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AirMaintenance UPDATE

The Magazine for Aircraft Maintenance Professionals

The Mightiest of Giants
the Martin Mars

HELI-EXPO 2012
HAI: 64 years of helicopter history

Transport Canada Approved for R/T

Publication Mail Agreement No. 0041039024
and Return Undeliverable Canadian Addresses to:
Alpha Publishing Group Inc.
Suite 2–203 4360 Agar Drive, Richmond BC, V7B 1A3
email: amu.magazine@telus.net

February-March 2012
Volume 10/Issue 5

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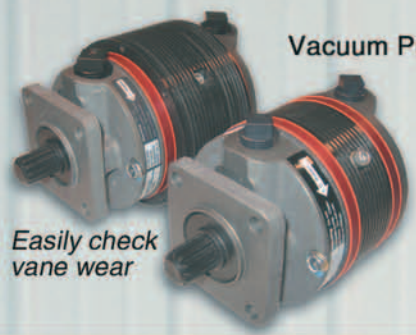

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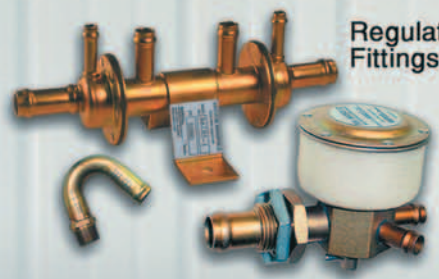

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Over Gross Weight. . . .

. . .is the maximum allowable total weight any one thing can bear. Now apply this to aviation. Most, if not all, professionals know what this term means, but it is a rarely used term outside of the transportation industry.

I have been hearing more and more about the single largest employer of our countries contributing to the over gross condition of industries. For instance, DOM's face such a stack of paperwork that the most valuable talent in the maintenance facility rarely, if ever, will be seen on the shop floor. In most circumstances, I would hazard a guess that it is not because he/she does want to be there, but rather simply cannot be. As a matter of fact, no one who does any type of maintenance work escapes the inescapable overburden that our government agencies place upon us.

Look at the FDA for example. There is currently a drug shortage in the USA. And why? It is not because the manufacturers cannot supply product. Rather, it is because the FDA continues to put more and more requirements (paperwork, increased application fees and continued audits with such paperwork trails that entire forests will be wiped out) that it becomes financially repressive and not worth doing business any longer.

Government agencies have a pretty good setup going! They set the rules, dictate how things are to be done, and assume zero legal responsibility. Moreover, they can and do change their minds, it seems, at will and expect everyone to keep up with them!

I know of facilities that have been in operation and doing the same things for 40 years. They have an impeccable record. Now they face closing the doors because some new inspector is interpreting the regulations differently from their predecessor, plus add in that some university specialist needed something to do, so they change the policies again.

How can anyone keep up with this continued overburden? Change for the sake of change? If it's not broke, then leave it alone!

In closing, I often wonder about these regulatory people. Don't they have families that may need that medical drug or procedure or that aircraft that may save theirs or a loved one's life? If they do, I guess they are going to be out of luck because GVW has been exceeded.

Sincerely,
Bill Carter
Publisher, AMU

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AMU is Viewable Online: Subscribe and Download at www.amumagazine.com

AirMaintenance Update

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phone: 604.214.9824 • **fax:** 604.214.9825
toll free: 1.877.214.9826

email: amu.magazine@telus.net **website:** www.amumagazine.com

Published by Alpha Publishing Group Inc.

Publication Mail Agreement Number 0041039024 and Return Undeliverable Canadian Addresses to:
Alpha Publishing Group Inc.
Suite 2–203 4360 Agar Drive,
Richmond, BC Canada V7B 1A3

managing editor: Ian Cook
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Publications Mail Registration No. 0007198278

Subscription Rates: 1 Year: $35.00, 2 Years: $55.00
AirMaintenance Update is published 6 X annually.

Corporate Member of:
HAC · Helicopter Association International · NBAA

ISSN 1703-2318

EVENTS CALENDAR

CANADIAN EVENTS

Central AME Symposium & Trade Show
March 7 – 9, 2012
Victoria Inn
Winnipeg, Manitoba
www.camea.ca

Helicopter Association of Canada
16th Annual Convention and Trade Show
March 16 – 18, 2012
Ottawa Convention Centre
Ottawa, Ontario
www.h-a-c.ca/convention

Atlantic AME ARAMC Conference
March 21 – 23, 2012
Harbourfront Hotel
Halifax, Nova Scotia
www.atlanticame.ca

Western AME Association
Annual Symposium and Trade Show
March 28 – 30, 2012
Mayfield Inn Conference Centre
Edmonton, Alberta
waa.roundtablelive.org

UNITED STATES EVENTS

Heli-Expo
February 11 – 14, 2012
Dallas Convention Center, Dallas, Texas
www.rotor.com

U.S. Corporate Aviation Summit
February 23 – 24, 2012
Sheraton Airport & Executive Meeting Center
Miami, Florida
www.aeropodium.com

Sun n' Fun International Fly-In & Expo
March 27 – April 1, 2012
Lakeland Linder Regional Airport
Lakeland, Florida
www.sun-n-fun.org

MRO AMERICAS 2012
April 3 – 5, 2012
Dallas Convention Center , Dallas, Texas
www.aviationweek.com

INTERNATIONAL EVENTS

Business Jet Interiors World Expo
February 22 – 23, 2012
Palais Des Festivals, Cannes, France
www.businessjetinteriorsworldexpo.com

India Aviation 2012
March 14 – 18, 2012
Begumpet Airport,
Hyderabad, India
www.india-aviation.in

Avionics Europe
March 21 – 22, 2012
M.O.C. Event Center, Munich, Germany
www.avionics-event.com

Business Jet Interiors World Expo
February 22 – 23, 2012
Palais Des Festivals
Cannes, France
www.businessjetinteriorsworldexpo.com

Asian Business Aviation Conference
& Exhibition
March 27 – 29, 2012
Shanghai Hawker Pacific
Business Aviation Center
Shanghai, China
www.abace.aero/2012/

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Mechanical Multiplier Wrench offers torque to 40,000 ft./lbs.

Advanced Torque Products has introduced its compact, high-capacity, ATP 40000 mechanical torque multiplier. This digitally-controlled wrench produces up to 40,000 ft./lbs. (54,233 N-m), yet is accurate to ±1%, even in extreme temperatures. The ATP 40000 employs all-mechanical operation, which eliminates the need for heavy pumps, unwieldy tubes and time-consuming bleed-off. Just torque-up once, and the wrench is ready to operate. Mechanical gears rotate on needle roller bearings with hardened and ground journal pins. An anti-rotation device holds torque without backing off.

For more information visit www.advanced torque.com

Aero Classics introduces factory new FAA-PMA oil coolers

Aero-Classics Heat Transfer Products has received FAA-PMA for their factory new replacement P/N 8001628 oil cooler for DHC-2 Beavers that use the aluminum P/N 60680 oil cooler. Aero's new P/N 8001241 oil cooler is an approved replacement for Beavers that use the 7-inch brass oil cooler. Aero's replacement coolers use the same valve and thermo-regulating modules as the originals. Each cooler comes with a 2-year/2,000- hour Limited Warranty and FAA Form 8130-3.

For more information visit www.oilcoolers.com

Olympus introduces the Palm-Sized Iplex Ultralite Videoscope

Olympus is pleased to introduce the palm-sized IPLEX UltraLite videoscope. This new videoscope is uniquely designed for remote visual inspection in tough environments and confined spaces. The IPLEX UltraLite weighs a mere 700 g (1.5 lbs.), and has a compact body for easy transport, making it the ideal choice for inspectors working in difficult field conditions. Ergonomically designed with intuitive, thumb-controlled scope articulation, the IPLEX UltraLite provides effortless and fatigue-free operation, even during prolonged inspections. In addition, a bright LED light at the scope tip eliminates the need for fiber optic bundles.

For more information visit www.olympus-ims.com

API Blended Winglets certified for Falcon 900 Series

Aviation Partners, Inc. (API) has received U.S. Federal Aviation Administration Supplemental Type Certificate approval for its High Mach Blended Winglets on the Falcon 900 Series. These are a revolutionary new design optimized for cruise speeds of mach .80 and higher. They provide a drag reduction and corresponding range increase, of five percent at Mach .80 and more than seven percent at long range cruise (LRC). In addition, retrofit Winglets for the Falcon 900 series will reduce operating costs and carbon emissions, and provide a dramatic visual enhancement. **For information visit** www.aviationpartners.com

Larson Electronics' Magnalight.com announces vapor-proof LED trouble light

Larson Electronics' Magnalight.com has announced the addition of a powerful LED trouble light to its line of LED work lights that produces four times the illumination of a comparable biaxial fluorescent bulb trouble light. The VPHLED-12W-25 is a compact and powerful trouble light designed to provide high light output with vapor-proof operation. Equipped with 25 feet of SJOW cord and featuring a rubberized housing and polycarbonate lens, this lamp is an ideal alternative to hot-running incandescent and fragile fluorescent trouble lights.

For more information visit www.magnalight.com

Hartzell Propeller introduces Scimitar Top Prop 2-blade conversion kit

Hartzell Propeller Inc. has received an FAA Supplemental Type Certificate (STC) for a 2-bladed propeller conversion kit for all normally aspirated PA-44-180 Piper Seminoles. The new Hartzell Top Prop kit features 74-inch diameter 2-blade aluminum compact hubs with "blended" airfoil Scimitar-shaped aluminum alloy blades that offer improved take-off and climb performance, reduced noise, an increase in single engine climb as well as an increase in balked landing climb with the gear and flaps down. This new STC was developed in cooperation with the Kent State University Aeronautics Program.

For more information visit www.hartzellprop.com

New AF-CLEAN Surface Cleaner replaces toxic solvents

Walter Surface Technologies has announced the creation of AF-CLEAN, a new, environmentally-friendly surface cleaner and degreaser designed to replace toxic solvents in the preparation and cleaning of metallic surfaces prior to treatment. This newest innovation from the company's Bio-Circle Environmental Solutions division underscores Walter's commitment to making green work. AF-CLEAN is the latest solution that helps create a cleaner, healthier, and safer industrial work environment. An ideal alternative to acetone or toluene for surface preparation, AF-CLEAN cleans and prepares metallic surfaces prior to painting, priming, coating, gluing, or corrosion protection. Compared to traditional solvents, AF-CLEAN is non-flammable, VOC-reduced, biodegradable, and less volatile. **For more information visit** www.walter.com

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West Star Aviation Certifies Wi-Fi on Gulfstream V

GRAND JUNCTION CO, Jan. 16, 2012 — West Star Aviation has announced that the company has been awarded STC approval to install Wi-Fi on the Gulfstream V. The certification includes connectivity via both or either Inmarsat Swift Broadband and the Aircell Gogo Biz networks using the Aircell CTR wireless router.

According to Rick Brainard, V.P. Sales, West Star Aviation: "The installation was completed on a West Coast-based FAR Part 135-operated Gulfstream V. This operator is well known for providing global charter services, and the addition of providing both terrestrial and satellite based broadband wirelessly will be very attractive to their clients.

"We have seen a significant trend in our customers to provide the same connectivity in the aircraft as they enjoy on the ground," said Brainard. "We have made wireless solutions a priority for all the aircraft types we service, and the Gulfstream V is the most recent example". Visit www.weststaraviation.com for more information.

ADI receives prestigious rating

WATERFORD, MI, Jan. 12, 2012 — Aerodynamics Inc. (ADI), a leader in full-service corporate and government aviation service providers, has announced that ARGUS International Inc., a global safety expert and watchdog within the aviation marketplace, has awarded ADI the prestigious Platinum Rating. The Platinum Rating is considered the utmost honor and is awarded only to service providers engaging in the highest level of safety practices.

The ARGUS rating system provides charter buyers with an insider's understanding and helps buyers pinpoint those whose historical safety records have been validated by objective safety standards. In order to receive the coveted Platinum Rating, operators must meet exhaustive operations and maintenance requirements. After performing the in-depth audit, ARGUS added ADI to the exclusive list of Platinum aviation service providers. For more information visit www.flyadi.com

Adria signs StandardAero to contract for CRJ APU support

TEMPE AZ, Jan. 10, 2012 — StandardAero has signed an exclusive maintenance agreement with Slovenia's Adria Airways for its Honeywell RE220 and GTCP36-150RJ Auxiliary Power Units (APUs).

Adria Airways is the flag carrier of Slovenia, operating four CRJ900 aircraft fitted with RE220 APUs and six CRJ100/200 aircraft fitted with GTCP36-150RJ APUs. Outside of the manufacturer, StandardAero is the only independent maintenance, repair and

overhaul (MRO) provider authorized to service the Honeywell RE220 APU, and holds a favorable position in the GTCP36-150RJ APU market.

All work will be performed at StandardAero's Maryville, Tennessee, facility, which has delivered over 5,000 APUs since the program started in 1995. The Maryville site is a one-stop shop that not only repairs the APUs, but all Line Replaceable Units (LRUs) associated with the APUs. Focused on repair versus replacement of parts, Standard-Aero works to reduce life-cycle costs of operation for its customers through increased reliability and industry-leading turnaround times. For more information visit www.standardaero.com.

WAMA names Mike Sullivan as Treasurer

WESTCHESTER NY, Jan. 15, 2012 — Westchester Aircraft Maintenance Association (WAMA) has announced the elevation of Mike Sullivan to Treasurer on its Board of Directors. Sullivan's background includes bringing to market various products and services to aviation, especially safety-oriented technologies, among them, Trend Monitoring, HUMS, Satcom and the Maintenance, Repair/Overhaul (MRO) of aircraft and aircraft systems. Sullivan spearheaded a project that garnered the Harry T. Jensen Award for 2005 from the American Helicopter Society (AHS) International for OuterLink Corp. The project involved two-way real-time satellite communication of in-flight aircraft systems data on a US Navy SH-60B Sea Hawk helicopter. He is a private pilot and

(Continued on page 42)

Race to the Future: the HAI and a look back at 64 years of helicopter history

BY MIKE BRODERICK
Helicopter Engine Repair
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From the humble beginnings of

Leonardo DaVinci's drawings, the helicopter has come a long way; and now, in 2012, the Maya calendar tells us that this is it. According to the HAI, though, we are looking towards 2013 and beyond optimistically. Today, as we review the history of the HAI, we will discover that although our current and future technology continues to enhance the safety and reliability of rotorcraft flight, some of the same issues that caused that first group of helicopter operators to form an association continue to concern us.

The Helicopter Association International is governed by a Board of Directors elected from the membership, with daily operations conducted by a dedicated professional staff located in Alexandria, Virginia. For more than 64 years, HAI has provided support and services to the international helicopter community while it has flown over 2.3 million flight hours.

On September 14, 1939, Igor Sikorsky flew his VS 300, the first controllable helicopter, and less than 10 years later there were hundreds of different sizes and shapes of rotorcraft in service worldwide. Although the helicopter offered limitless uses, an uncertain business climate confronted the fledgling industry. Hmm, although we can no longer be called fledgling, some things never change.

On December 13, 1948, a small group of operators, including Art Fornoff, a representative from Bell Helicopter, met at the offices of AF Helicopters in Burbank, California, to form a helicopter association for the collective benefit of that small but determined group of helicopter operators. Fornoff was one of the first pilots hired by Bell, and having flown helicopters since 1945 (the date most agree was the beginning of the commercial helicopter industry), he had more experience than just about anyone. This initial group was so small that the offices of AF Helicopters provided plenty of space for this, the first of many meetings to come.

Present at that historic first meeting were Knute Flint, Harry Armstrong, Fred Bowen, and James Newcomb of AF Helicopters; Joseph G. Seward and Roy Falconer of Rotor-Aids; James Ricklefs and Arni L. Sumarlidason of Rick Helicopters; Elynor Rudnick and Bob Facer of Kern Helicopters; Fred Blymyer and Bob Boughton of Helicopter Service, Inc.; and James I. "Tommy" Thomas, Ed Eskridge, and Phil Johnson of Sky Farming.

The association was founded for the purpose of disseminating helicopter information, organizing promotion of the helicopter, mutual assistance, and exchange of technical information.

The group initially chose the name of Helicopter Council, but the following year they changed the name to California Helicopter Association (CHA) and charged annual dues of $10. At first, meetings were scheduled monthly, then as necessary. At the 1949 meeting, Jim Ricklefs was elected to be the organization's first president. Joseph Seward was appointed secretary, and Elynor Rudnick, treasurer. Stanley Hiller, Jr. demonstrated a Hiller 360, which was developed with help from Bell. All present agreed that competition was good for the industry. Also during that meeting, the members let it be known to all who would listen that helicopters had flown 400 hours of fire suppression work in California. Some inflation has had to be factored into the cost of operating a helicopter since that time. Training in 1949 was $55 an hour, oil exploration was $65 an hour, and passenger rides were about $5.

By 1950, there were many issues of concern to the helicopter community, including work with the Forest Service, spare parts availability, flight regulations, insurance, and pilot training. Sound familiar? The CHA held an educational meeting on September 21, 1950 for the purpose of acquainting public officials with what the helicopter could do. Following the meeting, a helicopter flight demonstration was conducted by Knute Flint of AF Helicopter, Inc. Harold Gribble then gave each official a helicopter ride, which included an idling engine autorotation, landing on a fixed spot to demonstrate the remarkable safety characteristics of the craft. That year the association won its first legal battle when a court ruled that insurance companies could not use the findings of state agricultural hearing boards as grounds for invalidating insurance coverage.

By 1951, the CHA had revamped its statement of purpose and broadened its mission statement. The new group was growing and adding new members. With concurrence of the membership it was decided that membership in the association was to be opened to all operators and manufacturers in the United States and its territories so that helicopter companies throughout the country could more readily gain from the experience and knowledge of fellow operators. Also in 1951, membership voted to change the name of the association to the Helicopter Association of America (HAA). However, for some unknown reason, this was not filed until November 1954, leading to some confusion as to when the changeover occurred. By May 1951 membership had grown to 17 commercial operators operating 50 helicopters and two associate (manufacturer) members, Bell and Hiller. By August, Sikorsky had joined as the third associate member.

By January 1954, member attendance at the annual meeting had grown to 50. This HAA meeting was hosted by Bell Helicopters at its plant in Hurst, Texas, where an additional 75 guest attendees from the U.S., Canada, France, Italy, Japan, and Sweden heard presentations on lowering insurance costs, new air-cooled engines, overhaul costs, and the use of fuel additives. Members and guests were also given a tour of the Bell Aircraft Corporation plant in Fort Worth, Texas.

In 1955, Elynor Rudnick of Kern Helicopters was elected as the first female president of HAA. That year Rudnick resided over the 8th Annual Convention, held at the Piasecki plant in Morton, Pennsylvania.

Humble Oil sent several representatives and at that meeting, made arrangements with Rotor-Aids for offshore work. At the time, the going charter rate for offshore work was $700 a month in Louisiana, with 750 hours flight time required per pilot per year. The late 1950s were a period of steady growth for both the industry and HAI.

In June 1957, while Carl Agar of Okanagan Helicopters was president, insurance for personnel and aircraft was still an industry concern. Helicopters during this year provided much emergency relief after Hurricane Audrey ripped through coastal Louisiana and Texas. The industry was growing as the number of commercial helicopter operators in the US totaled 160, with a fleet total of 635 helicopters.

At the 11th Annual Convention, which took place January 19-21, 1959, membership dues were increased to $50, the first increase. At that meeting, discussion took place on a number of issues including high insurance rates, the need for new legislation, and also for better, less costly equipment – much the same as the issues that plague us today. It was at this meeting that the decision was made to publish a monthly newsletter. Attendees to that convention could book a helicopter flight from Los Angeles to Anaheim for $7. HAA's focus was on ethics, association publications, and a meaningful awards program for those deserving of recognition. The world's largest commercial helicopter operator at that time was still Rick Helicopters.

With 200 operators flying 700 helicopters in commercial service, helicopter operations were grossing roughly $30 million annually in the United States and Canada. The industry had grown into a vital service business, which saved or made a considerable amount of money for industries including oil, agriculture, executive and public transportation, utility, pipeline and power construction, and forestry.

HAA opened its new headquarters on March 1, 1961, in Washington, DC under the direction of newly appointed Executive Secretary John T. Pennywell, formerly with Keystone Helicopter Corporation. The association's membership stood at 57 regular members, 24 associate members, and four government members totaling 85. The convention netted a profit of $1,700.36.

In 1961, Welch Pogue was named Honorary Member of HAA. Then president of HAA, Hal Connors said of Mr. Pogue: "You have proven yourself to be one of the staunchest friends of the helicopter operator. We are keenly aware of your extensive enthusiasm for the helicopter industry, and those of us engaged in the operation of these unique aircraft wish to express our appreciation for your splendid support."

The 14th Annual HAA Convention was held in Dallas, Texas, on January 21-24, 1962. The HAA planned its largest convention to date. Officials anticipated a total attendance of 400 to 500 attendees from around the world. The membership voted on amendments to the HAA's by-laws at the annual business meeting in January 1962. Among the amendments receiving approval were the corporate seal, an establishment of HAA as a 501 not-for-profit organization, and the establishment of four membership classifications, including regular, honorary, associate, and governmental members. Several major awards were presented at the banquet on January 23. These included the Lawrence D. Bell Pioneer Award, given to those organizations that had completed 10 years of helicopter operations, the Stanley Hiller, Jr. Pilot of the Year Award, presented each year to the commercial helicopter pilot who performed the most outstanding rescue feat, and the Robert E. Trimble Memorial Award. There was also a special award given to the pilot who traveled the greatest distance by helicopter to attend the 1962 convention.

The November 1963 HAA newsletter announced a near-future start-up date for helicopter Instrument Flight Rules (IFR) operations in the New York area after agreement was reached by the FAA and New York Airways, a scheduled passenger carrier.

That year, a Sikorsky CH3B performed a simulated water rescue for the Air Rescue Service at Orlando Air Force Base. At a special ceremony in June 1964, Sikorsky demonstrated one of the six WCH-54A Skycrane helicopters purchased by the U.S. Army.

The HAA Code of Ethics had been drafted in 1964, and was presented and

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adopted at the Annual Membership Meeting in January 1965. In the mid-1960s, HAA compiled data in preparation for its first directory of commercial operators. At the time, there were 1,937 commercial helicopters in the western world, operated by 588 commercial helicopter operators. US operators totaled 439, accounting for 1,236 helicopters.

The 18th Annual Convention took on the flair of a Texas roundup in Arlington, Texas, on January 23-26, 1966. Four hundred and sixty-seven people, representing all 50 states and many other countries registered for the convention. In March, HAA's president, R. A. "Bob" Richardson inaugurated HAA's first newsletter. It was called Our Rotor News. This newsletter was issued by HAA to replace another publication titled "Confidential." The first issue of Our Rotor News noted that while 467 people registered for the 18th Annual Convention, 1,400 attended. Pete Brown and Walter Attebery were delegated the responsibility of finding a larger facility for the 1967 convention. HAA membership grew to 89 regular members, 27 associates, and 36 government members for a total of 152 members.

The 19th Annual Meeting and Helicopter Showcase was held January 15-18, 1967, in Palm Springs, California. Attendance was three times larger than any in the history of the association. This huge attendance was attributed to a 300 percent increase in membership over the previous year. At that meeting a proposal was considered to change the name of Helicopter Association of America to Helicopter Association International, recognizing that during 1966, HAA's membership in all classes had increased resulting from new members from Canada, England, Australia, Japan, Africa, Columbia, and Ecuador. Following this discussion, no action was taken, however. They were among some 1,000 owners and operators attending the national convention.

HAA's 22nd annual meeting was held in Las Vegas, January 11-14, 1970, with 2,442 attendees and $17 million in exhibit sales. As well, the first seminar on marketing and service programs was held. That year, the Robert E. Trimble Memorial Award was presented to Helicopteros Nacionales de Columbia (HELICOL) of South America, for its role in construction of the Trans-Andean Pipeline, one of the largest and most difficult helicopter projects ever attempted. The award for distinguished mountain flying normally goes to an individual, but the entire HELICOL organization, including some 30 pilots, was awarded the honor. In August of 1970, HAA director John Ryan sent a letter to the President of the United States objecting to the government's use of military helicopters in civil roles, a matter in which we are still active.

Robert Richardson became Executive Director in April 1971 and returned the headquarters to Washington, DC. During his 11 years at the helm, Edward Hutchinson was selected as the HAA Safety Officer and Petroleum Helicopters had become the world's largest helicopter operator with 158 helicopters. The company's aircraft had logged 1,000,000 flight hours.

Among the $20 million worth of helicopters, engines, avionics, and accessories on display at the meeting were a Sikorsky S-58-T modified twin turbine and a Sikorsky H-37, known in civilian life as a Mojave. The March 1972 issue of Our Rotor News provided a full account of an 11-helicopter rescue mission where 450 people were lifted to safety during 150 landings on top of the burning Andraus Building, a 29-story building in Sao Paulo, Brazil. The Helicopter Association's next convention, the Silver Anniversary, was announced in this issue and was scheduled for January 14, 1973. As part of the Silver Anniversary celebration, a medallion was struck and presented to all registrants. In addition, HAA buried a time capsule, lowered to the ground by a helicopter.

The first HAA industry award was the Pilot of the Year Award. HAI currently has 13 "Salute to Excellence" Awards given out each year. The first HAA safety awards were presented at the 1973 annual meeting to member operators who had flown accident-free in 1972.

More than 1,500 registrations were tallied at the Silver Anniversary convention. Highlights included an 18-flight demonstration put on by Bell, Vought, Enstrom, Aviation Specialties, and Boeing Vertol, which lifted 2,540 passengers from the Stardust's north parking lot during 1,016 operations in one of the busiest flight

schedules in HAA history. The association now claimed 209 regular members, 81 associate members, and 41 sustaining members – a 15 percent increase over the previous year. There were 29 international members.

In 1981, HAA became the Helicopter Association International, or HAI, in recognition of its truly international status. The title of Executive Director was changed to President when Frank Jensen took the position in March 1982. He served for 16 years, and is credited with taking the helm of a tiny, economically struggling trade association and growing its membership, its outreach, and its trade show, HELI-EXPO. He is credited with starting the Fly Neighborly Program, a key element in garnering public acceptance of helicopters. Jensen was also the main influence in the formation of the Helicopter Foundation International (HFI) in 1983, a nonprofit organization dedicated to preserving the history of the helicopter industry and helping to educate present and future generations of helicopter professionals.

Roy Resavage followed Frank Jensen as president on March 16, 1998. Resavage continued to improve the financial health of the organization, fought government encroachment, worked with a number of international organizations, and increased convention attendance. Upon Resavage's retirement, Matthew S. Zuccaro assumed the office of President on November 1, 2005 after a 40-year career in the helicopter industry. During Zuccaro's previous 25-year association with HAI, he had served as HAI Chairman, Vice Chairman, Treasurer, Chairman of several HAI committees, and was a recipient of HAI's 10,000 hour Pilot Safety Award. President Zuccaro has expanded HAI's international outreach is an advocate for heliports and airspace access, aggressively challenging adverse legislative and regulatory concerns while focusing on the provision of additional membership programs and services. In 2006, under President Zuccaro, HELI-EXPO attendance reached a record high of 16,629 attendees. Matthew Zuccaro remains as president today with membership showing continued growth.

Our industry has always responded to disasters such as earthquakes, famine, and tsunami relief. No other aviation vehicle but the helicopter could have provided the relief required during the tragedies of 9/11 and Hurricane Katrina, the most destructive tropical cyclone to ever hit the United States. Each day, HAI member operators fill critical needs and play major roles in firefighting, EMS, forestry, offshore oil exploration, power line work, newsgathering, aerial photography, law enforcement, air tours, corporate transport, and many more. Each day, the HAI is there to support an industry that serves so many.

Since that first meeting in 1948, the HAI has provided for its membership with integrity and has taken many actions on behalf of helicopter operators throughout the world. The organization has benefited the entire industry, including manufacturers, suppliers, operators, pilots and mechanics. The association's initiatives have had a direct and positive impact on international helicopter activities.

As our industry races to a future with visions of 300-mph helicopters, fly-by-wire controls, glass cockpits and avionics that anticipate dangers before pilots see them, we still face the same challenges that brought those original 16 members together: a tough economy, escalating insurance rates, parts shortages, truculent public support and a skeptical public, combined with a shortage of technicians and pilots. And to help us meet these challenges the HAI, at age 64, has the maturity and wisdom without having lost the youthful enthusiasm and vitality of those original twisted but dedicated 16 visionaries to solve the problems.

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.* ■

Our Readers Ask

BY NORM CHALMERS,
Pacific Airworthiness Consulting

I thank you readers who have written to us with your queries and concerns about aviation regulation, or lack thereof, and suggesting subjects to address. Wayne Dick, an instructor at Aveos, sent in numerous excellent topic suggestions that I began with in the last issue and conclude in this issue as follows:

3. "Major Repair and Modifications - What are the differences between the definitions in the CARs vs. the FARs?"

This subject area is relatively large, complex and nebulous so I can't go into great depth for now. Under the USA system and the FARs, we refer to FAR 43 Appendix A for the lists of major repairs and major alterations. We also refer to FAR 43 Appendix B for the reporting requirements which includes a section relating to Canada.

In Canada, under the CARs, we have a significantly different system. TC bifurcated each of the old "Major Modification" and "Major Repair" categories by introducing the "Specialized Work" category as defined in CAR 571 Schedule 2. This action separated the data approval from the approval requirements for those who perform the work. In Canada, a major repair or modification may be performed by an AME or non-specialized AMO if the work does not include specialized work. Some specialized work may be done without approved data but each repair and modification needs to be assessed individually.

4. "Why report Major Repairs and Modifications?" "Registering new aircraft coming into Canada: why does TC want this info and what do they do with it?" "What effect does major work have on an aircraft and why report it? People seem to be most interested in what TC does with the information."

Our international agreements require each country to keep a register of all aircraft, with emphasis on approved and certified aircraft. This requirement is interrelated with the international obligation to notify other relevant countries regarding failures and airworthiness directives (AD). To do this, the government needs to be able to identify aircraft by serial number, type, make, model and installed equipment. Additionally, governments notify individual owners that their aircraft are affected by ADs. This all relates to the ability of aircraft with normal and unrestricted Certificates of Airworthiness to be legally flown from one country to another under international agreement without further approval by the destination country.

Each "approved" aircraft is manufactured to conform to a type certificate that defines it in detail. When that aircraft is completed, sold and registered, it goes

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onto the national registry as conforming to that type certificate. When we do a modification/alteration or repair that makes a change to that aircraft, it no longer conforms to that type certificate. We then must amend the legal description of the aircraft in the data held by the country of registration. This basically approves the aircraft for continuing on that list as meeting international airworthiness requirements for aircraft that may cross borders.

When Transport Canada receives a major modification report regarding a change or added equipment, the aircraft database is amended to ensure that any AD applicable to that changed configuration is forwarded to the owner. When Transport Canada receives a major repair report, that report becomes part of the aircraft legal description as a variance from the Type Certificate and keeps the aircraft legal.

5. "What authority does a TC Inspector have?"

Inspectors have a great deal of authority to deal with issues addressed in the Aeronautics Act and CARs. Most inspectors do not exercise all of the items of delegation. The document that gives the inspector this authority is the Ministerial Delegation Of Authority. There is a different delegation for each type of Inspector. The ones that we are most interested in are the Airworthiness Inspectors. Among other authorities, they have the authority to access aviation sites, to inspect and seize aircraft and aviation records and to get copies of documents. The document was available on line at the Transport Canada website but has been removed by design or by the whim of the Transport Canada web overlord.

6. "What is the training of a TC Inspector?"

Not enough of the correct stuff. The formal training is developed, or done by personnel ensconced in, what is commonly referred to (because of colour of the glass) the Tower Of Darkness in Ottawa. They have never done the operational job with a few exceptions. After that basic training, the inspectors work in the field offices doing on-the-job-training (OJT). With this OJT they learn the different ways that different inspectors like to do the job and they can decide how they want to do it. Every inspector is different, every district is different, and every region is different. That way we get variety. Since the Ottawa headquarters never audits the regions, this variety is destined to remain.

7. "Are there only airworthiness inspectors, or do other inspectors exist?"

Canada is the only developed country in the world without "Airworthiness Inspectors." Due to the continual (and seemingly continuous) need to change in order to simulate progress, Transport Canada decided to call their Airworthiness Inspectors by the derogatory term "M&M Inspectors". Please note that they did not receive any free M&Ms with this change. This change accommodated the territorial battles going on in the Tower of Darkness between the various directors trying to protect their empires while showing change, which is equated to progress.

There are other specialized inspectors for various areas such as flight deck crew, cabin crew, dangerous goods, OSH and enforcement. I hope this includes everyone, and I apologize to those I left out. There may have been recent additions or deletions because of the ongoing reorganization.

Martin Doyle, in his "Letter to the Editor" from the last issue of AMU, mentioned a "growing element of apathy from employers and employees in the industry regarding regulations".

I don't know if apathy is growing, but I do know that it has been a characteristic of Canada's aviation industry since the Silver Dart first flew. Few other developed countries allow senior bureaucrats to go on rampages, enacting laws that they have personal passions for. Did anyone out there in the "real world" know about or comment on SMS before it became law? The TC Inspectors dealing with the public first found out about it when they were told it was a done deal.

Likewise, the changes to the AME licence were generally opposed across the country but were pushed through in the same manner. In the TC Ottawa headquarters, they call the process "Social Engineering." This is the process of moulding society in such a way as to seem progressive to the senior mandarins. TC does claim that the CARAC process ensures public participation, but CARAC is a screening process which is occasionally swept aside by a puff of prioritization.

Unless an individual or company has sufficient resources to get the cooperation of politicians, the only hope for the aviation maintenance industry to be able to influence the future is to form a group or groups that speak for numerous corporate members. The manufacturing sector has the Aerospace Industry Associations, the commercial operators have various groups, the AMEs have their association(s) but maintenance companies have no organized voice.

We received an email from Richard Wyeroski (just Google that name), a former FAA Inspector, who states:

"My concern is overseas maintenance in Third World countries performed by $2-an-hour unlicensed mechanics, if you could call them that. The safety issues are too obvious. However, the other issue is terrorism. These facilities have little security and operate for about 20 to 30 cents on the dollar compared to US, Canadian and European MROs. Billions are spent all over the world for security, yet our aircraft are unprotected in these facilities."

As I indicated in a previous column, politics and economics trump safety. Unless it becomes politically necessary to change direction, globalization is the dogma of the industries with influence over our politics. Many aviation professionals see the problem, but the general public doesn't understand and/or doesn't care. The public is more interested in the libertine escapades of politicians than the safety of aircraft.

While answering your queries is an important part of this column, I also want this regulatory discourse to clarify regulations in an orderly way and build on previous columns. The regulatory subject for this issue is "Applicability" or "Does that rule apply to me?" Every regulation, and every enabled document that flows out of that regulation, including standards and orders, has an intended scope of applicability that may be stated as to whom it applies or does not apply. These are some examples:

- CAR 101 gives no applicability; therefore the definitions are applicable to all the

other regulations unless another regulation gives a different definition that is applicable only to itself.

- CAR 102 refers to all the CARs. It excludes military aircraft and other borderline flying machines, including hovercraft.
- CAR 106 applies to only the stated certificate holders.
- CAR 571 is applicable to all "persons" in Canada when working on Canadian and most foreign aircraft, except ultra-lights and hang-gliders. Within that scope, some paragraphs exclude some aircraft, such as amateur-built, from certain requirements. One of the interpretation problems we have with foreign aircraft is that the maintenance requirements of the country of registry take precedence. If we are working on an aircraft of USA register then we must know the applicable rules with emphasis on FAR43.
- CARs 602 and 605 generally apply to all "persons" but they do get complicated and we need to read the specific paragraphs in detail to determine applicability. For example, some paragraphs give exclusion to previous paragraphs. Further influences on the applicability of the regulations are issued in the form of exemptions by Transport Canada. That's another subject for another time. I will go further into CARs 500, 600 and 700 series in future AMU issues.

Until then, be safe.

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 operates Pacific Airworthiness Consulting; www.pacificairworthiness.ca.* ■

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2011 Symposium Review

The 2011 AME Symposium was another success with a full hall of exhibitors, attendees and networking activity. The technical and regulatory training sessions were well attended and there were many good presentations and feedback from members concerning the hot topics in our industry today.

The rotary wing sessions included updates from Bell Helicopter and Eurocopter and there were engine systems troubleshooting and upgrades. A great new product line was introduced for the safe removal of PRC sealants. A session on back to basics for technical records still managed to raise some good questions and discussion. We also learned about audits, SMS, PVI and Transport Canada Airworthiness as the ever necessary regulatory updates. This is not a complete overview of all sessions but merely a representative few of the many who were there to teach and connect with the members.

A particularly engaging session wrapped up the second day with a presentation by Grey Owl on human factors in aviation maintenance. Even though the human factors philosophy has been adopted by the industry for several years now, this presentation both reinforced some basic concepts as well as introducing a snapshot of where we are today with humans being, well, human.

Friday afternoon is a tough slot to engage listeners but this one proved that we continue to be both fascinated and concerned about how we work on aircraft. Thank you to all the presenters for your participation and to the many attendees who took advantage of this convenient opportunity to be educated on the latest and greatest our industry has to offer.

— Stuart McAulay

December Activity

1. Fatigue Risk Management System Assessment (FRMS) and Staff Instruction SUR-007 - In collaboration with the Canadian Federation of AME Associations we have sent a letter of dissent to Transport Canada expressing concern that this Staff Instruction is too prescriptive and impractical in its current form. Please feel free to send us your comments on this matter. You can view the SUR-007 document on Transport Canada's webpage http://www.tc.gc.ca/eng/civilaviation/opssvs/managementservices-referencecentre-documents-sur-sur007-1031.htm

2. Cessna adds "inspections for aging aircraft" video available on Youtube – http://www.youtube.com/user/CessnaAircraftCo

Centennial College Awards Night 2011

On November 17th I had the pleasure to attend the Centennial College Awards Night. On behalf of the Ontario AME Association I was pleased to present two scholarships to two deserving students. Congratulations to Siroj Suwannatan (Maintenance) and Mateo Jae Sung Lee (Avionics). Well done. In all over 215 awards were presented by various sponsors for a wide variety of programs.

In addition I also attended the Centennial College Aerospace Program Advisory Committee on November 29th. The purpose of this committee is to provide industry feedback for their Aviation Technical Courses and the association welcomes this opportunity to give voice to our members.

Both of these endeavors are an important part of what we do as an association. In these small ways, the Ontario AME Association proudly supports all of the Ontario Colleges that teach Aviation Maintenance Programs. It is a great way to give back and invest in the future of our industry. As members we strongly believe that these ongoing commitments are definitely a win-win situation for all parties involved. So let's keep up the good work.

— Very best regards,
Sam Longo, Vice President

Dear Members

Happy New Year! In 2012, the AME Association of Ontario board of directors would like to keep our members better informed of the on-going involvements of the association and within the industry as a whole. As membership renewal approaches, we ask that you provide us with current updates of your phone numbers and email addresses. The association will use this information to send out notices of up-coming events, training sessions and regional news concerning our industry.

The board of directors also invites you to take part in our 2012 membership drive. Our goal is to increase membership by at least 10% this year through both individual and corporate memberships. If you know someone who is not yet a member then encourage him or her to sign up. An increase in membership empowers the association to have a larger voice throughout the industry. Also, if you work for or know of a company that is not yet a corporate member, please invite them as well. In 2012 we will be offering greater benefits for corporate members including discounts on association sponsored training sessions.

The 2012 Ontario AME Symposium and Trade Show will be held on October 17th to 19th. The committee has already started planning and would appreciate your ideas for training sessions or any other thoughts you may have concerning the event. Please feel free to contact us at association@ame-ont.com or cara@precisionaerocomponents.com

Any and all feedback is always welcome as is your presence at our meetings as guests or volunteers. The AME Association of Ontario holds board meetings on a monthly basis as scheduled. Contact us at association@ame-ont.com for details on meeting dates and topics.

Wishing you all the best for a happy, healthy and prosperous 2012!

— The Board of Directors

Atlantic AME Association

Atlantic AME Newsletter

This year's upcoming ARAMC 2012 will be held at the Halifax Marriott Harbourfront Hotel in Halifax, Nova Scotia, on March 21st to 23rd, 2012. The Halifax ARAMC committee has met twice since September. We will be following the regular schedule of having a Meet and Greet on the evening of the 21st followed by two full days of sessions. The annual Awards Dinner will be held on Thursday evening March 22nd.

Both our Speaker Committee and our Display Chair have been busy working getting our speaker sessions and booth spaces full. We already have several confirmed booth spaces.

As in the past couple of years, we will not be having a full-fledged ladies program, but we do plan to have a "coffee social" on Thursday AM. This would be an opportunity for the ladies to get together and make their plans, if they want to do something as a group. We plan to have different companies present that morning to help our ladies decide what to do. I'm sure shopping will come up.

We are currently working on a theme for the conference (suggestions are welcomed) and several ideas are being discussed. A block of hotel rooms is set aside for us at the Halifax Marriott. If you are booking rooms, please ensure that you ask for the ARAMC rate. Our ARAMC 2012 Committee consists of:

- Jim Power, Co-chair
- Anneke Urquhart, Co-chair/Admin
- Brenda Huber, Finance/Admin
- Gerald Mallon, Displayers
- Butch McKay, Public Relations
- Jason Crowell, Speakers
- Pat Smith, Speakers
- Nathalie Duchesne, Secretary

Our personal contact information is available on the AME Association website at www.atlanticame.ca under the ARAMC link. If you have a general question please forward an email to annekeurquhart@hotmail.com Hope to see you at the ARAMC 2012 Conference in Halifax.

AME Association (Atlantic) Inc. will be presenting a one-day human factors training workshop to be held on March 20th, 2012 at 08:30 at the Marriott Harbourfront Hotel, 1918 Upper Water St., Halifax, N.S.

- President: Ben McCarty — Tel & Fax: (506) 452-8251
  Email: mccartyb@nb.sympatico.ca.
- Vice President: Uli Huber — Tel: (902) 873-3534; Fax: (902) 873-4531
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  Email: daniel-dackombe@rogers.com
- Director: Mel Crewe: Tel: (709) 579-2013
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- Director: Dave Hall: Tel: (506) 648-353
  Email: hall.david@jdiriving.com
- Director: Bob Pardy: Tel: (709) 758-4802; Fax: (709) 758-4823
  Email: bpardy@cougar.ca
- Director: Jacques Richard: Tel: (506) 863-4618
  Email: jrichard@mfc.nb.ca

Pacific AME Association

The Prez Sez

Hello PAMEA Members,

In the spring of 2007, with the retirement of long-serving President John Latta, the PAMEA Board of Directors selected a person from among themselves to act as their Chair, and to represent the association as the new president. Now, after five years at the controls, it is my turn to announce my retirement from the PAMEA Board of Directors. I was first elected to the board nine years ago after spending a few years with the Fraser Valley Chapter until its closing, and I have found the whole experience to be very fulfilling. Some marriages don't last as long as my time here with PAMEA, and often end without the great memories.

When my third three-year term as director expires early this year, I will remain as Past President in an advisory capacity only, and I do plan to help my replacement in any way I can. If you're reading this and you are an active (or retired) member in good standing, I suggest that you let the office know that you would like to volunteer to help guide your association into the future. If you are a member under 40 years old, you are a rare bird so if you just can't see that happening yet, write a friend's name on that line and ask him or her to stand in for you until you're ready. Our profession is populated with the most able people on the planet. When you feel the need to give a little more than you take, volunteering is the answer.

I need to express my sincere thanks to the current and past members and directors of this great organization which has been a significant national player in maintaining and enhancing the professional character and purpose of the AME license. The forethought to create it, and then the energy expended to make it grow and last, must be recognized. We are all in your debt.

— Take care

Larry Bell, President

National Front

Canadian Federation of AME Associations Report

The 2011 Annual General Meeting of CFAMEA was hosted by PAMEA October 16 – 17 at the Delta Vancouver Airport Inn. Decisions were made at this meeting which will change the very nature of this national organization. Over the last year, Canada's regional AME associations have begun a process of reorganization that will be completed during 2012. The CFAMEA model was originally conceived and organized as a federation of independent AME associations with one voting member on the Board of Directors assigned by each of the AME associations. What follows is a short history of CFAMEA which speaks volumes to the future. Read on.

The bottom up or "grassroots" concept has had a number of successes, especially with regard to those issues deemed crucial to the member associations. Most important of those has been the need to present a solid determination to ensure that standards for AME training and licensing remain with TCCA and AMEs, not some other group. Ten years ago, TCCA announced its intentions to offer "transfers of administrative standards" to industry. This was first evident with the publication of NPA 2001-291 and NPA 2001-292 which eventually resulted in the transfer of responsibility for the granting of operating certificates under CAR 604 Private Operator Passenger Standards to the Canadian Business Aviation Association.

CFAMEA was advised by TCCA that the future administration of CAR Std. 566 AME Training and Licensing was open to this concept and that "industry" was being asked to present proposals. The downloading of TCCA functions in this manner was a high priority of the executive council within TCCA, and to the government, at that time. The AME associations, through their representatives on the CFAMEA board, expressed alarm at the real risk of seeing the AME license being controlled by a non-AME organization. This triggered a determined five-year effort to develop a new national organization that could fulfill TCCA's requirements for the administration of the AME License under CAR Std.566, with a working name of "AME Canada?. Countless hours of serious planning were devoted to bringing CFAMEA's proposal to the presentation stage with TCCA. But, as with most things in life, timing is everything.

With a change of ministers, a new Director General, and the very public reversion of the CBAA's administrative privileges back to TCCA, there was a complete cancellation of the TCCA policy of industry administration privileges and along with it the need for a stand-alone corporation such as AME Canada. A "collective sigh" would be the best way to describe the feelings of the CFAMEA Board as all of the work was shelved. We had always asked TCCA the simple question "If it's not broken, why try to fix it?" It seems that question was eventually answered. So what did we learn and what can we take away from all of this?

- A new name for CFAMEA is being considered, with AME Canada the current favorite.
- A new organizational structure now exists under new policies and procedures, with each AME association now designated a chapter of the national umbrella organization.
- A new category now sees each individual association member belonging to the national organization as a member of his or her chosen chapter. Membership cards will now show both affiliations, and be valid nation wide, with membership privileges at all chapters.

Given the limited space here, I sincerely hope that anyone who needs more details on these changes or other national events which may affect your interests will write or email PAMEA (or me) so that full explanations can be attempted.

— Larry Bell, Pacific Region Voting Representative on the Board of the Canadian Federation of AME Associations

Letters to the Editor

A letter from Peter Sleeman, long time PAMEA member and current director:

Aviation has lost a great talent in the passing of Bonn Svensson at Comox on October 15, 2011. Born in Sweden, July 26, 1947, Bonn grew up in the small town of Eskiltuna, joining the army after grade school, and eventually entering his metalworker apprenticeship. Having completed a long apprenticeship in Sweden as an automotive carriage builder, Bonn developed an ability to perform magic in metal forming and fabrication – skills which are rarely found in the aviation industry today. He immigrated to Canada at age 27 in 1974, arriving in Winnipeg, but staying there only 10 days, as he yearned to go back to Sweden. He was persuaded to try Calgary, with the promise of Chinooks and warmer weather.

Bonn remained in Calgary and was employed in auto body repairs and rebuilding, specializing in antique/classic cars and married there in July 1976. He became involved in aviation after being hired by Gerry Stauffer of Stauffer Aviation in the mid 1980s to rebuild the engine of Gerry's 1929 Dodge. So impressed with Bonn's efficient, fast, and impeccable workmanship, Gerry convinced Bonn to learn the trade of aero engine overhaul. Acquiring the AME Cat. D license, Bonn later went on to involvement in airframe structural repairs, and he subsequently qualified for the Cat. B license as well. It was at this point that Bonn became involved in warbird restoration, with such aircraft types as the Sea Fury and Mustang for people including Neil McClain of Nanton, Alberta.

In November 1993 Bonn moved to Miracle Beach, Vancouver Island. Many will know Bonn for his years of restoration of the Y2K Spitfire project for the Comox Air Force Museum. Since the project initially consisted of assorted junkyard salvage, this essentially meant hand-forming and building the fuselage from damaged components used as patterns and from blueprints. Anyone familiar with this aircraft will appreciate that it consists of numerous complex shapes and compound curves and makes few concessions to mass production. Bonn formed the center section structure from hand-made hardwood forming blocks that he fabricated himself from the junk yard specimens, hand-hammering the aluminum alloy in the soft state and then having the finished structure heat-treated by Boeing in Seattle. Anyone who has seen this completed fuselage will appreciate the exceptional level of skill involved in its creation. After completing the fuselage, Bonn decided to strike out on his own in 2009 and to set up his own warbird restoration facility. This led to the creation of "Bonn's Aircraft Restoration" AMO in 2010, based at the Campbell River airport. Tragically, he was just getting busy when he was diagnosed with advanced, untreatable lung cancer in the summer of 2011. An iron man to the end, Bonn kept on working, finishing the rebuild of a wrecked Cessna 185 two weeks before his death. With Bonn's passing, we have lost a unique set of knowledge and trade skills which will not be duplicated in the modern aviation industry, and more significantly, we mourn the loss of a great friend and happy spirit.

Letters to the Editor: pamea@telus.net. Please put "Editor" in the subject line.

February Topic is "Next Gen" by Ed Bannen of Honeywell

Our next meeting will be held February 14th and will feature a discussion of "Next Gen" airspace and equipment. Our good friend and supporter, Ed Bannen of Honeywell, will give the presentation, so mark your calendars to include this in your Valentine's Day celebration. We know you may be risking your life at the hands of a loved one to attend, but Ed's discussion should be worth the risk.

The social gathering starts at 5:30 p.m., with dinner at 6 p.m. and the presentation following immediately after. We'll speed up the meeting, so there's still time to give your valentine all the attention they need to keep them happy. Please RSVP to the email notice you receive or send a note to mail@copama.org with the number that will be attending. This helps us assure there will be food enough for all at dinner.

Rick Ochs of Spirit Avionics Chosen for NBAA Award

In an email earlier this week from their Airmail Maintenance forum, the NBAA Maintenance Committee announced their selection of Rick Ochs to received the GA Regional Avionics Technician or the Year Award. We want to congratulate Rick on receiving this award and national recognition.

January Meeting Topic: Missionary Maintenance Services

The January meeting was held at Lane Aviation and marked our first meeting of the New Year. Gene Sprang started the meeting with a review of last month's holiday dinner. He then listed our current calendar of upcoming events, which included the Ohio Aviation Maintenance Symposium in March.

Next on the agenda was the presentation of testing scholarships to this year's recipients, chosen from applications received in December. The recipients were Naamon Person, Brian Kunkle, John Spring, Shelia Walters, Jim Tipton, Bud D'Amato, Jed Rempel, Preston Cook and Nathan Damaske. We wish them well during testing and their entry into their careers in the aviation industry.

The meeting then featured a presentation by Dwight Jarboe about Missionary Maintenance Services doing business as MMS Aviation at Coshocton Richard Downing Airport (I40) in Ohio. Their mission to the world is to provide a facility to inspect, repair, overhaul, and transform aircraft for missionary service while at the same time training maintenance technicians to maintain and sometimes fly those same aircraft in missionary support around the world.

Missionary aircraft provide transportation of critical supplies, medical patients and other resources to Third World countries and underdeveloped areas where roads and ground transportation may be minimal or non-existent. Dwight explained that a 90-minute plane ride might equate to up to 12 hours of transportation across the ground. Hospitals may provide treatment and surgery to patients and safely fly them back home where a ride in a ground vehicle over rough terrain may cause the reopening of incisions.

The staff and students of MMS Aviation are supported by donations from churches and individuals and self-initiated fund-raising. These funds provide living accommodations, a means of transportation and tools while they learn by on-the-job experience which is documented to allow them to take the A&P tests necessary for certification under CFR 65.77.

Labor is provided free to mission organizations for the inspections, repairs and modifications of their aircraft that come from around the world. Some are shipped in to MMS in containers where they are restored to near-new conditions to return to perform their mission support.

We thanked Dwight for his discussion about MMS Aviation, and Gene presented him with a $500 donation to use in support of their facility and purpose in aviation training. Please visit the MMS website to learn more about their organization. You may also visit links to the MMS blog and their MMS channel on You Tube. Please note that a Google user name and password are necessary to visit them on You Tube.

Holiday Dinner held on Tuesday, December 6th

The evening was filled with friends, food, fun and prizes at this year's Central Ohio Aviation Holiday Dinner at Villa Milano Restaurant on Schrock Road. The report on the event is now available. Photos have also been posted at the COPAMA Facebook page, and while you're there, why not become a member and receive updates on COPAMA events and information?

We want to thank all our speakers, sponsors, and attendees for helping make the 2011 dinner so enjoyable. Proceeds to the Sam Dodge Memorial Fund were $592, and the total 50/50 Raffle collection of $340 went to the Lima Company Memorial thanks to Jay Randall of Constant Aviation. Jay donated his winning ticket proceeds back to the Memorial.

Maintenance Symposium Set for March 14th/15th

CSCC Aviation Maintenance Technology facility at Bolton Field is once again the venue for the 2012 Ohio Aviation Maintenance Symposium. Information on vendor booth rental, registration forms, contact information and facility location may be found at the Columbus State website.

Pre-registration helps speed the registration process which starts at 7 a.m., with the training sessions starting at 8 a.m. FAA inspectors from the Columbus and Cincinnati FSDOs will be on-site to process paperwork and participate in the training.

Our Monthly Meetings

Monthly meetings are held on the second Tuesday of the following months: February, April, May, October and November. Pre-meeting gathering is at 5:30 p.m., dinner at 6 p.m, with the presentation after dinner. The Ohio Aviation Maintenance Symposium is our March meeting, the Central Ohio Aviation Golf Outing (COAGO) is our September meeting, and the holiday dinner is our December meeting.

Regular Meetings held in Lane Aviation's Media Room

Lane Aviation's Port Columbus facility at 4387 International Gateway in Columbus is the location of our six monthly meetings. We meet in the Media Room on the second floor. We wish to thank Lane Aviation and their staff for the use of their facility and their continued support.

Features of the COPAMA Website

This site was generated from a latest-generation template providing compatibility with today's main web browsers and mobile devices. It features "Flash"-type animation and the ability to detect devices that cannot render Flash and provide an alternate means to display those same graphics.

Menus help you navigate through the site, and the left border of the page provides a direct link to our Next Event, Current News and Last Event information. Background music is available with the new site and features 12 different tunes that loop. If you don't care to listen, just mute your sound system for an easy solution. Give us some feedback and let us know what you like or dislike. Page width and font size are controllable by you regardless of which browser or mobile device you use.

If you're a fan of Facebook or Twitter, we've set up groups on both social networks. We're hoping it will provide a local forum for members and give us another tool to communicate with the group. The links to both are at the top right of the main page. Jeff Gruber has volunteered to be our first administrator of the two forums, and if they become popular, we may need the help of our younger members to monitor them for us.

Let us know what features you like and if you have any problems viewing the site.

CSCC Bolton is venue for EAA Aircraft Builders Workshop, October 29th to 30th

EAA is holding a workshop which features two-day classes in five different areas of building skills and a "What's Involved in Kit Building" session on Saturday night that includes pizza for a $25 charge. The two-day course prices are based on EAA status, but non-members are also welcome to attend.

For more information about this event, please visit www.sportair.org to learn about their organization and www.sportair.org/schedule.html for the courses available during their Columbus visit.

HARTFORD-SPRINGFIELD

PAMA Hartford-Springfield

September Chapter Meeting

The September chapter meeting was graciously hosted by our chapter vice president Dave Armando at his home. The evening started with hamburgers and hotdogs, along with various salads and condiments, in a great social setting. Some routine chapter business was conducted and our first presenter was introduced.

Vaughn Askew from Sikorsky helicopters was our first presenter. He gave a presentation that brushed on the history of Sikorsky, but focused on the X2 experimental helicopter that currently holds the speed record for helicopters. Vaughn touched on the advancing blade theory and the limitations of a single rotor helicopter. He then introduced the X2 and it's fairly rigid counter rotating rotor system and pusher propeller.

He showed a short video of the X2 in flight and brought to our attention the quietness of the aircraft as it flew by in the video. He then explained that the X2 is being retired, but that Sikorsky has committed to building the S-97 Raider that will be used by the US Army. Thank you Vaughn for an insightful presentation.

Greg Ginnetti from Whelen Engineering was the second presenter for the evening. Greg showed those in attendance some of the latest products Whelen has developed in the LED light market. He gave some information on the history of the company as well as some news on recent expansion. Thanks Greg for rounding off a very informative evening.

There is information I can share regarding the IA renewal the chapter will be hosting. We have made arrangements with the New England Air Museum to hold the event there on March 8th. The museum has made arrangements for us to allow vendors to set up booth space, so any vendors interested in exhibiting should contact one of the chapter officers.

Aviation Humor

A 65-year-old man went to the doctor for his Class II exam and the doctor was amazed at what good shape the guy was in. The doctor asked, "To what do you attribute your good health?" The old timer said, "I'm a helicopter pilot and that's why I'm in such good shape. I'm up well before daylight, climb all over the helicopter doing my preflight inspection, flying all day, etc."

The doctor said, "Well, I'm sure that helps, but there's got to be more to it. How old was your dad when he died?" The old timer said, "Who said my dad's dead?"

The doctor said, "You mean you're 65 years old and your dad's still alive? How old is he?" The old timer said, "He's 84 years old and, in fact, he built and flies his own airplane and he went flying with me this morning. That's why he's still alive; he's a pilot too!"

The doctor said, "Well, that's great, but I'm sure there's more to it. How about your dad's dad? How old was he when he died?" The old timer said, "Who said my grandpa's dead?"

The doctor said, "You mean your dad is 84 years old and his father is still living? How old is he?" The old timer said, "Grandpa is 102 years old and he was a pilot too."

The doctor was getting frustrated at this point and said, "I guess he went flying with you this morning too?" The old timer said, "No, Grandpa couldn't go this morning because he just got married and he's on his honeymoon."

The doctor said in amazement, "Got married? Why would a 102-year-old guy want to get married?" The old timer said, "Who said he wanted to?"


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Adopting Your Own **Quality Program**

BY STUART McAULAY

The concept of Quality Management Systems (QMS) in aviation has finally forced all commercial operators across the nation to achieve an acceptable level of compliance in order to continue operating. Larger organizations have been dealing with, and living with, QA strategies for years, while some of the smaller outfits seem to still be struggling to understand what constitues compliance. The philosophy has trickled down, though, to even the smallest of organizations. Once the reality of these programs hits home through Transport Canada's Program Validation Inspection (PVI) process, many smaller companies had to raise the white flag and call in consultants or advisors to point them towards compliance. The only catch is that company personnel have to become truly involved and not expect these quality concepts to be controlled by outside sources. Working together to form a working model appropriate to the company gives certificate-holders a basis for ongoing quality control activities.

The QMS program is not a project, but a living process that incorporates a much broader scope than just doing an annual audit. The applications of ongoing reviews and making the subsequent changes to how things are done are referred to as continuous improvement. As long as there is room for improvement, we will continue to utilize the risk management process to reduce organizational weaknesses.

Even when maintenance managers understand the value of a proper QMS, the idea of implementing and subsequently managing it, as well as continuing to serve their customers, is a stretch to say the least.

Many AMO managers have attained a position of leadership after years of turning wrenches and mastering the technical responsibilities associated with working on aircraft. Along the way they have been challenged with writing manuals, considering human factors, and managing employees. Some managers are natural born leaders and have adapted to this calling with little adjustment. Some have even embraced the new opportunities to broaden their career portfolio. However, there are still many who see this evolving QA role as nothing more than a thorn in the side of their mandate to just carry on doing business as usual. The added burden of quality program development and safety management is still outside of their comfort zone. It is the denial of the natural evolution of a safety sensitive industry striving to achieve the next level.

Those caught amidst the forces of change want to know when the good times of improvisation and reactive measures were replaced with more rules, risk analysis, and systematic audits. Many AMEs do what they do very well. They are technically minded and have performed countless inspections, engineered modifications and crafted many repairs. There are those who just make a living at it and those who have a deep passion for all things related to aviation. The role of the AME has been accepted as paramount in making their work relevant from one aircraft to the next while working from the same page as the ever-evolving regulations. The industry will nevertheless continue to change in order to keep improving safety through the adoption of new concepts. Those who keep moving with it will surely see the light of change while being followed by those who are still reluctant to conform. Industry leaders have reflected on the experiences of the past while forging ahead to introduce new ways of managing themselves and their systems. The acceptance of quality management principles has been a part of general aviation for over two decades now, but they have also not been truly understood or utilized effectively by many until quite recently. The acceptance of quality training and phased implementation has allowed many in the aviation community to move ahead with it as the AME leaders of today step into some of these expanding roles.

There is no doubt that an AME stepping into a world of Quality Management Systems is going to face a learning curve. The acceptance of mandatory human factors continues to form the basis for understanding human thinking and interaction. The application of Quality Management has been a bigger pill to swallow, as it aims beyond the individual and into the bigger company picture. Quality control activities are essentially an ongoing assessment of these factors within the corporate systems of the workplace. The AME then becomes a critical participant as both the subject-matter expert and the interface between man and machine. The AME must be truly involved in the program in order for it to evolve as expected. The stale excuse of accepting the status quo is no longer a sustainable alternative for a forward-thinking model of continuous improvement. A living QMS program is only going to be as effective as the group of men and women who foster a cultural sense of positivity within their organizations. They must buy into it even if they are not yet completely sold on its ultimate benefits. Many of these benefits are not even recognized because they manifest themselves as simply not having an incident or accident due to the preventive measures created by well-thought-out policies and procedures. The benchmark for

success then becomes the realization of fewer incidents over time.

Compliance with regulatory requirements for the sake of compliance alone is not going to be enough to sustain your profitability or safety record within your organization. The philosophy of Quality Management is intended to change the corporate attitude of complacency in an environment that always has room for improvement. Transport Canada has given us the framework, but it's clearly up to us to work on the attitude. Accepting the role of quality as an investment in your business is often a hard sell when we live in uncertain economic times. All energies must be directed to the task at hand and keeping your head above water. However, the time has come to really look at these types of programs as opportunities to reduce the potential for failure of your systems. The obvious by-product of the extra effort and initial investment may actually result in long-term cost savings and/or more efficient time saving measures. The results ultimately affect the safety picture as well as cost efficiency for the company. The reluctant investment of our time and energy to meet a minimum standard in order to please Transport Canada will not produce measurable results. Transport is more interested in the company's ability to manage the program rather than performing an audit themselves. This is essentially the heart of the PVI activity. Effective change will only come about if we are willing to please ourselves in the process.

Although the role of the AME manager will be central to his or her overall program, the involvement of outside resources can help to further direct your path. Quality consultants and trusted advisors are available to those who need the support. Smaller organizations may also benefit from this type of relationship during the audit process. A proper audit involves a trained auditor who knows how to objectively look at your organization. The size and scope of your program and audit package need only be as complex as the size of your organization. Intermediate-size companies may need to look at creating a new position of Quality Manager to manage the ongoing activity (including the audit) within the overall program. This could also be an extension of specific AME duties as long as the Quality activities take precedence over the AME activities. This is where it may be beneficial to hire an AME who also has Quality training or is at least willing to learn that part of the business. Remember that this role will remain ineffective if it is only a name with a title rather than a professional commitment to change.

The AMO environment has definitely taken on a new image. People are taking on new roles and adopting new perspectives pertaining to their work. Companies are learning to evaluate their human resources more effectively in order to fill those new responsibilities. Although it is difficult to quantify the number of potential incidents that have been avoided because of good quality programs, many organizations will still recognize the fruits of their labor over time within the constant cycle of continuous improvement. Quality assurance in the AMO has moved from being the latest buzzword to becoming the driving influence behind all company systems. If you treat the potential of the program with respect, you will certainly remain in favor with Transport Canada and even more important, with your own staff and customers. ■

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Air/Ground Sensing explained

BY GORDON WALKER, AME 'E',
Professor of Avionics,
Centennial College

There is one, simple three-word phrase which will incite an immediate and passionate response from a pilot. No, it's not "I love you", nor is it the more commonly heard "Where's my alimony?" No, if you want to invoke the wrath of an airline aviator, try entering the words "Ground Checked Serviceable" into the logbook in response to a snag.

I was once summoned to the cockpit by an angry captain who asked if I was suggesting he should taxi the aircraft to Havana. As maintainers of aircraft, 99 percent of our time spent aboard these wondrous machines is when they are sedately at rest on the ground. It's easy for us to lose sight of the fact that they (the airplanes) spend 99 percent of their time aloft, tens of thousands of feet above the ground, whistling along at several hundred miles per hour. Besides the physical dynamics, many aspects of an aircraft's behaviour and systems operations change dramatically once it has "slipped the surly bonds of earth." A better understanding of air/ground functionality will enable us to more effectively troubleshoot, inspect, repair and maintain our aircraft.

The enormity and mass of a modern passenger jet easily tricks us into believing it is as solid and firm as a granite apartment building. It is easy to forget that one of these machines, weighing in at over a million pounds when fuelled and ready for departure, can indeed fly at speeds in the neighbourhood of 600 mph. The amount of airframe stress and strain experienced by such an aircraft in flight is enormous. Wings flex up and down, sometimes as much as 20 feet; fuselages twist and bend, and of course, all associated wiring is also subject to this same stretching, vibrating, twisting, and chafing action in flight. This can lead to all sorts of problems as wires are stretched, twisted, and subjected to vibrations created by air loads, engine operation, gearbox action, etc. Conduits, ducts, motors, valves, actuators, switches, sensors, and all other operational components must endure this type of in-flight dynamic as well. Add to this a frigid outside air temperature of about minus 50 degrees, and one can readily imagine how all of these dynamic factors could result in component failures, systems difficulties, and a logbook full of snags.

However, once the aircraft has returned to earth and has been towed into the cozy confines of the maintenance hangar where all of those nasty flight dynamics don't exist, many of those snags seem to disappear. There can exist an understandable temptation on the part of the busy aircraft maintenance technician to simply test the snagged system, and sign it off with the notorious "Ground Checked Serviceable" aphorism. A more appropriate course of action would be to check the system, bearing in mind factors which may exist in an airborne configuration, but not on the ground. Wiring and duct work should be inspected for signs of chafing, cracking, and separating which might occur under flexing, bending and stretching flight-dynamic conditions. Consideration should be given to components such as motors and actuators, which may operate normally under static ground conditions, but could be prone to failure under high vibration or extreme cold.

So different are airborne flight conditions to static ground conditions that virtually all aircraft large enough to employ retractable landing gear employ some sort of air/ground sensing system, enabling the aircraft's systems to operate differently depending upon which of these two milieus it is operating in.

> "As maintainers, it is important that we recognize the implications of "tricking" an aircraft into air mode when it is in fact on the ground . . .

Most air/ground sensing is done by means of a switch or sensor on the landing gear. The switch will open or close whenever the aircraft's weight is either transferred to, or removed from, the landing gear. For this reason, these switches are referred to as squat switches or weight on wheels (WOW) sensors. While most aircraft have the squat switches located on the main landing gear, some use the nose gear for this purpose. As maintainers, it is important that we recognize the implications of "tricking" an aircraft into air mode when it is in fact on the ground, and also the ramifications of actually putting an aircraft into air mode (i.e. on jacks) when it is in a static, maintenance environment. It is crucial that proper procedures are followed when placing an aircraft into air mode for maintenance purposes, as serious damage and injury can occur if these procedures are NOT followed, and properly sequenced.

The process of manually tricking an aircraft into flight mode typically involves mechanically closing or opening the actuator of a mechanical squat switch, or using ferrous and non-ferrous materials to "fool" proximity sensors. Of course, when an airplane is placed on jacks and the weight comes off the wheels, the aircraft **is** in air mode and will behave accordingly. There are also certain tricks and techniques that are type-specific to particular aircraft that can be employed to alter the air/ground sensing system. Pulling the landing gear lights circuit breaker on the old Boeings would remove the gear warning indicator lights and put about 80 percent of the aircraft's systems into flight mode.

Due to the dramatic temperature difference between ground level and cruising altitudes, thermal anti-ice systems operate very differently on the ground as opposed to in-flight. The amount of heat applied in flight conditions would result in serious damage if used on the ground. Extreme care must therefore be exercised with regard to systems such as pitot-static heat, prop de-icing, and wing/body thermal de-ice systems when tricking an aircraft into air mode. Severe damage would be caused by the application of full in-flight anti-icing heat to any of these systems while the aircraft was on the ground. Likewise, precautions should be taken before putting an aircraft on jacks to ensure the air/ground sensing doesn't cause automatic activation of any heater elements.

Factors also exist that pose risks to personnel when aircraft are placed into flight mode while still on the ground. The aforementioned pitot-static heat issue can result in very serious burns should anyone contact these probes while they are being heated in air mode. Automatic movement of outflow valves and ram air doors when an aircraft enters air mode can cause serious injury . Inadvertent deployment of ram air turbines (RAT) can also result in serious injury to maintenance workers.

With airplanes becoming "smarter" as a result of advancing technologies, new hazards associated with air/ground sensing are being created. An aircraft equipped with fly-by-wire technology, if tricked into flight mode while on the ground with engines running, may throttle up in attempt to gain airspeed. Wheel brakes and nose gear steering may be disabled in flight mode. Imagine the scenario of a transport category aircraft being ground run by an engineer, and being tricked into air mode; engines roar to full power, brakes are disabled, no nose gear steering available, and fly-by-wire technology means pulling back on the throttles has zero effect. It could lead to a spoiled afternoon.

Air/ground sensing is, generally speaking, designed to prevent various systems from operating inappropriately on the ground or in flight. It can also ensure systems are enabled or disabled as befits the aircraft's situation. As maintainers, we are occasionally required to trick the air/ground sensing system. It is crucial that when doing so, we precisely and accurately follow all procedures to guarantee the safety of the aircraft and personnel in the vicinity of the aircraft. Failure to do so could have catastrophic results.

Q: What is the commonly used term for the air/ground "weight on wheels" sensor?

Answer to the question from last issue:

Q: What is the process of varying or changing R.F. signals called?

A: The process of varying or changing R.F. signals is known as "modulation". Amplitude modulation (AM) and frequency modulation (FM) are both used in aircraft applications.

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).* ■

The XPB2M-1/-1R, *aka* the Martin Mars

BY MIKE BRODERICK
Helicopter Engine Repair
Overhaul Services

OK, class – let's start the day with a bit of a riddle. Who was conceived on January 1, 1939, born on August 22, 1940, and on September 27, 1941 – before taking her first step – weighed 75,573 lbs., was 38 feet tall, 117 feet 3 inches long, with a span of 200 feet, and at the ripe old age of one year, one month and two days was known as the "Old Lady?" Give up? Want a hint? She eventually had four sisters. Another hint? OK, there are only two remaining of the original five siblings. That help? No? OK – how 'bout their dad's name was Martin and their maiden name is Mars.

There you go – you got it. We are talking about the mighty Martin Mars flying boat. And, as I am sure you have figured out by now, the Martin Mars is going to be the subject of our studies for the next couple of lessons.

Do you know why she was conceived, or do you have any idea what the builders originally had in mind for the Martin Mars, aka XPB2M-1/-1R? Do you know what the two remaining sisters are doing for a living right now? Well very briefly, as we will be discussing their current employment in detail later, these two ladies have been in the firefighting business since 1960, operating out of the picturesque Sproat Lake near Port Alberni, BC, Canada. The Hawaii and the Philippine aircraft have participated in the control and termination of over 4,000 wild fires, dropping an impressive 7,200 gallons of water per aircraft for each sortie flown. Not bad for a couple of old birds who by all rights should have retired long ago. And these are just a few of the topics we will cover over the next few lessons.

But, before we do an exposé on the mighty Martin Mars sisters Hawaii and Philippine, have you ever

wondered why we refer to aircraft or boats, as "she?" Me too, so I looked it up and you know what I found? Nothing definitive. However, the general consensus from my research is that we, the male of our species, have always been intrigued by the physical beauty and metaphysical mystery of the female of the species. Duh, ya think? So as an ultimate compliment to the esthetic beauty of an aircraft in flight or the appealing sight of a boat gracefully slicing through the water, we anthropomorphize (you remember what that means right?) these inanimate objects into a female. From a male perspective, kind of makes sense doesn't it?

Oh yeah, one more thing. You should know about my sources for this article. I was given a book, *The Mighty Martin Mars*, which is a historic anthology about this venerable aircraft written by Wayne Coulson and Steve Ginter and published by Coulson Flying Tankers, a division of Coulson Aircrane Ltd. The Coulson Group is the owner of the two remaining Martin Mars aircraft in service, the Hawaii and Philippine Mars. It's a great book and was very helpful for my research. Also, I interviewed and received anecdotal information from Wayne Coulson, the President and CEO of the Coulson Group of Companies, and Roy Copeland, Director of Aircraft Maintenance/Chief Flight Engineer for the Hawaii and Philippine Mars. Their input has been invaluable in my research and I appreciate the time given me over the phone and via email. Heck, I could write an article on these two gentlemen based upon their aviation background alone. So now that I have offered you a couple of informative hors d'oeuvres and given proper recognition to my resources, whad'ya say we start our excursion at the beginning – the conception and the birth of XPB2M-1/-1R.

In 1935 a Request for Proposal (RFP) from the US Navy for a long-range, maritime reconnaissance bomber that would be managed by a crew of 11 aviators was presented to four aircraft manufacturers: Consolidated, Boeing, Vought-Sikorsky and the Glenn L. Martin Aircraft Company. After due consideration, on August 23, 1938, Martin received the contract for the long-range bomber, and thus began the saga of the mighty Martin Mars, known officially as XPB2M-1. On January 1, 1939 contract number 62482 was signed. The keel for this patrol bomber was laid on August 22 1940 and the aircraft that became known as the "Old Lady" to all who were instrumental in her construction was rolled from the hangar on September 27, 1941.

On November 5th the completed XPB2M-1 was moved to the seaplane ramp at Middle River, Maryland, and launched. During the next month while other equipment was being fitted, the engine and systems tests also took place. One month to the day after her launch during an engine test the right inboard engine's propeller did not respond to the "reverse-pitch" directive from the cockpit flight controls, which caused the prop to transition into flat pitch instead. The engine and propeller oversped, which caused the engine to catch fire. To exacerbate an already serious situation, a propeller blade was released from the hub and penetrated the fuselage, just missing the flight engineer in the cockpit. The aircraft was freed from its mooring and was subsequently run aground to save it. The engine burned free, fell from its wing pod where the fire was eventually extinguished. Thirty days later the aircraft was repaired and towed to the seaplane ramp for final testing. Now, that is an example of some real dedication by the mechanics and engineers whose resolve was not going to let something like an engine fire and prop failure stop them from getting this aircraft in the air.

The "Old Lady" made her maiden flight on June 23, 1942 after the original 2,000-HP engines and wooden propellers were replaced with Wright R3350 18-cylinder engines, which produced 2,200 HP, and 16-foot 6-inch Hamilton Standard three-bladed metal props. Martin continued testing the aircraft until November 1942. During at least two of the flight tests, the "Old Lady" muscled 30,000 lbs. (the designed payload) into the air with ease. The final company flights took place over two days – October 4th and 5th – covering 4,600 miles in 32 hours and 17 minutes. The "Old Lady" was ready to begin her career as a Naval Aviatrix four-engine bomber. However, before she would drop one bomb on the enemy, the Navy changed its mind on the job classification for the XPB2M-1. They now figured that a four-engine Maritime Reconnaissance Bomber was considered to be too slow and vulnerable. So the Old lady was returned to Martin Aircraft Company for modification into a Maritime Cargo and Troop Transportation Aircraft. Thus, XPBM2M-1 – at the ripe old age of two – went through an aircraft version of a major body nip and tuck. All the armament was removed, decks reinforced, hatches added and/or existing hatches enlarged, and cargo loading equipment

installed. On October 8, 1943, the new version of XPB2M-1 was changed to XPB2M-1R, and Air Transport Squadron Eight (VR-8) at Patuxent River, Maryland, was established as the home for the now non-combatant XPB2M-1R whose stated mission was four-engine seaplane training. Also, as an extension of this role, transport operations between Naval Air Station (NAS) Patuxent River ("Pax" River) and NAS Bermuda were conducted. On November 30, 1943 just three days after being "officially" accepted into VR-8, Lieutenant Commander (LTCDR) W.E. Coney flew from "Pax" River with a crew of 16 and 13,500 lbs. of cargo, landing in Natal, Brazil, 28 hours, 25 minutes later (a non-stop flight of 4,375 miles).

In January 1944, the Old Lady was assigned to the Pacific Naval Air Transport Service (NATS) squadron VR-2 at NAS Alameda, California. During her time with VR-2, the XPB2M-1R completed 78 round trips between San Francisco Bay and Honolulu before being retired 14 months later. But during the 14 months, she racked up quite a service record. Capable of carrying 150 men, she transported over 3 million pounds of supplies and personnel; this included 120 cargo-tons of whole blood in a single month during the fight for Iwo Jima. At that time, the 4,700 mile round trip to and from Hawaii was the longest scheduled non-stop route in the world. On her first flight the "Old Lady" completed the flight in 27 hours and 26 minutes, carrying a 20,500-lb. cargo load. Based upon the "Old Lady's" successful performance, the Navy wanted more of these aircraft, and placed an order for an additional 20 of Mr. Martin's maritime cargo and troop transportation aircraft. The new and improved versions were designated JRM-1. The contract was issued in January 1945. But because the war was winding down the contract was reduced to six aircraft. The six JRM-1's were to be specifically built for and assigned to NATS Squadron 2, to be used exclusively on its Alameda to Honolulu route. The first of the six (BuNo 76819) the "Hawaii Mars" was completed in late June 1945, test flown several times before being christened, and launched on July 27,1945.

Wait, didn't I say at the beginning of today's lesson that the Hawaii Mars had four siblings? I wonder what happened. Six were for sure built; five of the model JRM-1 and one JRM-2. OK, so what happened, and what modifications were made to change the designation to JRM-2? Ah, very good questions, and they will all be answered in Part 2 of The XPB2M-1/-1R. In our next lesson we will learn about the rest of the brood and where they are today. We will learn the fate of the first Hawaii Mars, which will lead us to Part 3, when the Mars goes through another career change.

So until next time, remember: even the best pilot can't fly until you, the technician, says the aircraft is safe 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.* ■

How Safe Is Your Ramp?

BY SUE YOST, HPA Consultants

Have you ever watched, and I mean really paid attention, to the activity during a quick turnaround? Fuellers, baggage carts and belts, honey wagons and a scissor truck all on the right side of the aircraft, and passengers and flight crews getting on and off, fore and aft, on the left. This is a wonderfully orchestrated ballet of people, vehicles and equipment. One small hiccup, however, and the whole production could unravel.

In an effort to increase the safety factor in aviation, the industry has integrated proactive Human Factors training for flight crews and maintenance personnel. But what of the line crews – those who are working in adverse conditions, have their own agendas, and due to high turnover, may not have the luxury of a sustained team rhythm?

Ramp personnel are often trained on the job, fairly young, underpaid, and put in situations where they are expected to complete a job quickly and competently. They are avoiding other people, large moving objects, hazardous substances, and at the same time operating their own equipment. Add to these obstacles loud noise, working at night, in freezing rain/snow/sleet, with protective equipment on, in extreme cold or heat, avoiding jet blasts and spinning props, and you have a highly increased predisposition to errors and poor judgment calls.

The injury potential on the ramp is enormous: flammable fuels, jet and prop blasts, de-icing and other hazardous fluids, and high noise levels that can injure ears and drown out warning sounds of danger. Equipment moving can harm those unaware or tired, and in rain, ice, and snow they are battling poor visibility as well as uncertain footing and driving conditions.

Humans are the cause of most ramp accidents; fatigue, the pressure and stress of time deadlines and brutal schedules involving many flights with fast turnarounds, negative norms (the way things are done); and a lack of awareness of an action, or lack of action, on their part, will lead to mishaps, accidents and possibly injuries.

At LBP (Toronto Airport) each week, there is at least one incident involving a fuel truck and an airplane, and the airplane is not the moving vehicle. These accidents cost millions of dollars, not to mention flight delays and cancellations, unhappy customers and more tasks for already overworked maintenance crews.

Have you ever had a tug "bump" a wall or another vehicle, or a leading edge? How about an aircraft moved without wing walkers that has creased a wingtip on a hangar door, or an aircraft backed into a wall or another airplane? Has anyone had the wrong fuel put into an aircraft, or had the wrong airplane fuelled or topped up with oil? Balance the cost of training your ramp workers in Human Factors against the cost of one mishap that requires grounding that airplane. That incident would pay for the whole crew to be educated in working safer, and the training would pay for itself many times over.

Ramp personnel feel the pressure of management decisions, tight time deadlines and flight crew and maintenance demands. If the organizational culture is one that lays blame for wrongdoing, or an honest mistake, it is understandable that an overstressed truck driver may not report a collision with a fuselage – one that could have disastrous results.

Ramp damage to aircraft, airport structures and ground service equipment now costs the global airline industry an estimated $3 billion US annually in uninsured losses (Airports Council International, 2000). That's a lot of seats that have to be sold to pay for the losses. It makes more sense to put a portion of that money into training people to work safer and prevent the accidents, than to pay for the ground damage.

Human factors courses are a logical preparation for anyone who works under adverse conditions, combined with high pressure situations and tight time deadlines. Ground crews are vulnerable to errors, can impact the safety of any aircraft, and would benefit from training.

Management should measure the success of the company, not only in $$ and uninterrupted flight schedules, but also by the safety record of the organization. Just because it is not mandated, does not mean it is not necessary.

HPA Consultants *is based in southwestern Ontario; the owner and principal facilitator, Sue Yost, has been specializing in Human Factors in Aviation Maintenance for the past 12 years. The company offers both initial and update training in Maintenance Human Factors, and now has an online HF update available. Both classroom-based HF trainings are IA renewal approved. Other workshops include QA, SMS, CARs and CRM, WHMIS and First Aid in the workplace. To see a schedule or to contact HPA Consultants, visit www.flyasafe.ca or call 519-674-5050.* ■

(Continued from page 8)

a graduate of Boston College with a BA in Business Administration.

"I have been directly involved with aircraft operations at Westchester County Airport since 1999, and I look forward to utilizing my aviation, information technology and financial expertise to the benefit of the Association," says Sullivan. WAMA is arguably the oldest type association in the country, having been founded in 1960 and incorporated in the State of NY in 1968. See www.wamahpn.org for more details and membership information.

National Research Council of Canada and Bombardier Aerospace sign R&D Cooperation Agreement

OTTAWA ON, Dec. 5, 2011 — On June 22, during the 2011 Paris Air Show, the National Research Council of Canada (NRC) and Bombardier Aerospace signed a multi-year framework agreement covering research, development and testing in areas of interest to both organizations. A Memorandum of Understanding signed in 2010 paved the way for this agreement. The agreement sets the terms for both fee-for-service and collaborative research projects.

Bombardier aims to advance its research in areas including aerodynamics, computational fluid dynamics, structures and materials, acoustics, multi-disciplinary optimization, aircraft interiors and electromagnetic interference.

NRC and Bombardier Aerospace have previously collaborated on projects ranging from aerodynamic studies for several Bombardier aircraft concepts to the development of advanced manufacturing methods, including automated fabrication of composite aircraft fuselages. The signing of the agreement reinforces this mutually beneficial relationship.

Down the road, the agreement will enable Canadian businesses to better compete in an increasingly global, competitive industry and to provide them with the potential to create good jobs and growth for Canadian businesses and workers.

Recognized globally for research and innovation, the National Research Council of Canada is a leader in the development of an innovative, knowledge-based economy for Canada through science and technology. Its Institute for Aerospace Research is Canada's national aerospace laboratory, undertaking and promoting research and development in support of the Canadian aerospace community in matters affecting the design, manufacture, performance, use and safety of aerospace vehicles.

A world-leading manufacturer of innovative transportation solutions, from commercial aircraft and business jets to rail transportation equipment, systems and services, Bombardier Inc. is a global corporation headquartered in Canada. Its revenues for the fiscal year ended January 31, 2011, were $17.7 billion, and its shares are traded on the Toronto Stock Exchange (BBD). Bombardier is listed as an index component to the Dow Jones Sustainability World and North America indexes. News and information are available at www.bombardier.com.

For more information, visit the NRC Aerospace website http://www.nrc-cnrc.gc.ca/eng/index.

West Star named GE Service Center for CF34 Engine Services and Products

EAST ALTON IL, Jan. 10, 2012 — West Star Aviation has announced that their East Alton (ALN) facility has joined the Authorized Service Center Network of General Electric Company. The service agreement gives West Star the capabilities to provide service and support to the GE CF34 engine, including servicing the engine and supplying related parts and products. In addition to ALN, West Star's Grand Junction (GJT) facility has been an Authorized GE Service Provider for over six years.

As an Authorized Service Provider, both facilities offer CF34 operators another source to receive engine maintenance with the quality standards of GE. According to the authorized service agreement, West Star can provide all levels of line maintenance inspections, removal and reinstallation of engines and external engine components. The facilities will have access to all related parts and products manufactured or approved by GE.

For more information on West Star, visit www.weststaraviation.com. ■

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Son of a Beech 18

BY SAM LONGO, AME, A&P

The Beechcraft Model 18 prototype first flew on January 15, 1937. After 9,000 aircraft had rolled out, the Wichita, Kansas, company ceased production of the venerable twin-tailed twin in 1970 . . .

Its record still stands today, as the longest running, continuous production piston aircraft in aviation history. Speaking of history, Centennial's E18S Model was the queen of their fleet for most of my tenure teaching at the college, only recently upstaged by a newer Beechcraft King Air. Given proper care and feeding, that old "bug smasher" never failed to start and run like a champ – a true testament to the tried-and-true combination of Pratt and Whitney R985 engines mated to bulletproof Hamilton Standard Hydromatic propellers.

Although I have never actually left terra firma in a Beech 18, as fate would have it, I quite possibly have more cockpit ground-run time in one than many seasoned pilots.

The second-year students couldn't wait for their turn to do a ground run, usually slated for early spring, just before graduation. Pushing the throttles to full power, unleashing all 900 Horsepower, became a rite of passage, and if it set off the car alarms in the adjacent parking lot, all the better. For the few foolish instructors who ventured forth to run it, the starting ritual became ingrained in our memories. Like a finicky antique British motorcycle, the old girl rewarded a familiar touch with consistently clean starts (if you can call a thick shroud of white smoke, a clean start).

During 22 years of teaching in Centennial College's Aerospace Department, I did thousands of ground runs with many thousands of students, and despite my NOW poor hearing and weak kidneys, the starting drill remains crystal clear. Without the benefit of a checklist, it went something like this:

Once the aircraft was fueled and oiled, it would be nosed into the wind and chocked. With magneto switches verified OFF the props were pulled through a minimum of two complete revolutions to check for hydraulic lock.

Once inside the cockpit with two students, the process began. Parking brake on and set. Fuel selectors on. All circuit breakers checked.

Engine prep: cowl flaps full open, oil cut-off open, oil coolers in bypass, manifold heat to cold, props full fine, mixture full rich, throttle #1 cracked slightly open (half a knob), master and battery switches ON. Establish "All Clear" from the posted fireguard to start port engine.

Select #1 electric boost pump on. Verify fuel pressure on gauge. Engine select switch to #1 position.

Hold down Start and Induction Vibrator buttons and count passing of 4 to 5 prop blades, and while simultaneously holding the electric prime button, switch on both magnetos. As soon as the engine catches, release all three buttons and check for oil pressure. Turn electric boost pump off (engine driven pump takes over). Increase engine RPM slightly to clear plugs and warm up engine. Repeat entire procedure for starboard engine.

Once both engines had oil and cylinder temps in the "green" all standard parameter checks were carried out: live magneto check, mag drop check, idle check, carburetor heat, prop cycling, generator checks, etc. Once the process got rolling we could initiate about three to four students per hour, often for many hours at a time. Though often hot and always noisy the ground runs remained an enjoyable perk of my teaching routine. For some students it was clearly overwhelming. Fortunately, most took it in stride and gleaned all they could from the experience, while we patiently guided them through the process, struggling to communicate over the din of the barely muffled radial engines.

This past spring I was at a shopping mall not far from Centennial's Ashtonbee Campus. As I came out of a store, I heard a familiar sound in the distance, and it was the very first time I felt any remorse from my retirement. The Beech 18 was wailing away at full power, and I was just a little melancholy, knowing that someone else was having all the fun. It was a great old airplane and a terrific job with many great memories. Running that classic Beech 18 will always remain one of the highlights. I guess I'll always have a soft spot for round engines that drip oil. Despite many years of working on airliners with modern turbine engines, my heart still gravitates towards vintage piston engines like those good old Pratt and Whitney R985s.

Who knows, one of these days I may actually go for a flight in a Beech 18. It's definitely on the bucket list, but until then I will count myself as one lucky "Son of a Beech" to have had 22 fabulous years to play with one.

For more published columns by Sam Longo, please visit www.samlongo.com ■

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