport Canada continues on its path of antiquated personnel management. TC does not train their inspectors adequately in these areas and has no quality assurance program similar to the one they impose on aviation. Maybe we can work together to raise the bar a bit at a time but that's up to the politicians.

There's one rant down, so back to business with my comments on the tewerecore.

The usage of the 337 form has almost as many variations as numbers of users. It ranges from the manufacturer using it as a mechanism to record changes to what one RS-DER told me, saying it's "only for field approvals". The 8110-3 has been

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less abused in the past, but with the FAA's changes in the US, I have already seen confusage (confused usage). In the "good old days" when an aircraft came into Canada new from the factory with less than 50 hours on it, we issued the Certificate of Airworthiness with only the briefest of inspections, looking only at the data plates of the aircraft, engines and props. We assumed that the factories knew more than we did. The requirements for what we now consider "Approved Data" have been very flexible. In the US, the FAA had a program for airlines to be able to make major changes without calling them "Major" and thus avoiding bureaucracy and fees. Importing these airline-type aircraft, looking only for major repairs and alterations approvals, are the stuff of nightmares.

Regarding the requirements for approved configuration, this is a unique area of aircraft design and approval. Normally the seats, bulkheads, passenger convenience items, cargo tie-downs etc., are all approved, and the attachment system is approved. Attachment systems usually allow the items to be moved, providing for different configurations. For that, we usually go to the flight manual (or type certificate data sheet) which normally allows various positions for this stuff. If requirements of those documents are satisfied, then all you need to do is create an empty weight and balance document for each configuration. The reference for that is Standard 571, Appendix C.

Regarding aircraft that vary from Canadian requirements when approved in the US, Transport Canada often created exemptions to the requirement, the mention of which which can

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usually be found in the Canadian type certificate data sheet under the title Basis of Certification. The actual wording and content of these documents are buried in the docket files in Ottawa. The caretakers of that information are the people in the Aircraft Certification group.

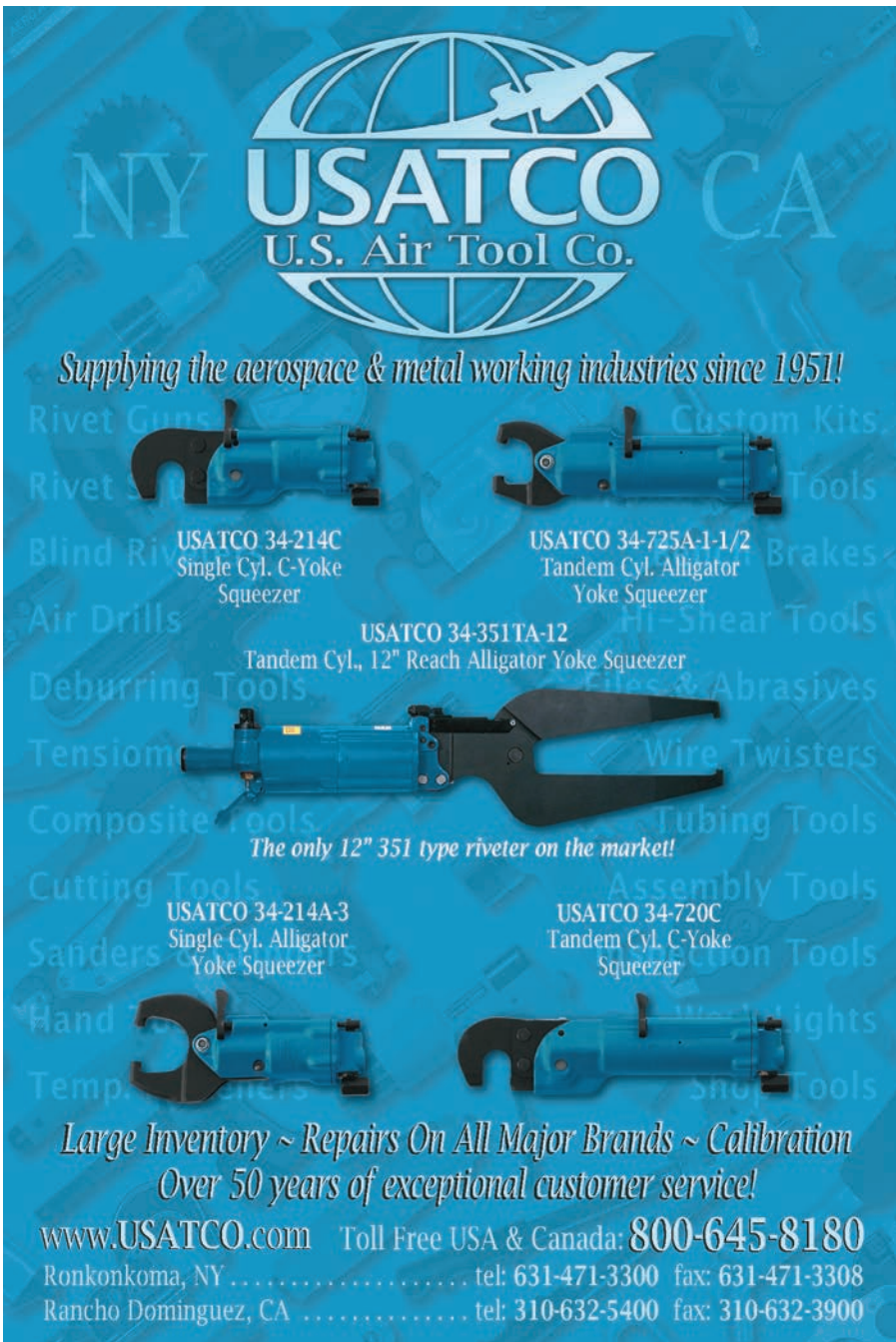
Regarding retro requirements, for each of your aircraft, the type design and type certificate data sheets approved for your aircraft back when it was built are still in effect. The FAA approved the type certificate with all the attached support data, including configuration and assembly drawings. The FAA approved Hawker Beechcraft to manufacture the aircraft in accordance with those assembly drawings.



If the drawings were wrong, then it was a design data problem. If the aircraft as assembled did not conform to those drawings but was approved, and a Certificate of Airworthiness was issued, then it was a manufacturer approval problem. . . every aircraft affected needs to be included in any action being considered.

If the drawings were wrong, then it was a design data problem. If the aircraft as assembled did not conform to those drawings but was approved, and a Certificate of Airworthiness was issued, then it was a manufacturer approval problem. With either situation, every aircraft affected needs to be included in any action being considered.

As I stated before, the requirements are specified in the “Basis Of Certification”. Here our example has been FAR 25, way back when. Subsequent changes to the type certificate data sheet, adding more models, do not change your



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requirements, as they remain locked in time. If your basis of certification is a US document, the FAA (bless their hearts) have made our task of finding this information easy-peasy. Go to the FAA web site under FAA Regulations http://www.faa.gov/regulations_policies/faq_regulations/ and select Historical CARs or FARs as applicable and work down to the applicable document and date you want. That is really drilling down into the requirements. For most situations, the type certificate data sheets will provide the starting point, with interior configuration information and references to the flight manual.

In his letter, Martin mentioned the Transportation Safety Board (TSB) Report Number A05Q0024. Often accident and accident reports point out weaknesses in the original aircraft design. Others point out errors in the original manufacturing and approval process. Governments can make design changes mandatory, not by making changes to the original type design, but by issuing Airworthiness Directives. Ergo, without an AD, there is no retroactive change. Note that in this case the original Certificate of Airworthiness would have been issued by an FAA designee/delegate which complexifies things. If numbers of aircraft were manufactured or altered/modified, certified, and released to service when they did not comply with requirements, the Civil Aviation Authorities (CAA) logically must take comprehensive corrective action.

It is apparent from the TSB accident report that TC has known about this issue since 2005 but decided that it was not a safety or regulatory issue. They did nothing. In other subject

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areas, the Ottawa headquarters groups do not know what to do, so they dump it on the regional inspectors and say “do your job”. No decisions are forthcoming until the client starts legal action against TC.

There are a variety of terms that come to mind, including errors and omissions, due diligence and screw-ups. The root cause is often poor or non-existent training and the lack of time to do a good job. Basic training for inspectors in the details of approving company manuals, inspecting aircraft and most other activities, is left up to the on-the-job trainers. That way, everybody makes the same mistakes.

When a diligent TC inspector stirs up a ghost of past mistakes, it is often ignored in hopes that it will go away. TC generally has three levels of action to deal with problems:

1. Do nothing, ignore it and it will go away.
2. Divert the problem by writing a 300-word letter, avoiding the issue. Note: letters do not need to be fatuous or incomprehensible, but often are.
3. Do something.

In the last paragraph of his letter, Martin writes: “neither the FAA nor its representatives follow their own memorandums

and interpretations. Where does this leave us today?” Add TC and all the other CAAs to the list of offenders. That my friends, is my bread-and-butter for this column.

It leaves us in the position of requiring reasonable resolutions. To the credit of TC management, they raised the issue up a notch. In some cases, we need to keep going up the reporting line at our CAA until we get to a level authorized to make a decision. If the minister asks me for my thoughts on this (we know that will never happen), I believe that an AD ought to have been issued in 2005 in reaction to the TSB accident report.

My ongoing concern is that another aircraft accident will happen and people will die because the exit is blocked by furnishings. In this case, it is incumbent on the FAA and TC to deal with this at a high level. Make the stuff removable, folding, or some other clever solution, but do something, and get it done.

Now for something different, but related. TC has discarded the term “Limited Supplemental Type Certificate” (L/STC) and now limits application of approvals by issuing STCs with serial numbers of the aircraft or Serialized STCs. This follows the paths beaten by the FAA and Europeans.



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Now for something completely different. In August I wrote to the TSB, pointing out that many reports are issued without drilling down to root causes. Many reports just blame the pilots. The TSB response told me how wonderful their investigator training is, but avoided answering my complaint. The TSB report mentioned above is a good example of the blame-and-train philosophy. Recently published reports A11O0098, A11O0222, and A11C0102 blame the pilots. A11Q0028 mentions lack of training but blames pilots. Report A11C0079 puts the blame on diamonds (look that up). Report A11C0100 refers to pilot workload and aerodynamic stalls, insinuating that pilot error was the issue, as does report A10Q0218.

The TSB needs to drill down to the root causes of these accidents. They have done this in the past, and for this I give you the example of report A05P0227.

With Safety Management Systems (SMS) and Program Validation Inspections (PVI), TC is pushing every aviation company to do root-cause analysis by asking why, and in doing so, is drilling down into company management (corporate culture) until they reach one or more causes. By correcting or removing the causal elements, the problem will not happen again. I agree with the TSB that they have very well trained investigators who do amazing work, as evidenced by all the above-mentioned reports, but not one of them reaches the root cause(s) as envisioned by the TC SMS propaganda.

If the TSB is suffering from the same hacking and slashing of personnel numbers, qualifications and training as is TC, then what we see now is the way of the future: erosion of the good parts of the status quo.

As I have stated before, aviation as a form of public transportation is viewed by government as safe enough. The regulations are good enough. The implementation is good enough: no more money, onward with SMS/PVIs, and regulation by edict from the sensory deprived Tower Of Darkness.

On that uplifting thought, I leave you with my final and inevitable but important paragraph:

Please be aware that I am not a lawyer or legal expert. What I write in my column is not legal advice or legal opinion. If you face a legal issue, you must get specific legal advice from a lawyer and preferably one with experience in the aviation matters in your own country.

NORM CHALMERS worked with Transport Canada as an Airworthiness Inspector for 25 years. Before this, from 1967 to 1983, he worked in the aircraft maintenance industry in and around Western Canada and in the Arctic. His industry experience includes the operational maintenance of normal and commuter category aircraft and smaller transport category aircraft in the corporate sector as well as several years working in major repairs in the helicopter sector. As an Airworthiness Inspector, he has been responsible for most duties related to the position, including the approval of all aspects of maintenance, manufacturing, training, and responsibilities related to distribution organizations. Norm now operates Pacific Airworthiness Consulting; www.pacificairworthiness.ca. ■



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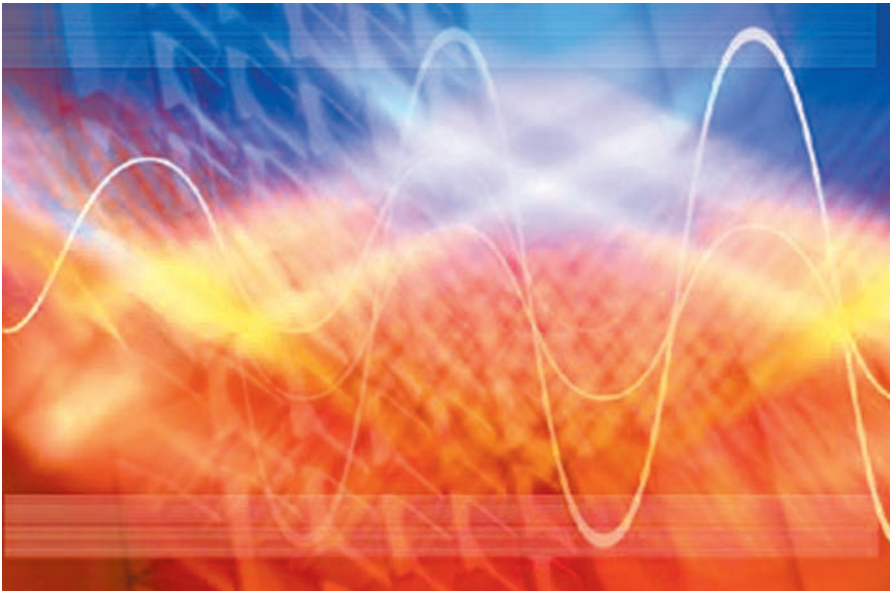
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HIRF explained



BY GORDON WALKER, AME 'E',
Professor of Avionics
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To the many young people beginning their

careers in the field of aviation, I say “Welcome”. To those who have specifically chosen the avionics side of the business, I would add “Congratulations”. You’ve made an **awesome** career choice. My own career has spanned five decades, from the 1970s to the present day, and I’ve never had cause to regret my decision. When I abandoned my first career choice – “Rock Star” – by selling my 1962 Fender Mustang guitar for \$200 on a Toronto bus, I committed to a life in aviation that has been fulfilling and rewarding. Having always been fascinated by aircraft, and all things mechanical and electronic, the world of avionics has allowed me to immerse myself in an industry full of exciting and innovative technology. The advent of the microchip in particular, has

led to a veritable revolution in the aviation electronics world.

The cockpit of today bears little resemblance to those of the past: the myriad of complex instruments replaced by a few simple video screens; the heavy control yoke, once connected to ailerons and elevators by means of cables, pulleys and bellcranks, replaced by a lightweight plastic computer joystick; and of course, most significantly, the highly skilled pilot, once responsible for physically flying and navigating the aircraft, replaced by a data entry clerk, whose primary job is to monitor the operation of the autoflight system, and look good for the public in a snazzy uniform.

These improvements and innovations are all made possible through the use of digitalized electronic hardware, and brilliantly designed software. Computers using digital data buses communicate commands and feedback signals between navigation systems (GPS/IRS/IIS etc.), flight control surfaces, cockpit video instrumentation, control inputs (joysticks/switches/selectors), engines, and system controls (bleed air valves, fuel pumps, fire bottle squibs etc.). These digital communications are, essentially, voltage pulses travelling along wires. When voltage is present, a digital condition of “1” exists; when voltage is removed, a digital condition of “0” exists.

By designing protocols in which timed sequences of pulses represent information or “intelligence”, digital systems are able to communicate information and send command/feedback signals throughout the network, or in our case, the aircraft. For example, imagine a simplified engine control system concept. *(Continued on page 36)*

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To control the speed of the engine, the engine control computer could use a protocol with as few as two pulses. If the computer sends two pulses of voltage to the fuel control module on the engine, the module will deliver more fuel and cause an increase in RPM. If the computer sends only a single pulse, the module will interpret this as a “decrease speed” signal, and reduce fuel to the engine. Should the computer send no pulses, the fuel module on the engine will not change the amount of fuel it is delivering, thus keeping engine RPM constant. These three conditions would be represented digitally as 11 for increase speed/fuel or 01 for decrease speed/fuel, and 00 for maintain current speed/fuel. The actual protocols are, of course, far more complex than this but the concept is the same. One can easily imagine how this concept can be used for all of the various digital systems aboard an aircraft, such as 11 meaning turn left, 01 meaning turn right, and 00 meaning maintain heading.

The digital concept is fantastic in its simple elegance. There is no maybe condition, only 1 being ON and 0 being OFF. Wouldn't it be grand if life was so clear and simple? Not so fast. Imagine the consequences of erroneous transmissions of those 1s and 0s. Surely that's not possible, is it? The answer, unfortunately, is YES, and that brings us to this month's subject: High Intensity Radio Frequency (HIRF) Explained.

We've looked at advanced digitized computer concepts. Now let's take a step back and revisit some very old electrical principles in order to understand the concept of HIRF problems.

The old fashioned step-up/step down transformer works on the concept of electromagnetic induction. Whenever current passes through a wire, a magnetic field is created around the wire. Similarly, whenever a wire moves through a magnetic field, or has a magnetic field move over it, a voltage is created and a current flow is induced into that wire. When current passes through the windings of a transformer's primary coil, a magnetic field is set up around that coil. This magnetic field passes over the transformer's secondary winding, and induces a current flow in that winding. (Whether the voltage is stepped up or stepped down depends on the ratio of turns in the primary, to turns in the secondary.)

Digital busses and circuitry can act in the same way as the secondary winding of a transformer. When an electromagnetic field passes over them, a voltage can be induced, which could be interpreted as a digital pulse. This can occur when an aircraft flies through an area of strong electromagnetic radiation. Such conditions exist in the vicinity of high-powered radio transmitter antennas. Consider the huge increase in transmitter sites as a result of the recent increases in wireless communications, satellite communications and navigation systems, as well as high powered radio and television antennas, all of which are transmitting the type of HIRF which can lead to interference with digital avionics systems.

To exacerbate this problem, aircraft were once made of aluminum, the purpose of which was to reflect, absorb and discharge radiated RF energy. Composite airframes offer none of this protection. Composite materials are invisible to electromagnetic energy, and these electromagnetic fields are

therefore able to penetrate the airframe and induce unwanted voltages into digital databus wiring and electronic circuitry. With recent booms in the personal electronic device market, passengers carrying all manner of cell phones, smart phones, electronic tablets, handheld games, navigation systems, and so on, can also pose a potential threat to an aircraft's digital systems. Many of these devices, such as cell phones are actually radio transmitters, and even those that are not transmitters still contain electronic clock/oscillators which could potentially generate a frequency that is similar to that being used by an avionics system.

How then, do we protect our carbon fibre, fully digitized, fly-by-wire, FADEC-powered aircraft from the perils of HIRF and onboard electromagnetic interference (EMI)? A big part of the answer lies in a piece of information we've already touched on. The fact that a metal airframe is able to absorb and reflect electromagnetic energy means that by putting a metal “shield” around wires, we can prevent electromagnetic interference. When electromagnetic energy passes over a shielded wire or wires, most of the energy is absorbed or reflected by the shield, rather than inducing unwanted voltages into the wires themselves. Shields can also be used on wiring which may emit strong electromagnetic fields, such as ignition or generator circuits.

Shielded wiring goes a long way towards reducing problems associated with electromagnetic interference, but like most things, it only works when the appropriate level of shielding is employed, properly installed, and maintained. Failure to do so could result in engine failures, loss of flight controls, navigation errors and catastrophic loss of an aircraft.

Whether you're new to the field of aircraft maintenance, or an old, long-in-the-tooth character like me, it's important to always be thorough, diligent, aware, and conscious of technological changes that affect our industry.

Q: What is the most effective way of reducing HIRF interference?

Answer to previous question:

Q: Why is inertial navigation preferred over GPS for unmanned aircraft?

A: Inertial navigation does not require any external inputs from radio stations, satellites or magnetic compasses.

GORDON WALKER entered the avionics industry after graduation from Centennial College in 1980. His career with Nordair, Air Canada, CP Air, PWA, and ultimately Canadian Airlines took him to many remote corners of Canada. Since leaving the flight line to pursue a career as a college professor, Walker has continued to involve himself in the aviation/avionics industry, by serving on several CARAC Committees concerning the training and licensing of AMEs, being nominated to the CAMC Board of Directors, and being elected President of the National Training Association. (NTA). ■

Perception Part 2

Group Perception

BY SUE YOST

The last article (AMU Aug-Sept)

dealt with some of the problems with an individual's perception and problems that can arise from them. The most common human factors that will affect an individual's perception are lack of communication, pressure and stress from any source, and fatigue and health levels. This is a subject that is so deep and complicated that we could spend months discussing the various aspects, causes, and results, but my main purpose is to get you thinking about it.

The ironic part of this whole exercise for me was my perception, in the beginning, that it could be a great subject to write about, because there are so many areas to include. Much to my chagrin, it has become an exercise in frustration, just for that reason – so much information, so many areas, and so little time and space. But read on for my perception of some groups that will have a regular impact upon your work, and common misconceptions and perceptions.

No engineer can work without suppliers and customers, and these groups are not always the best educated in the needs and requirements of the AME's work. The suppliers perception of an "AOG" and "asap" may be totally different from yours (you need that part



yesterday) and they may not realize that this one component is holding up the whole inspection/repair process.

As for bogus parts, any perception that they are OK to use because they will get the job done cheaper – well, I just won't go there. That is just so very wrong on so many levels, that it defies any rationalization.

Your customers are relying upon their aircraft to generate revenue, and when you have their little money machine in the hangar, what may be a simple component installation or skin repair to them will often include more detailed procedures on your part, and replacement of expensive parts. (Maybe you open an inspection panel and find corrosion). This will lead to more time and money than your clients had anticipated. Communication before, during, and after the job will help them to understand what has to be done to keep their aircraft flying and safe.

Possibly the biggest group that is totally uneducated about aviation is the public. The majority identifies anyone in aviation as a pilot (or in the case of a female, they will ask if you are a flight attendant). WOW, multiple misperceptions there. “No, I am an engineer” (and please don’t say “just an engineer”) and for the ladies, “No, I am an engineer” (or “No, I am a pilot”).

Maintenance is the forgotten part of the industry – the Cinderella in the hangar if you will – and as such, not recognized or appreciated for the critical work you do. (Read this article by Giselle Richardson: <http://www.flysafe.ca> click on “articles to read” and click “Cinderella” in the Flight Department).

The other common perception that is perpetuated (by customer service agents) is that when your flight is delayed, it is usually broadcast that it is due to a mechanical failure and that will take X hours to fix. You never hear an announcement that they are scurrying around trying to find a flight crew that is not timed out to fly the thing, or that someone on the ground has mixed up the bags on a connecting flight and they have to re-sort them all. It is easier to cry “mechanical failure” and now it is your fault that they can’t board for Aruba to see Granny or have a major business meeting.

Perception in these cases is usually the result of inadequate information relayed, and/or lack of experience. An AME’s perception of the time needed, cost, and preparation required prior to undertaking a job can be seriously misguided or off-track if a plan is not already formulated and completed ahead of time.

So, what other groups can have perception problems? Oh, yes, managers and TCCA. All too often, a manager will give you unrealistic deadlines due to a lack of experience (he has never been an AME). He/she is putting production and profit ahead of professionalism and procedures (there are the 4 P’s). They told the customer the aircraft would be ready in 72 hours, when it will take closer to 90, or they have caved in to the customer’s pressure to get the job done faster. Managers (in their air conditioned/heated offices) also have to realize that in the dog days of summer, or mid-winter, staff will work slower due to extreme temperatures and the related fatigue.

Managers may rationalize that if the job takes two AMEs four days to complete, then if they slam two more people on the job it will take only two days. Procedures and sequences need to happen to get the job done. Extra people often just get in the way and end up standing around because “too many cooks spoil the broth.”

Now, what about TCCA? Any misperceptions happening there? Well, maybe a couple. Probably the most common two I hear are the lack of consistent interpretation of the CARs, and the negativity associated with audits. “Oh no, an audit” is a cry heard throughout the hangar, as in many cases only the negative results are relayed to the workforce. Also, interpretation of the CARs seems to vary from one inspector to the next, and two years from now, when your inspector gets rotated to another region or retires, you have a new PMI and his perception of your operation, manuals, and records may not be the same as the previous one.

Remember the definition of Perception from Part 1?

- Awareness of something through the senses
- The way in which something is regarded, understood or interpreted
- Intuitive understanding and insight

People are human; humans see things differently when stressed, tired, or don’t have all the information associated with a task. Perception will change with experience, time of day, hours you have worked, and the norms of your workplace. Next time you are asked what you think of an idea, job, or plan, take the time to gather all information, ask questions, and consider the others in your team. If their ideas don’t jive with yours, talk about it, discuss the precepts, and get everyone on the same page, so that you are all pulling in the same direction.

Perceptions of safety and acceptable practices, CARs and manual interpretations, and the public perception of air travel are all there. Kick your safety nets into high gear, and keep perceptual errors out of the hangar.

SUE YOST is the principal facilitator for HPA Consultants, based in SW Ontario and providing quality workshops to maintenance and manufacturing for the last 12 years. HPA offers training in Aviation Maintenance Human Factors, classroom and online, QA, SMS, CRM and CARs. We also offer First Aid and WHMIS. Check schedules or contact us through www.flysafe.ca or call 519-674-5050. ■



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Not so Boring - Borescopes

A large part of our job maintaining aircraft is the never-ending task of routine inspections.

As an example, turbine engine hot section inspections quickly become lukewarm after tedious repetition. Of course, the need for these inspections is elementary. The hottest running components of any gas turbine engine must work in the engine's harshest internal environments, so of course these are inspected regularly to determine the engine's health. Turbine blades and nozzle guide vanes, along with combustion can liners, are the parts most likely to fail first, and are most vulnerable to extreme temperature anomalies. Ideally, by keeping a close eye on these components, usually by borescope, we can utilize early detection to catch a minor problem long before a potentially catastrophic engine failure occurs in flight.

One of the great advantages of attending the annual Ontario AME Workshop and Symposium is always the excellent selection of seminars to attend. This year's show was no exception, with lots of new and innovative equipment on display to dazzle even the most jaded AMEs among us.

My favorite seminar this year was the latest technology in 3D measuring borescopes hosted by Bill Tarant, General Electric's Sales Representative for Inspection Technologies. After a brief but entertaining overview of this tool's history, he proceeded to dazzle us with a demonstration of the latest technology in three-dimensional borescope techniques.

Perhaps I was easily impressed, having been out of active industry service for a while. In fact, many reading this may already be using this technology. In my opinion, the applications of fiber optics, lasers and computer software have been combined in such a way as to make this latest inspection tool quite revolutionary.

Backtracking through my personal aviation career, I thought it was pretty cool when you could do a borescope inspection and create a color video of what you viewed (originally by VHS tape, and eventually through digital technology). By doing so, you could expand your experience base, making judgment calls by sharing this information with others in the industry. Engine manufacturers, overhaul shops and other knowledgeable resources could then help you decide if that engine should continue in service or be pulled for overhaul. Good information to have when cracks appear, and it's your signature on the line.

With 3-D borescopes much of the guesswork has been removed. Any doubts about whether you are looking at carbon streaking or shadows is instantly removed. It has the ability to measure defects, such as cracks, very accurately using laser technology for length, width and depth. It can photograph this

information with pinpoint dimensions and can also create a rotating three-dimensional cloud view with superimposed dimensions that can be sent via email or transferred to a stick as a simple jpeg file. Assuming you have clear-cut parameters to make your judgment call and a laptop, your job has just become a lot easier. It can also be efficiently recorded and stored with the click of a mouse. It doesn't get much better than that. For an interesting and informative demonstration, contact Bill Tarant at GE (bill.tarant@ge.com).

The other lesson you should take from this column is to get out there and see what all the AME and PAMA associations have to offer at various workshops and tradeshow all over North America. It is well worth the effort. Besides being a great social and networking opportunity, you may actually enjoy seeing what new technology is out there waiting for you. In addition, you will be supporting the associations that work so hard on behalf of all aircraft technicians.

Since I have launched into the topic of tradeshow, it gave me great pleasure to present Bill Carter and AMU Magazine the Clare Leavens Award for 2012 at our Ontario AME Association banquet this past October. To loosely quote my presentation speech: In its 10-year history, AMU Magazine has done a great deal to mentor and support AME and PAMA Associations all over North America while simultaneously bringing us all a little closer together. It has provided a respected venue for our newsletters and has always provided topical and interesting articles about our industry. In short, it gives a voice and presence to all aircraft technicians across North America.

The Clare Leavens Award is presented in memory of one of the three founding brothers of Leavens Aviation in Canada. To quote the selection criteria, "the award is given to a Member of the Aircraft Maintenance Engineers Association of Ontario who, in the opinion of the directors and members, has made a particularly outstanding contribution to the continued success of the association." In my opinion, AMU Magazine has exceeded that criteria and is a very worthy recipient of this award. Congratulations to Bill, Ian and the entire crew at AMU.

As for the guy on the cover, all I can say is thank you all very much. Receiving the Aviall High Achievement Award is one of the true benchmarks of my career and I will never forget it. There truly is no greater personal achievement than to be honored and acclaimed by your peers.

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