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Contents

October 31, 2019, Vol. 68, No. 10

TO THE FIELD

- **10** Aviation Branch Chief's Corner By MG David J. Francis
- **14 AMCOM Commander Update** By MG K. Todd Royar
- **16** Aviation Branch Maintenance Officer Update By CW5 Michael D. Cavaco
- **18** AMCOM Command Sergeant Major Update By CSM Mike Dove
- **22 Program Executive Officer Aviation Update** By MG Thomas H. Todd III
- 24 Combat Readiness Center Update By COL Andrew C. Hilmes
- 26 Reserve Component Aviation Update By BG Jami C. Shawley, COL Andrew D. Cecil, CW5 Michael G. Siedler, and CSM Juddiah G. Mooso
- 28 128th Aviation Brigade Update By CSM Bradford Smith and Mr. Warren Johnson
- 30 CCDC AvMC Tech Talk By Mr. Michael E. Vourcos and Mr. Jared R. Peltier
- **32** Ask the Flight Surgeon By: CPT(P) Jessica Warneke, D.O.

SPECIAL FOCUS - Aviation Survivability

- **34 Project Manager Aircraft Survivability Equipment Update** By COL Kevin S. Chaney
- **36** Survivability: A Change to the Aviation Training Mindset By CW5 James O. VanMeter
- **40** Susceptibility Reduction Using Modeling and Simulation By Bart Schmidt and Warren Whitmire
- 42 Ensuring Mission Readiness through Engagement and Innovation By Mr. Eric R. Bowes
- **44 S&T Advancements in Threat Detection** By Mr. Ralph Troisio, Mr. Michael Zalewski & Mr. Robert Di lenno











Contents

October 31, 2019, Vol. 68, No. 10

SPECIAL FOCUS - Aviation Soldier Support

48 Product Manager Air Warrior 2019: Update to the Field By LTC Bryan Bogardus

SPECIAL FOCUS - Aviation Support

50 Aviation Mission Systems & Architecture (AMSA) – Keeping Soldiers First

By COL Johnathan Frasier and Ms. JoAnna Wright

SPECIAL FOCUS - Aviation Sustainment

54 AMCOM – Improving Readiness Gains, Driving Future Sustainment By COL David K. Almquist

FROM THE FIELD

58 15th Luther G. Jones Aviation Depot Forum-Shaping Aviation Sustainment

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DEPARTMENTS

AAAA NEWS

AAAA President's Cockpit	8
AAAA VP Chapter Affairs	62
Chapter News	63
AAAA VP Membership	64
New Members	65
AAAA Family Forum	66
AAAA Legislative Report	
AAAA Scholarship Foundation Donors	68

ARMY AVIATION COMMUNITY NEWS

Advertisers Index	72
Art's Attic	
Briefings	6
Calendar	
Fallen Hero	
Hall of Fame	
Historical Perspective	
Industry News	
In Memoriam	
People on the Move	74

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On The Cover

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Briefings > Late Breaking News - Announcements

McCarthy Confirmed as SECARMY



Ryan McCarthy was confirmed by the Senate on September 26, 2019 as the next Secretary of the Army. He previously served as the under secretary of the Army but became the acting secretary when Army secretary Mark Esper was nominated to become the

defense secretary in July. McCarthy had also served as acting secretary until Esper was confirmed as Army secretary in late 2017. He served in the 75th Ranger Regiment during the invasion of Afghanistan, was a special assistant to former Secretary of Defense Bob Gates and worked on the House Committee on International Relations. When he was nominated to become under secretary in 2017 he was a vice president at Lockheed Martin.

III Armored Corps Assumes **OIR Mission in Iraq**



Marine Corps Gen. Kenneth McKenzie (right), U.S. Central Command commander, transfers authority of the Inherent Resolve mission to the III Corps commander, Army LTG R. Pat White at a transfer of authority ceremony in Baghdad, Iraq, September 14, 2019. The Fort Hood, TX based III Corps assumed responsibility of the counter-Islamic State mission from the Fort Bragg, NC based XVIII Airborne Corps which held that responsibility for the past year.

Guard Gets New Talent Management System



Army Chief of Staff GEN James McConville announced during the annual conference of the National Guard Association of the United States in Denver, CO on Aug. 31. 2019 a new talent management system that will revolutionize how the service staffs iobs, assigns soldiers and keeps track of records. The Integrated Personnel and Pay System-Army, or IPPS-A, is designed to manage talent by matching the service's requirements to soldiers' skills, knowledge and even their personal preferences. IPPS-A can currently be found in Army National Guard units from nine states, including Pennsylvania, Virginia and the District of Columbia. The entire Guard component will begin using the system over the next year before it rolls out Army-wide over the next couple years. It will also put the entire force - Reserve, National Guard and active duty on one pay and records system.

West Point Cadets **Branching Process** Changes



West Point's class of 2020 will be the first users of a new branch assignment system this fall. The Army's new "Market Model branching system" for the first time takes input from the commandants of each branch, who rank cadets as "most preferred." "preferred" or "least preferred," according to an Army news release. The number of cadets allocated into each category depends on the branch's needs. Cadets will be judged based on a range of factors, including test scores, physical fitness scores, transcripts, personal statements and, for the first time, interviews with the branches they're interested in. The process allows cadets to take on a Branch of Choice Active Duty Service Obligation, or BRADSO which will require West Point graduates to serve an extra three years on top of five they're already obligated to serve in exchange for increasing the odds that they will receive the branch they most desire. The program begins this November and will eventually be used across the Reserve Officer Training Corps detachments next year.

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It's Time to Get After It!



A rmy Aviation is moving out to achieve a lethal, decisive and sustainable Multi-Domain Operations maneuver and fires capability by 2028.

In this issue of Army Aviation, four senior Army Aviation leaders lay out how their organizations are driving towards that goal. Branch Chief, MG Dave Francis explains how the Branch and Aviation Enterprise is going to achieve this goal across the Doctrine, Organization, Training, Material, Leader Development, Personnel, Facilities and Policy structure for both the current force as well as the future force. His focus on leader development and education is critical: as MG Francis points out, the new soldiers, be they enlisted or officer, joining our formations today will be the leaders of our Future Force tomorrow, and we must get their development RIGHT.

Our Program Executive Officer for Aviation, MG Thomas Todd, speaks in his article to how his team of teams work within the broader Enterprise on "providing our Soldiers unmatched capabilities required in the current environment" while "setting the conditions to ensure the CABs' (combat aviation brigades) future success through continuous innovation to support large scale ground combat operations."

Aviation and Missile Command Commanding General MG Todd Royar's article highlights his two coequal priorities: readiness of our current fielded and fielding fleets, including using Condition Based Maintenanceenabled Aviation Inspection and Maintenance and Sustainment, as well as ensuring future fleets are design-built with a higher material availability rate using commercial and DOD best practice concepts, such as the Maintenance Steering Group-3 (MSG-3) process.

Also in this issue, Army Reserve Aviation Command commanding general, BG Jami Shawley and her command team, provide insight as to the impacts of the 1/30 rule on the overall readiness of USAR Aviation. As she states, "AR Soldiers are not 1/30th the Soldier," and "Soldiers do not have the option of only knowing 1/30th of the information required..."This has been the official position of AAAA as well since the National Executive Board passed a formal resolution on April 9, 2006 calling for the abolition of the 1/30 Rule for ARNG and USAR Aviation Soldiers.

We have devoted much of the remainder of this issue to set the stage for the upcoming AAAA Aircraft Survivability Equipment Symposium on November 18-19, followed by the Joseph P. Cribbins Product Support Symposium, November 20-21, both in Huntsville. You will find some insightful articles from our ASE, Air Warrior and Aviation Mission Systems & Architecture PMs, as well as chiefs of Survivability Branch, ASDAT, ARAT, and I2WD MG (Ret.) Jeff Schloesser, AAAA President, with the Army Aviation Senior Leadership at the Army Aviation Congressional Caucus during an AAAA-sponsored breakfast in Washington, DC, May 16, 2019. From left, MG Dave Francis, U.S. Army Aviation Branch Chief; MG Thomas Todd, PEO Aviation; BG Allan Pepin, Commanding General, U.S. Army Special Operations Aviation Command; Mr. William Marriott, then-Executive Director, U.S. Army Aviation and Missile Command; and Mr. Geoffrey Downer, AMCOM Director, Special Programs.

EW. If the acronyms puzzle you, I challenge you to dig into the magazine and the relevant articles to learn more!

By the time you are reading this, we will have held a semi-annual National Executive Board meeting on October 13, followed by another Army Aviation Caucus on Capitol Hill with key members of Congress, their staff, and our Army Aviation leadership on October 17. Finally, we will have hosted a dinner meeting between our AAAA Senior Executive Associates (four and three star retired non aviator Army leaders) and our Army Aviation leadership on the evening of October 17th. The purpose of these high-level engagements is to ensure Army Aviation and our members have a voice with our elected leaders and other senior leaders in the National Capital Region.

Achieving an MDO capable aviation force by 2028 is a great objective and a significant challenge. As our Chief of Staff, General Jim McConville often says, "*it's time to get after it!*"

MG Jeff Schloesser, U.S. Army Retired 34th President, AAAA *jeff.schloesser@quad-a.org*

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Army Aviation – Lethal and Decisive

By MG David J. Francis



The discussion of the future of Army Aviation requires an understanding of where we're going and how we're getting there.

Where We're Going

The 2018 National Defense Strategy (NDS) highlighted Russia and China as our proximate and pacing threats. The requirement to change how we train and fight is the catalyst for the Multi-Domain Operations (MDO) concept and our focus on Large Scale Combat Operations (LSCO) against peer or near-peer adversaries. From this, the Army Modernization strategy was born. The Army has now moved forward significantly with six modernization priorities. Future Vertical Lift (FVL), which is the Army's #3 priority, contributes to solving the "problem" of standoff, and focuses on fires and movement. Army aviation operates in the third dimension of movement and is the aerial arm of Combined Arms Maneuver (fires + movement), which is the Army's contribution to the Joint force.

Army aviation is a key component

in penetrating the enemy's Anti Access and Area Denial (A2AD) and Integrated Air Defense Systems (IADS), dis-integrating components of the enemy's military system, and then exploiting freedom of maneuver necessary to achieve strategic and operational objectives in order to return to competition on terms favorable to the Joint and Coalition force. Within the MDO construct, Army aviation is critical and decisive to survive, fight and win in LSCO. As we partner with industry, the leap-ahead technology being developed will support Army aviation being MDO capable by 2028 and contribute to Army aviation remaining survivable in the high threat, complex environments of LSCO. Additionally, we will make targeted investments in the readiness of our enduring fleets as the AH-64s, UH-60s, and CH-47s will remain in the fight for at least the next 20 years.

A tactical air control party from the 13th Air Support Operations Squadron at Fort Carson, Colorado, prepares for helicopter extraction by the 4th Combat Aviation Brigade.

How We're Getting There

This is an extremely exciting and critical time to be a part of Army aviation. Leaders across the Aviation enterprise are now aggressively pursuing a series of solutions to set the conditions to achieve MDO capability by 2028. Discussion to this point focused primarily on platforms, but there's a lot of work across the DOTMLPF-P (Doctrine, Organization, Training, Materiel, Leader Development, Personnel, Facilities, Policy) to bring new technology into our force. Synchronization for both the Fielded and Future Force is critical to our success.

Doctrine: We're working diligently on how we fight. Our goal is to rapidly transition concepts to doctrine. This will not happen overnight. However, we learn more every day and leverage the extensive knowledge and experience from across our force. The current MDO concept informs our experiments and exercises,

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which in turn, will assist us in developing the Aviation doctrine that will drive how we will employ Army Aviation in MDO.

Organization: Leap ahead technology, new platforms, and emerging concepts and doctrine shapes organizational change. This organizational change is occurring through the TAA process. We must strike a balance and optimize the current aviation force to get the maximum capacity out of it, while we simultaneously look to the integration of FVL.

Training: In order to maintain a Combined Arms Maneuver Force, Aviation must remain synchronized with

other Centers of Excellence and Cross Functional Teams (CFT) as the Army modernizes. Institutional and home station training will adjust as well as the necessity to expand our training base. Our new technology's dramatically increased speed and distances will also impact how we train for LSCO across the Army.

Materiel: FVL is a critical capability for the Army and MDO to deliver Combined Arms Maneuver to the Joint force to fight and win in LSCO. FVL embraces and pursues the priorities of Reach, Protection, Lethality, and Sustainment. Senior Army leaders are engaged continuously in the process of developing and acquiring these technologies. We are funded and on-track to bring FVL on-line.

Leader Development and Education: This is my top priority as the Chief of the Aviation Branch. Growing leaders that will operate via mission command in dispersed formations across great distances while fighting and winning is critical to the future of our Army. We're relooking the professional career development models as one effort to improve effectiveness of our leaders. To put it in perspective, today's lieutenants will be combat aviation brigade (CAB) S3s and XOs in 2028 and battalion commanders in 2035. Our current sergeants will be platoon sergeants and command sergeants major when Aviation is MDO capable and ready, and our newest warrant officers will be seasoned standardization pilots, aviation mission survivability officers, maintenance test pilots and safety officers at that time. We must get leader development right... now!

Personnel: FVL will require new military occupational specialties (MOS) to fix, operate and employ the platforms and capabilities. Whether current MOSs expand, or if new MOSs are created, we will still recruit, train, and fight with our most valued assets – our Soldiers.

Facilities: The Future Force will operate and train differently with new materiel. Current facilities will most likely require adjustments to house our FVL platforms. The introduction of long range fires, increased speeds and ranges, air launched effects, and teaming of manned and unmanned systems will also dictate changes to the facilities at which we currently train these capabilities.

Policy: AR 95-1, along with other policy documents, require revision due to new capabilities. Army policies must account for training and employing new systems in training areas and national airspace in order to leverage the full capabilities of our new technologies.

The entire Aviation enterprise is at full speed to set the conditions to achieve MDO 2028 capability. I'm proud of the results we've made so far, and I challenge each leader out there to continue pressing forward.

Above the Best!

MG David J. Francis is the Army Aviation branch chief and commander of the U.S. Army Aviation Center of Excellence and Fort Rucker, AL. HELIBASKET



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Army Aviation Sustainment Enterprise – Ensuring Readiness and Modernization By MG K. Todd Royar



want to start by saying that I am honored and humbled to have returned to the U.S. Army Aviation and Missile Command (AMCOM). An aircrew with the 1st Battalion, 147th Aviation Regiment of the Wisconsin National Guard at Madison operates a UH-60 Black Hawk helicopter at Fort McCoy, WI March 11, 2019.

Having just come from one of our great Divisions, I understand the importance of both the readiness of our current fleet and the criticality of getting new, sustainable, systems to the field to face future threats. You have my commitment at AMCOM in working with the rest of the enterprise to meet these goals.

Readiness

While NMCS rates have been at near historic lows, generally four to five percent per Mission Design Series, we must be strategic on what we spend our money on. In short, it is cost prohibitive to get to zero percent NMCS if we also want to invest in Future Vertical Lift (FVL). Consequently, we must do better in tackling the ever-growing gap that has developed between its field and sustainment maintenance programs. We must fully utilize the Condition Based Maintenance Plus (CBM+) strategy to bridge the gap between time between overhaul, phase inspections and depot service life extension programs by optimizing component life and available contractor resources in a way they can be most effective to current and future readiness.

At the present time, as structured, our current depot service life extension programs are not a sufficient strategy to address the legacy fleet and its challenges. In order to prevent our legacy fleet from becoming too costly we must prioritize and validate aircraft to be inducted by utilizing a CBM-enabled Airframe Inspection Maintenance and Sustainment Program. It is evident that an essential element of our strategy to maintain our legacy fleet will be to optimize the available funds and resources. This will allow the Aviation enterprise to continue to build readiness in the future with its legacy aircraft.

Modernization

In order to maintain the tactical edge in combat the Army as a whole must continue to ensure it is modernizing. The Future Attack Reconnaissance Aircraft, Future Long Range Assault Aircraft and Future and Advanced Unmanned Aircraft Systems will provide great capability, but we also want and need them to be reliable enough to keep long term costs down. In order to ensure the success of FVL and its technologies AMCOM is synchronizing with the FVL-Cross Functional Team by providing all sustainment and maintenance support throughout the life cycle of the aircraft. A key component of the approach is to build into the design a higher materiel availability rate than our current systems were designed against. Another key parameter will be to ensure we build into the design a methodology

to continually review maintenance requirements and then adjust them where needed. One such system being used on our CH47F fleet is the Maintenance Steering Group, 3rd Specification. Its methodical review of data will result in decreased overall maintenance requirements for the CH-47F fleet – we will need a similar type approach on our new airframes from day one.

Reform

Finally, we need to reform ourselves and our mentality towards maintenance. While NMCS rates have been at near historical lows as mentioned above, our NMCM rates have averaged 15-20 percent. Some of this can be attributed safety of flight maintenance to requirements, yet some is also on us. As we no longer have the negative effects of leaving behind maintainers due to force manning restrictions, our thought process must change. Every maintenance action is a training opportunity and we are hurting our next generation if we do not teach, coach and train them on what right looks like. Similarly, readiness today, and not just for future deployments, counts. Although it is a commander's call if we have parts show up late in the day to get an aircraft from NMCS to fully mission capable. Consequently, we should plan on working that same day/ night to get the airframe up. This takes planning for personnel manning and shifts, but it can be done. In short, we need to change our maintenance culture from that which we practiced during the Global War on Terror to more of a fight tonight mentality for operations against a near peer threat.

In closing, AMCOM is here to ensure that Army Aviation develops in to an agile, adaptive expeditionary force needed to compete and win in large scale combat operations in support of combatant commanders. The Army Aviation Sustainment Enterprise remains focused on maintaining our legacy fleet to ensure continued readiness, modernization and continuously educating in present time.

MG K. Todd Royar is the commanding general of the U.S. Army Aviation and Missile Command at Redstone Arsenal, AL.





Three Yards and a Cloud of Dust – Maintainers Keep Pushing the Ball Downfield By CW5 Michael D. Cavaco

Ver the last three to four years the Aviation Enterprise has made some impressive strides in increasing unit readiness.

This success is due to several efforts, most importantly is the aviation leader and maintainers planning and execution of maintenance actions. This is just the beginning; I'd assess we are on the twenty yard line... our own twenty yard line. We can and must continue to drive down the field.

The United States Army Aviation and Missile Command (AMCOM) and other enterprise partners have drastically reduced the Not Mission Capable Supply (NMCS) rates across the enterprise. We selected those must-have items for any unit in combat, and with the help of our original equipment manufacturer (OEM) partners and their sub-vendors, increased our throughput on those key items. As a result, NMCS rates over the last year have averaged approximately two to three percent per month, well within standard. These efforts will continue, but it won't solve the bigger problem.

Army senior leaders understand the importance of the Aviation branch within large scale combat operations (LSCO). As such, they have started asking hard questions about how to raise the bar as high as 80 - 85 percent to Fully Mission Capable (FMC) rates. For the last 12 months, our 3 tactical rotary wing aircraft (AH-64, UH-60 and CH-47) have averaged 72/75/78 percent FMC (discounting the AH-64 main rotor strap pack re-design and fielding or Apache readiness would be much higher over the same period). So, we are close. With the right focus and effort, we can push the ball farther down the field.

Shifting Focus

As mentioned above, we have made great strides in reducing NMCS across Army aviation. With NMCS rates at historical lows, we must shift fires to attack Non Mission Capable Maintenance (NMCM). That's a momentous task, with NMCM rates averaging in the high-teens to low-twenties each month. But as one senior Army leader likes to say, "Don't try to solve world hunger... attack one problem at a time." By improving two or three key problems, we can likely gain at least 5 percent readiness every month, putting us over the 80 percent mark, and striving for 85 percent. The two areas we must attack at the outset of the "War on M-time" are scheduled maintenance and leader engagement, or process and people.

How we maintain our rotary wing fleet has changed remarkably little over the last 40 years, yet our missions are more complex, our environment more demanding, and our operating tempo higher than ever. We cannot continue to maintain our aircraft with status quo processes and expect a different outcome. Simply saying "work harder" isn't always a valid technique. What has changed over the last 40 years is the amount of maintenance



Soldiers assigned to Company D, 1st Battalion, 3rd Aviation Regiment (Attack Reconnaissance) conduct 500 hours phase maintenance on an AH-64 Apache helicopter at Katterbach Army Airfield, Germany, June 28, 2019.

and airworthiness data we've accumulated – all of it useless if we don't put it to work for us. Conversely, this mountain of data is priceless if we focus it toward completely revamping our scheduled maintenance programs to ensure we are performing the right maintenance at the right time.

A great case in point is the CH-47F Maintenance Steering Group, 3rd Specification (MSG-3). This new process has been developed by PEO AVN and PM Cargo, and is a clean sheet approach to identifying scheduled maintenance requirements. It builds on data mined from over 4 million logbook entries and is designed to perform maintenance tasks at the "right time" over the course of 1,920 flight hours instead of the legacy 200/400 hour phase schedule we currently use. We expect this process to yield as much as a 35 percent maintenance man hour reduction in the units. This is a huge win and should be the building block for future efforts. Bottom line, we MUST apply a similar methodology to streamlining scheduled maintenance on the AH-64 and UH-60.

At the tactical level, continued leader emphasis is the key. And that emphasis starts with the maintenance warrant officers on the flight line. These are the individuals that know and live with the factors that limit output every day. These limitations differ from unit to unit based on the training tempo and the experience of their personnel. So, they are the ones best suited to set the direction of the maintenance program. Much like AMCOM's focus on Readiness Drivers, the 3CAB BAMO recently recommended that unit maintenance officers should be focused on key maintenance drivers that offer opportunities for improvements. Pick one problem, develop a plan to improve, train and execute. We must all continue to learn lead and fix our way out of the current state of the branch.

CW5 Michael D. Cavaco is the Aviation Branch Maintenance Officer, U.S. Army Aviation and Missile Command at Redstone Arsenal, AL.

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Reducing NMCM to Increase the FMC Rate



hat is Non Mission Capable Maintenance (NMCM) time? How is it calculated? Why is it important? How can we reduce the NMCM time?

GEN Perna, the commander of the United States Army Materiel Command, has asked the U.S. Army Aviation and Missile Command (AMCOM) to see what we can do to reduce our NMCM time in order to achieve a Fully Mission Capable (FMC) rate of 80 percent.

NMCM

NMCM is the time an aircraft or component is not mission capable due to maintenance, troubleshooting, repair, or maintenance operational check. NMCM calculates the duration an aircraft is down minus the time waiting for parts. Non-Mission Capable Supply (NMCS) only counts the time waiting for parts to restore the aircraft back to an FMC condition. Once the parts are on hand, the NMCS time stops and NMCM time resumes. The chart at Figure 1 depicts the Department of the Army goals as defined in Army Regulation 700-138 for both manned and unmanned aircraft. For approximately the past year as a fleet, we average about 20 percent NMCM time on each airframe. As for NMCS, we are well under the standard and have been consistent for the past couple of years at approximately 3 percent across the fleet. Therefore, we are hitting the goal of 75 percent FMC, but it is quite possible to have a higher FMC rate just by reducing the NMCM time a few percentage points.

Leaders on the Flight Line

Some areas where leaders can have a positive impact on reducing NMCM

Soldiers from 2nd Battalion, 2nd Field Artillery are getting acquainted with the UH-60 Black Hawk and CH-47 Chinook helicopters during sling load training.

time are in production control meetings, pre-phase maintenance inspection briefings and daily meetings to maintenance and flight crews. A common process often used is Problem, People, Parts, Plan, Time, Tools and Training (P4T3). When I was a PV2 in 1995, P4T3 was not a doctrinal term but it was exactly what our leaders did when we conducted maintenance on the aircraft. Often the maintenance we conducted was for the first time. For example, I did not replace a transmission in Advanced Individual Training (AIT) while learning how to work on the OH-58 but I certainly did

Figure 1. Aviation logistical goals						
Status	Manned	Unmanned				
	Goal (all aircraft)	Goal (COMPOs)	Goal system			
FMC	75	75	80			
MC	80	80	85			
NMCS	10	10	NMC / 15			
NMCM	10	10				
PMC	5	5	5			



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Enlisted Aviation Soldier Spotlight

Each month we will feature a past AAAA National or Functional Enlisted or NCO Award winner as part of our ongoing recognition of the Best of the Best in our Aviation Branch. The CY 2019 National winners were featured in the April/May AAAA Annual Summit issue.

SSG Monica Y. Willard

A-511 Tower Facility Chief 4th Battalion (Airfield Operations), 58th Aviation Regiment Camp Humphreys, Korea



Air Traffic Controller of the Year Award, 2013

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SSG Monica Y. Willard demonstrated outstanding performance in every aspect of air traffic control operations, soldiering and leadership. She served as the A-511 Tower Chief immediately upon arrival in country and made a significant impact. SSG Willard was a perfect fit for a tower that desperately needed quality leadership and she immediately set out focusing her energies on correcting myriad deficiencies within the facility. SSG Willard's performance as the tower chief was nothing short of amazing as she rapidly overhauled the training program and record keeping ensuring smooth operations for every member of the facility. Finally, as a Soldier, SSG Willard has been top notch as she regularly scores 300 on the Army Physical Fitness Test, competes in races all over the peninsula, and pushes herself like no other. SSG Monica Willard is the whole package; Soldier, leader, and accomplished ATC controller.

it at my first duty station. So where was the training if none of us Privates had ever completed that task previously? Our NCOs conducted the training and supervised us performingthe task. NCOs need to be on the flight line to provide leadership, guidance and training to our young Soldiers out on the flight line or in the hangar. Aviation maintenance is complex and requires trained NCOs and Soldiers to conduct those tasks such as changing out the transmission, periodic inspections, and phase maintenance inspections.

Aviation Maintenance Training Program

All aviation soldiers attend AIT for their initial aviation training on their specific aircraft. As a soldier's career progresses, they attend the Advanced Leadership Course (ALC) and the Senior Leadership Course (SLC) to learn about the next level of maintenance and maintenance management. These are all great examples of institutional training as described in ADRP 7-0. However, that institutional training only covers the basics and the most frequently conducted tasks. Soldiers and NCOs obtain hands-on experience and learn while maintaining aircraft every day. Historically speaking, we as an enterprise have not done a very good job of recording the routine training our maintainers accomplish every day. The birth of Training Circular (TC) 3-04.71, the Aviation Maintenance Training Program (AMTP) will help us as an enterprise build and keep records of the required training of our maintainers. "The purpose of the AMTP is to enhance readiness and ensure individual maintainers and maintenance teams develop and sustain required skills necessary to successfully complete comprehensive maintenance requirements" (TC 3-04.71, 2018). As an enterprise, we must use the AMTP to record the training that each individual maintainer completed. Recording of maintenance tasks a Soldier performs is an indication of the level of proficiency of our Soldiers. Over the years, Soldiers and NCOs would arrive to a new duty station and be placed in a position based solely on their rank and presumed level of experience. The Platoon Sergeant at Fort Hood had no idea that PV2 Dove had the experience of changing an OH-58 transmission nor any other tasks that he may have done at his first duty station because no one kept records of completed training.

Output

The art and science of leadership is tying it all together. The junior Soldiers and junior NCOs on the flight line only know what they know. They may not know the strategic importance of operational readiness rates or NMCM rates until they reach the rank of staff sergeant or higher. Engaged leaders on the flight line and in the production control meetings have a very strong impact on the outcome of maintenance. Aviation leaders should strive to perfect the art of P4T3 and practice it to ensure the repair operation goes as planned. NCOs should also become familiar with the AMTP and start recording the level of maintenance experience of their Soldiers. Leaders knowing the strength and weakness of their Soldiers is essential in gaining efficiencies on the flight line. Goals can be achieved when all are aware of the goals, the phase timeline schedule, the parts ordering process, and frankly how long it takes to get to the aircraft on the flight line. We as an aviation branch are on the cusp of regularly obtaining 80 percent FMC and engaged leaders at all levels will make the goal of 80 percent a reality.

CSM G. Mike Dove is the command sergeant major of the Aviation and Missile Command at Redstone Arsenal, AL.





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Delivering Enduring and Future Capabilities for Multi-Domain Operations

By MG Thomas H. Todd III



T o achieve multi-domain dominance by 2035, Army Aviation must be multi-domain capable in 2028 – ready to deploy, fight, and win in a joint, combined, multi-domain, and highintensity conflict.

PEO Aviation is developing and improving the aviation capabilities required to win in these environments.

Recent guidance directs the combat aviation brigade (CAB), in support of Multi-Domain Operations (MDO), to consist of both enduring and future aircraft with common capability enablers. This combination of enduring and future capabilities will be agile, interoperable, survivable and integrated within the CAB and across the Services and interagency partners.

In alignment with the Army Modernization Strategy Roadmap to MDO, PEO Aviation and the Aviation Enterprise are assessing the CAB holistically to identify challenges and opportunities in integrating the enduring and future fleets. While our priorities reflect the Army Top 6, our underlying priority is

CH-47 Chinook, AH-64 Apache and UH-60 Black Hawk, assigned to 1st Air Cavalry Brigade, 1st Cavalry Division, leave the airfield of Chièvres Air Base, Belgium during Operation Atlantic Resolve, Oct. 25, 2017.

integrating these with targeted readiness for MDO. Designing and developing our systems utilizing a modular open systems approach is key in rapid delivery of capability and incorporating breakthrough technologies.

Communicating Plans and Priorities

PEO Aviation will maximize touch point opportunities with industry to communicate detailed plans and priorities. The Association of the United States Army annual meeting in October and the AAAA Cribbins Product Support Symposium in November offer great opportunities to share capability roadmaps and strategic objectives – and to refine our plans through industry feedback.

As such, in early 2020, PEO Aviation will host an industry day to engage closely traditional and non-traditional Industrial Base entities. Our focus will be communicating our portfolio challenges and facilitating exchanges that ultimately drive toward innovative solutions that can be rapidly integrated. I hope to see broad participation; large and small businesses – traditional and non-traditional, research institutes and academia, and U.S. Government partners. All interested are encouraged to attend and engage in meaningful exchange of ideas and solutions with rapid adaptation being the goal!

Topics will include: *Interoperability/Multi-Domain Operations* – capabilities such as mobile airfield/local airspace control, modular open systems approach, and air-ground communications that seamlessly connect aviation platforms with intelligence, maneuver and fires networks, sufficient on-board power management to ensure all capabilities remain operational during all mission phases; *Reducing soldier workload* – automated, digitized airspace control planning, enhanced execution, situational awareness of friendly and enemy airspace and improved air traffic support; *Survivability* – precision navigation in GPS degraded or denied environments, affordable and rapidly tailorable mission equipment via open systems architecture, and next generation Cybersecurity; *Increasing effectiveness* including rapid identification of enemy and friendly forces and communications. Further details will be published on FedBizOpps.

While I remain focused on providing our Soldiers unmatched capabilities required in the current environment, it is critical that we continue setting the conditions to ensure the CABs' future success through continuous innovation to support large scale ground combat operations. I look forward to industry working alongside the PEO Aviation team to implement transformative strategies which enable the design of the future CAB. Our goal remains to deliver a holistic, integrated set of capabilities for both our enduring and future fleets to the Combatant Commanders and Soldiers in the field!

MG Thomas H. Todd III is the U.S. Army Program Executive Officer for Aviation at Redstone Arsenal, AL.



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From the New USACRC Commander

By COL Andrew C. Hilmes



am honored to be speaking to you as the new director of Army Safety and commander of the U.S. Army Combat Readiness Center.

In my short time at this organization, I have been impressed with the processes and procedures the Aviation community has in place to ensure safe mission accomplishment. Army Aviation serves as the safety standard for the remainder of the Army to orient from. I look forward to interacting with you and your formations in the coming weeks and months. The entire USACRC team remains steadfast in our commitment to helping shape and promote Aviation safety.

Throughout my career, I have personally experienced the incredible support competent and professional aviators bring to ground commanders. I am also confident in saying there is no Army capability in greater demand today. In my last assignment, I witnessed the 3rd Infantry Division's Combat Aviation Brigade deploy for multiple hurricane relief and response efforts, provide support along the United States southern border, and successfully execute multiple combat training center rotations while preparing to deploy for Operation Atlantic Resolve – all within a year of returning from a tour in Afghanistan. The Falcon Brigade was very successful in each of these efforts through strong leadership that places a premium on a safety culture that permeates all aspects of operations.

Despite similar demand and OPTEMPO across our Aviation enterprise, Class A mishaps remained near record Soldiers from the 3rd Combat Aviation Brigade, 3rd Infantry Division, prepare aircraft for relocation prior to the arrival of Hurricane Dorian, Sept. 2, 2019, at Hunter Army Airfield, GA. To ensure the safety of Soldiers and their families, HAAF received evacuation orders due to the potential impact of the storm.

lows throughout FY19. We will do a deeper dive into year-end statistics once outstanding mishap reports filter in to the USACRC over the next few weeks, but it is safe to say Army Aviation has much to be proud of regarding risk management and loss prevention. Please pass my appreciation to your teams for their hard work.

Safety is an everyday fight, which means we can never rest on our laurels. We must continue to rapidly share lessons learned from any mishap or near miss. Flattening communications will save lives and enable readiness. As we enter this new fiscal year, please let me know how the USACRC can help keep your formations safe. Thank you for what you do every day for our Army, and I am excited to begin working with you.

Readiness Through Safety!

COL Andrew C. Hilmes is the commander of the Combat Readiness Center at Fort Rucker, AL, and the Director of Army Safety. He is a 1995 graduate of the U.S. Military Academy and most recently served as deputy commanding officer for Maneuver, 3ID, Fort Stewart, Georgia. He has completed numerous deployments to Iraq, Afghanistan and Bosnia-Herzegovina and is a recipient of the Silver Star. His full biography is at https:// safety.army.mil/home/leadership.

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Reserve Components Aviation Update

One Army! One Standard! Two Pay Scales? HDIP, AvIP, the 1/30th Rule, and Non-Rated Crewmembers

By BG Jami C. Shawley, COL Andrew D. Cecil, CW5 Michael G. Siedler, and CSM Juddiah G. Mooso

Readiness is Number One. There is no other Number One. A key driver of readiness in Army Reserve Aviation is Non-Rated Crewmembers (NRCM).

The Assistant Chief of Army Reserve (ACAR) requested an Army Audit Agency (AAA) audit of Aviation Incentive Pay (AvIP) and Hazardous Duty Incentive Pay (HDIP). AAA found that Army Reserve (AR) strength in NRCM was less than 48% of authorized levels. They suggested that the prorated hazardous duty incentive pay is insufficient for readiness requirements. As an Army, we must add NRCM HDIP to the priority of ending prorated pay under House Resolution (H.R.) 2953 – titled "Aviation Incentive Pay Parity Act."

The limiting factor for Army Reserve (AR) Aviation in launching aircraft is NRCM availability. This is not the same as a lack of 15T or 15U Soldiers. In most cases, the number of Soldiers is adequate. It is the number that pursue flight status and the rewards and challenges that come with it. Required flight minimums for an AR NRCM are two hours per month. For their Active Component (AC) counterpart it is four hours per month. The standards of proficiency and knowledge are the same for both. For purposes of comparison,



SFC Mark Judd (second from right), an aircraft components repair supervisor and platoon sergeant with D Co, 8th Battalion, 229th Aviation Regiment, 244th Expeditionary Combat Aviation Brigade, poses for a photo with the UH-60 Black Hawk helicopter crew who flew the aircraft for his in-flight reenlistment ceremony near Camp Buehring, Kuwait, June 18, 2019.

the NRCM in this paper is an E-4 over 4 years. Both of our NRCMs fly four times during the month.

The AC NRCM rightfully receives \$165 for a month of flight duty. The AR NRCM receives \$5.50 per pay period. The AR NRCM attended unit Battle Assembly (sometimes still referred to as "drill") and flew two other times for a total of six pay periods. The AR NRCM receives \$33. Both NRCMs upheld the same standard. Both did the exact same work required for HDIP. But the pay disparity is glaring.

An E-4 over four years makes \$340.72 in base pay during a typical Battle Assembly weekend. Full HDIP for an E-4 is \$165 a month. Full HDIP could represent 48% of their base pay for a normal month. The incentive value of implementing full HDIP for enlisted flight crewmembers who maintain proficiency and readiness would be a real, material, and positive effect on Army Reserve enlisted flight crewmember personnel strength.

AR Soldiers are not 1/30th the Soldier. AR Soldiers are not 1/30th the NRCM. AR Soldiers do not have the option of only knowing 1/30th of the information required of an NRCM. The standard is the standard – period. The Army must rise to the occasion and ensure our NRCM's incentive pay is unchained from the 1/30th rule in the same manner as our rated crewmembers. Our readiness could depend on it.

BG Jami C. Shawley is the commanding general of the U.S. Army Reserve Aviation Command at Fort Knox, KY; COL Andrew D. Cecil is the deputy commander, CW5 Michael G. Siedler is the command chief warrant officer, and CSM Juddiah G. Mooso is the command sergeant major.

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Modernization (Redesign) of 15 Army Career Management Field (CMF) Advanced Leader

COURSE (ALC) By CSM Bradford Smith and Mr. Warren Johnson



IT he Army has been changing since the Army has been in existence. We're going to make sure that we are ready and lethal for whatever we've been asked to do." – 16th Sergeant Major of the Army Michael Grinston SSG Sims (left), Noncommissioned Officer Academy, instructs two Advanced Leadership Course students while another instructor monitors an aircraft inspection in the 128th Aviation Brigade hangar at Joint Base Langley-Eustis, VA September 18, 2019.

SMA Grinston's words are true and are even more powerful with our everchanging world and adversaries. We, as an NCO Corps, need to ensure we are trained and ready for whatever challenges lay ahead. To this aim, the United States Army Aviation Center of Excellence (USAACE) NCO Academy Fort Eustis, VA (NCOA-E) 15 Army Career Management Field (CMF) Advanced Leadership Course (ALC) is being redesigned to meet the requirement of the TRADOC NCO 2020 Strategy. The need to modernize was determined through a task analysis survey of job incumbents, graduating the NCOA-E ALC programs, combined with survey results from FORSCOM Soldiers and leaders. These results indicated the current ALC curriculum did not adequately prepare Aviation maintenance NCOs to serve as effective staff sergeants in Army Aviation. It was apparent that training modernization was needed after little change in the previous 20 years. A Critical Task Site Selection Board (CTSSB) for the ALC CMF 15 series Aviation maintenance MOSs convened on September 21, 2016, at the USAACE NCO Academy, where necessary changes were identified to modernize Aviation NCO Leadership Training.

The purpose of that CTSSB, conducted using subject matter experts from across Army Aviation, was to assist the NCO Academy in the selection of proposed critical tasks for the modernization of ALC in order to meet the intent of TRADOC NCO 2020 Strategy. The 15 CMF ALC CTSSB results for Skill Level 3 (SL3) are as follows:

(1) There were 25 original SL3 tasks and five SL3 proposed tasks presented, totaling 30 tasks. (2) The board members accepted ten original tasks and five proposed tasks as resident trained.

(3) The board voted to remove 11 original tasks as non-critical and four original tasks because they were subtasks of existing tasks.

The ALC Critical Task List (CTL) will contain 15 resident trained tasks and will no longer train MOS-specific tasks.

Development of the course began in September 2016 and was 95% complete when new doctrine (TC 3-04.71 Aviation Maintenance Training Program (AMTP)) was established in July 2018. TC 3-04.71 serves as the primary reference for effectively training aviation maintainers in accordance with AMTP. TC 3-04.71 states, "Each NCO and Officer must be capable of performing every task required of their immediate subordinates and understand the relationship between individual job requirements, soldiers manuals, and collective tasks." The AMTP designates the related training and proficiency of MOS individual tasks taught in AIT (10 level tasks) and the training of 20 level tasks as Operational Domain (Unit Training). "This training includes the integration of airframe and support maintenance specialties. An apprentice possesses entry-level knowledge and a skill set that must be carefully groomed and honed to develop into a senior or master maintainer (ICTL30-40)." As a result, 15 CMF ALC "Redesign" was halted and developed in accordance with TC 3-04.71.

This change resulted in eight of the fifteen 15 CMF 30 level individual critical tasks (Inspect Aircraft Turbine Engine Repairs, Inspect Powertrain System Repairs, Inspect Pneudraulic System Repairs, Inspect Electrical Repairs, Inspect Airframe Repairs, Inspect Avionic System Repairs, Inspect Avionic System Repairs, Inspect Aeronautical Bearings, Conduct Downed Aircraft Recovery Team (DART) Operations) being moved to unit trained tasks.

The remaining five 15 CMF individual critical task (Employ Operational Environment (OE) Lessons Learned, prepare for the Army Resource Management Survey (ARMS) Inspection, Determine Aircraft Weight and Balance, Implement Aviation Maintenance Training Program (AMTP), Enforce Command Supply Discipline) remain Institutionally Trained. Additionally, NCOs will be taught the NCO Common Core Competencies (C3) required by the Noncommissioned Officer Leadership Center of Excellence. The six major topic areas of C3 are Leadership, Communications, Readiness, Training Management, Operations, and Program Management.

The NCOA-E is currently on glide slope to begin teaching the ALC Redesign Course with the C3 requirement in FY21 with the first iteration starting on October 14, 2020. Aviation leadership can expect their NCOs enrolled into the redesigned curriculum to graduate with a modernized mindset in which they can use to exude levels of character, commitment and competence in all aspects of leadership.

CSM Bradford L. Smith is the commandant and Mr. Warren Johnson, is the senior training specialist at the United States Army Aviation Center of Excellence Non-Commissioned Officer Academy Advanced Leaders Course, Joint Base Langley-Eustis, VA.





Airframe Condition Evaluation (ACE) Program

By Mr. Michael E. Vourcos and Mr. Jared R. Peltier

he ACE Program was established in 1974 to manage repairs of the U.S. Army's post-Vietnam helicopter fleet.

The primary purpose of this evaluation is for the U.S. Army Aviation and Missile Command (AMCOM) to systematically identify candidates for depotlevel maintenance programs, such as service life-extension, recapitalization, and model upgrades.

ACE is based upon annual visual evaluations performed by AMCOM Field Maintenance Directorate (AFMD) ACE teams. These evaluation teams use an indicator checklist of airframe structural items to document specific defects. Each defect carries a weighted score based upon severity and implication of deeper structural duress. The summation of defect scores for each aircraft tail number generates an overall ACE score, or profile index, on a point scale (0 to 1,000). Empirical and statistical analysis have established that 8 percent (%) of any rotary wing fleet should undergo depot level maintenance in a given year to maintain maximum readiness at lowest cost. Scores above the 92nd percentile are presented as depot maintenance candidates.

While ACE is not intended to drive field level maintenance, it often does. When an ACE team finds a serious structural defect that grounds an aircraft, the ACE Team Leader notifies the unit's quality control section which verifies the defect and ensures the appropriate aircraft logbook entries and maintenance actions are taken.

Every year, engineers in the U.S. Army Combat Capabilities Development Command Aviation & Missile Center Aviation Engineering Directorate (AED) Maintenance Engineering Division analyze the ACE data



Figure 1. Sample Color Defect Density Plot

and publish an annual technical report for the Army H-60, AH-64, and H-47 rotary aircraft. The ACE Technical Review report provides the overall structural condition assessment of the Apache, Chinook, and Black Hawk fleets. The report is provided to respective AMCOM Aviation Logistics Center (ALC) and program management office (PMO) fleet managers in support of depot-level maintenance induction candidate selection.

The annual ACE Technical Review is generated as three separate reports for each aircraft platform which include a list of recurring top maintenance issues for the H-60, AH-64, and H-47 along with additional related analysis. This information can be used to:

1. Highlight maintenance and corrosion issues directly to maintainers through newsletters, e-mail list groups, etc.

2. Provide OEMs with information that aids in improving performance during airframe component improvement programs (CIP), redesign and upgrades. 3. Provide technical data managers with data that identifies areas needing additional inspection and maintenance. 4. Provide logistics planners with data to support forecasting demands for future replacement parts.

5. Identify future research projects.

New Analysis Tool

A new analysis tool was introduced this year to facilitate ACE data evaluation and technical review development. It is a color density plot of system defects. This capability provides a digital graphic modeling interface which can be leveraged to cumulatively or discretely analyze historical and emerging ACE airframe defect trends. Examples of defects analyzed include cracks, corrosion, missing fasteners, or other discrepancies. This evolution in ACE trend analysis emphasizes both location and density of fleet defects without obscuring the associated airframe structure with data point overlays. The user interface for this tool allows the model to be fully customized based on the aircraft, structure, and defect data desired for evaluation/display. The tool allows for individual structural elements to be hidden or displayed in order to show internal structural assemblies or even to filter down to detail a single frame, beam, or other individual element to be studied.

Figure 1 demonstrates the color defect density plot on a representative structural assembly using test data, created only for the purposes of this article. The sharp color contrast shown enables rapid visual communication of defect density through a user-determined choice of colors: in this case hot color (red) means high density of defects trending in an area, cool color (blue/ green) communicates a low density of defects, while grey color means zero defects in a given airframe location. ACE data and analysis enables the U.S. Army to anticipate future airworthiness or readiness problems related to the structural integrity of our fielded aircraft.

Mr. Michael E. Vourcos and Mr. Jared R. Peltier are aerospace engineers in the Maintenance Engineering Division, Aviation Engineering Directorate, Aviation and Missile Center, Combat Capabilities Development Command located at Redstone Arsenal, AL.

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Dental Readiness

By: CPT(P) Jessica Warneke, D.O.

Hey Doc, I am supposed to have some dental work done tomorrow morning including having a tooth pulled. I'm good to fly that afternoon, right?

FS: Unfortunately, the answer to this often-asked question is most likely "no." Usually, a simple dental cleaning without medications or injections will not keep you from performing flight duties. However, more involved dental procedures like fixing a crown, or having cavities filled, usually requires the use of local anesthetic injections or prescription medications. Complex procedures, like extracting teeth or having a root canal, may have your dentist recommend or even require sedation or long acting anesthetics. Antibiotics may also be prescribed to treat an existing dental infection or prevent one after a procedure. Your aeromedical provider will determine if the antibiotics and other medications are allowed during flight, as well as if you are having unsafe side effects from their use. Though serious side effects of antibiotic use like allergic reactions are rare, less severe but more common consequences like nausea and diarrhea can be serious distractors in flight.

Anesthesia

Per the Army Aeromedical Policy Letters (APLs), any form of local anesthetic is automatically grounding for a minimum of 6 hours. However, if you happen to have a procedure that requires sedation it would be likely that you would be grounded for a minimum of 48 hours because of the time it takes your body to fully clear the medication from your system. Flying while you are still under the effects of local anesthetic can present a few potential problems. First, the anesthetic usually numbs a wide area of the mouth including the offending tooth, parts of the face and even the tongue. A

numb face and tongue can make talking difficult, negatively affecting communication with the tower and crew. Also, you should consider that as the numbness wears off, it may uncover distracting pain. Not something you want to happen to you in the middle of a flight. Though many dentists will give medication for pain relief following the procedure, most of these meds are disqualifying for flight as they can make you sleepy and slow your ability to react. You should also consider the flight environment as some dental work may become painful with increasing altitude as the surrounding air pressure drops. Also, it is well known that vibrations from the aircraft can make pain worse. Therefore, aeromedical providers pay particular attention to the pain management of injured Soldiers when they are MEDEVAC'd. It is no different when it comes to dental pain. Imagine turbulence causing a rough flight and your painful teeth clashing together with every bump!

Bleeding

Bleeding from a procedure is also a concern in flight. Most of you have probably had a tooth pulled or dental work done where they had to pack your mouth with gauze to control bleeding. It is common for a small amount of bleeding to last for a few hours after the procedure. Not only would you not be able to talk with gauze in your mouth but talking runs the risk of moving the gauze around and knocking a clot loose causing it to bleed more. Clots can also come loose if you use a drinking straw soon after the procedure, are overly physically active after the procedure, or just messing with the area with your tongue. If that clot is dislodged within the first three days of a tooth being extracted, the wound may not heal properly, and the bone and nerves may be exposed. This is called "dry socket" and can cause intense pain that can last for many days. So, make sure to follow the instructions from your dentist on how to properly care for the wound.

Grounding

The reasons above are the most common for why you would be grounded following a dental procedure. Most of the time, recovery is very quick, and Soldiers can be returned to Full Flying Duty (FFD) within a day or two. Though expect that recovery from more involved procedures can take a more extended period, increasing the length of time that you are grounded.

Communication

There are many concerns about dental work that may impair safety in flight. Remember, AR 40-8 requires you to report all dental procedures immediately to your aeromedical provider, though the best course of action is to consult with your aeromedical provider before your dental work is performed. Do not let reporting requirements make you avoid getting your dental work done. Your aeromedical provider will consider all regulatory guidelines along with your health to make the best decision on how to keep you flying safely.

Question for the Flight Surgeon?

If you have a question you would like addressed, email it to *AskFS@quad-a. org*; we'll try to address it in the future. See your unit flight surgeon for your personal health issues.

The views and opinions offered are those of the author and researchers and should not be construed as an official Department of the Army position unless otherwise stated

CPT(P)(Dr.) Jessica Warneke is a flight surgeon at the United States Army School of Aviation Medicine, Fort Rucker, AL.

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Project Manager Aircraft Survivability Equipment Update

By COL Kevin S. Chaney

M y first year as the Project Manager for Aircraft Survivability Equipment (PM ASE) has been extremely exciting and rewarding. The ASE Team is aggressively working to keep the current fleet fully operational while pursuing endeavors to develop stateof-the-art technology for the future.

This year, besides the brief technology update, I will highlight a couple of efforts PM ASE is taking on to reduce size, weight, and power (SWaP), improve training, and give back more training time to units. These enabling efforts are just as important as our products because they increase Army Aviation readiness and allow ASE to stay germane in the future.

Technology Update

PM ASE is working to keep the current suite of technology relevant for all operational environments, while developing the next generation of technology for the current and future fleet. For today's technology, PM ASE is making minor improvements to system performance and/or addressing obsolescence issues for the *Common Missile Warning System (CMWS), Advanced Threat Infrared Countermeasures (ATIRCM)*, and *AN/ AVR-2B Laser Detecting Set (LDS).* A small number of aircraft will receive the upgraded *APR-39D(V)2 Radar Warning Receiver (RWR)* to replace the legacy RWRs, while we work on the fully digital *APR-39E(V)2 RWR* for the future.

Other near-term technologies include the Common Infrared Countermeasure (CIRCM) and Limited Interim Missile Warning System (LIMWS). Both systems will provide improved performance over ATIRCM and CMWS, while keeping pace with the most stressing threats.

CIRCM is a revolutionary leap in laser-based Countermeasures technology and it is based on an open systems architecture that will face the threat for years to come. CIRCM is currently undergoing an Initial Operational Test and Evaluation (IOT&E), which is projected to complete by the end of CY 2019. PM ASE is on track for First Unit Equipped (FUE) in November 2019, a Full Rate Production (FRP) decision in 3QFY20, and Initial Operational Capability (IOC) in 4QFY21.

LIMWS will utilize infrared (IR)based sensors to detect incoming missiles and unguided Hostile Fire (HF) threats. It incorporates a fiber optic backbone to integrate on various Army rotary-wing aircraft, which allow for growth in the future. LIMWS will protect aircraft from missiles by deploying flares and/or by cueing laserbased countermeasure systems. In May 2019, the Milestone Decision Authority approved the first production lot buy and A-Kit installations will begin in September 2019.



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A U.S. Army CH-47F Chinook, assigned to Task Force Brawler, releases flares while conducting a training exercise with a Guardian Angel team assigned to the Air Force 83rd Expeditionary Rescue Squadron at Bagram Airfield, Afghanistan, March 26, 2018.

SWaP Reduction

While ASE is an essential component to aviation survivability, our systems occupy aircraft real estate, add weight, and draw power. PM ASE's SWaP reduction effort is focused on reducing the dependency of each system having a dedicated processor. Instead of all those black boxes, we are pushing our vendors to put processing on cards and hosting those cards on a common processor like PM Aviation Mission Systems and Architecture's Aviation Mission Computer System (AMCS). Another SWaP reduction effort we are pursuing is replacing the copper wire bundles with fiber optic cables. The advantage of fiber over copper is that fiber is lighter weight and is better suited to handle the information requirements of the future. The LIMWS A-Kit (the part of the system that stays on the aircraft) is our first step toward a fiber optic backbone.

Ultimately, we strive to have a single A-Kit that can handle all ASE systems and rapidly accommodate upgrades as technology continues to progress.

ASE B-Kit Emulator (ABE)

The high cost of modernized ASE systems has historically precluded fielding to the entire fleet. This reality creates a conundrum for Army aviation in the sense that ASE systems are typically only installed on operational aircraft for deployment, making it very difficult to provide aircrews with realistic ASE training. The solution to that challenge is the ASE B-kit Emulator (ABE). ABE will provide aural and visual cockpit indications of threat systems, allowing the crew to apply prescribed tactics, techniques, and procedures to defeat the threat. In its initial increment, ABE will be hosted in the Advanced SMart Onboard Data Interface Module (ASMODIM) box for training at the combined training centers (CTCs), which will allow for realistic training in the aircraft with ground threat emitters stimulating ABE through the AVR-2B laser warning system. PM ASE plans to initial operational capability (IOC) the ASMODIM-based ABE system in July 2020. In order to provide an ASE training capability that allows aircrews to train survivability tactics at home station, ABE will be hosted on an existing processor on the aircraft and, therefore, always available to the crew. We intend to implement this capability using the Aviation Mission Planning System (AMPS) to generate a threat scenario, thereby extending in-aircraft training capability to the company level using organic equipment and personnel. ABE then uses the static ID, location, and state settings to evaluate the aircraft position against notional threats to provide accurate warning indications to the crew. ABE software measures the effectiveness of crew actions to determine the probabilistic outcome of the engagement, similar to the CTC solution. In short, ABE will allow aircrews to better prepare for future operations without having ASE systems on board.

Block Modification Strategy

One of our most vexing challenges is the need to install modernized systems across more than 3000 aircraft. In 2018, we determined that both CIRCM and LIMWS A-Kits would be ready for installation near 1QFY20. Our Common Systems Integration (CSI) team worked closely with Army G-3/5/7 Aviation (DAMO-AV) and leveraged that relationship to develop a plan to synchronize the fielding of our new ASE systems, along with other aircraft modifications from the Program Executive Office for Aviation. FORSCOM identified the 1st Air Cavalry Brigade as the target unit for our combined CIRCM/LIMWS fielding. Our goal was to combine multiple aircraft modifications and install them all at the same time, which would reduce the downtime of each aircraft, allow the units more training time, and save the Army money.

On 03 September 2019, PM ASE initiated the "Block-Mod" strategy at Fort Hood, TX. The AMCOM Field Maintenance Directorate (AFMD) will modify 105 aircraft over the next 27 months. Over the course of the next year, FORSCOM will designate another unit to begin the Block Mod strategy and we anticipate those installs beginning around September 2020. We are also coordinating with the 160th Special Operations Aviation Regiment (SOAR) to install the CIRCM and LIMWS systems on MH-60Ms and MH-47Gs at the Special Operations Forces Support Activity (SOFSA), Lexington, KY.

Conclusion

As you can see, PMO ASE is working on efforts to make survivability relevant now and in the future. Although our products are the main lines of effort, we are initiating activities to reduce our SWaP, provide more realistic training without our systems, provide more training time for units, and save the Army money. These enabling efforts are essential because our resources are limited, and we cannot compromise on survivability. As the threats continue to evolve and become more complicated, we at PM ASE must ensure the survivability of our Soldiers in difficult combat environments. Fortunately, I have a great group of civilian and military personnel that rise to this challenge every day.

COL Kevin S. Chaney is the Project Manager for Aircraft Survivability

Equipment located in Huntsville, AL, under the Program Executive Office Intelligence, Electronic Warfare & Sensors.



Special Focus > Aviation Survivability



Survivability: A Change to the Aviation Training Mindset By CW5 James O. VanMeter

As the Army prepares for the possibility of a Large Scale Combat Operations (LSCO) against a peer/near-peer adversary, the mission of Army Aviation is evolving to meet the needs of the Warfighter. This evolution in training and readiness will provide increased aircrew survivability and maneuver force flexibility. To enable this training program the Aviation Mission Survivability Officer (AMSO) track has undergone a total restructure. At every command level in a combat aviation brigade (CAB) the AMSO plays a vital role in preparing aircrews for the tactical missions within a complex, contested battlespace. The AMSO increases the combat readiness of the aviation warfighter by enhancing the training of aircraft survivability equipment (ASE) employment, providing intelligence preparation of the battlefield (IPB), evaluating mission threat risk, training tactical evasive flight maneuvering, developing Aviation Mission Survivability (AMS) training, and accessing the unit's AMS program. Starting with a professional military education (PME) revision, training requirements, additional schooling, and doctrine and regulation changes the AMSO track is completely redefined and is a valuable asset to unit commanders.

Redefining the AMSO

With the release of the 2018 Individual Critical Task List (ICTL) replacing the 2012 ICTL, the AMSOs gained 13 tasks, bringing the total to 21. The 2018 ICTL redefined the AMSO's position and established measurable tasks while moving Army Aviation away from a counter-insurgency (COIN) focus to a large scale combat operations (LSCO) ready force. This was a step in the right direction but as the AMSO's role continued to evolve, the 2018 ICTL quickly became outdated and a new ICTL was needed. There is a current effort to conduct a review and revision of the ICTL and establish new critical tasks, aligning the AMSO to better support Tactics training and mission readiness. The capability and responsibility of the ASMO to train and evaluate is expected to expand far beyond previous responsibilities since the track was established. This growth of responsibility does not replace or impede the role of an instructor pilot (IP) but rather supplements and standardizes the tactical mission training across the force. Each commander should leverage the skills and experience of the standardization pilot (SP), IPs and AMSO to balance the unit's training plan and expand the skill set of each







Understanding Threat

Above far left: U.S. Soldiers assigned to 2nd Squadron, 3rd Cavalry Regiment, brief fellow soldiers in a tactical operations command during Decisive Action Rotation 18-04 at the National Training Center in Fort Irwin, Calif., Feb. 17. 2018. The tactical operations command is used to visualize their next mission.

Above Top Right: An AH-64D Apache attack helicopter from Company B, 1st Battalion, 227th Aviation Regiment, 1st Air Cavalry Brigade, 1st Cavalry Division, Multi-National Division-Baghdad, fires self-protection flares while conducting combat operations near Camp Taji, Iraq.

Above Middle Right: Mr. Richard Pennington, instructor with the Project Management Office Aircraft Survivability Equipment, trains U.S. Soldiers assigned to 1st Battalion, 4th Infantry Regiment, on the Man-Portable Aircraft Survivability Trainer (MAST) and Weapons Effect Signature Simulator (WESS), at the Hohenfels Training Area, Germany, Jan. 9 and Jan. 10, 2019.

aviator within his/her formation. The United States Army Aviation Center of Excellence (USAACE) Directorate of Training and Doctrine (DOTD) Survivability Branch, Directorate of Evaluation and Standardization (DES), and Aviation Survivability Development and Tactics (ASDAT) are working diligently to update and create the doctrine,
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revise training, and validate tactics that enhance survivability across all missions and airframes. These initiatives require the dedication and perseverance of the AMSO and SP/IPs to disseminate and educate at all levels throughout the Army. This article provides insight into the immense efforts to ready the force while seizing the opportunity to shape and influence commanders, warfighters, and our industry partners to invest more in this critical Aviation team.

The AMS Triad

Each aviator must change the way they think in terms of mission planning and aircrew preparation for this type of large scale fight. USAACE DOTD Survivability Branch has developed the Aviation Mission Survivability triad as a catalyst to shift Aviation's training focus. The AMS triad establishes the basic tenents for increased survivability for mission success in an anti-access aerial denial (A2AD) environment. It represents the dependency of the three tenents on one another and the need to train/prepare each part equally. The three parts of the triad are Understanding Threat, Fused Mission Planning, and Evasive Flight Tactics. The base tenent of the AMS triad is Understanding *Threat*. This encompasses a vast amount of knowledge on multiple threat weapon systems. It includes the threat system's capabilities and limitations, adversarial employment of the system, ASE's ability to detect the threat, and capability of the ASE to disrupt/defeat the threat. The second tenent, Fused Mission Planning is new to Conventional Army Aviation but necessary to establish individual and collective understanding of the dynamic environment. The fused mission planning process is a collaborative effort between the unit's intelligence officer (S2), electronic warfare officer (EWO) and the AMSO to provide an intelligence based, three dimensional picture of the battlespace during a specific snapshot of time. This allows mission planners to develop ingress and egress routes that provide the lowest threat risk to the mission. The Evasive Flight Tactics is the third tenent and is defined as a reaction to an unplanned threat engagement. Flight tactics encompass reactionary flight maneuvers executed in an immediate reactionary manner to defeat/disrupt a threat weapon system's engagement sequence. Without the other two parts of the triad these flight maneuvers are limited in their capabilities. Each aircrew should train maneuvers within a scenario, having already applied the first two tenents of the AMS triad.

AMS Program Focus

The Army's ASE program continues to grow at a rapid pace and requires significant devoted effort to training and sustaining aviation readiness. To accomplish this, AMSOs must focus on the Mission Essential Task List (METL) to define readiness with a thorough understanding of the training capabilities and resources available (e.g., computerbased, academic support packages, simulation, and live environments). AM-SOs must harness advanced cognitive ASE Training Aids Devices Simulators and Simulations (TADSS). These include Computer-Based ASE Training (CBAT-O/C), aircraft technical simulators, Aviation Combined Arms Tactical Trainer (AVCATT), and Man-portable Aircraft Survivability Trainer/Weapons Effective Signature Simulator (MAST/ WESS). Future TADSS capabilities include Training ASE Simulation Suites (TASS) and ASE B-Kit Emulators (ABE). These TADSS each have unique strengths that must be leveraged, as well as weaknesses that must be mitigated by the AMSO, to provide the optimal training environment for the Aviation Warfighter. With the rapid development of new threats by our adversaries, changes in associated tactics, techniques, and procedures (TTP) AMSOs must be proactive and creative in the use of fielded TADSS to provide the knowledge and skill-sets necessary for success in future operations.

Tactics Development

Working with Army and Joint agencies the Survivability Branch completed the Aviation Radar Frequency Survivability Validation (AVRFSV) Quick Reaction Test (QRT) in early FY18. The AVRFSV QRT provided verified and validated aviation tactics to the joint rotary wing community while addressing a critical war-fighting gap and allowing aviation assets to remain survivable against current and emerging threats. Based on the collected AVRFSV's data analysis, several classified and unclassified doctrinal products, to include a tactics manual, evasive flight tasks, and training support packages (TSP), were approved and published by USAACE DOTD. Throughout FY19 multiple updates and revisions to the DOTD products have occurred based on additional comprehensive analysis by the Office of Naval Intelligence (ONI) and other joint agencies. A current effort is underway to conduct the Joint Aviation Multi-ship Survivability Validation (JAMSV) QRT. The JAMSV QRT will optimize the use of fielded ASE, inform multi-ship TTPs, and enable freedom of maneuver in an A2AD contested environment. Additional doctrine updates are expected in late FY20 from the data analysis collected in JAMSV QRT.

Summary

A multi-tiered approach must be used to overcome the challenges of today's resource limited force while synchronizing modernization with combat readiness. The production of viable and relevant regulations and doctrine will provide measurable goals to unit commanders while the improvement of simulated and synthetic training systems will provide realistic training necessary for aviator proficiency. All efforts of change and modernization are important and the changes in the Survivability Program parallel these efforts. A balanced blended solution provides necessary readiness across the multi-domain battlefield. The training burden upon each aviation unit is immense and time consuming. Therefore, success relies on improving and refining the training and skillsets provided by the AMSOs thus enabling units to meet readiness challenges and ensure the Aviation Warfighter will be ready to fly, fight and win on a dynamic, complex and contested battlefield.

Note: The Survivability Branch is always searching for interested and qualified personnel. If you feel that you have the experience and the ability to contribute to the Aviation Branch's survivability areas of concentration, contact the DOTD Survivability Office for a consideration packet.

Above the best!

CW5 James O. VanMeter is the chief of the Survivability Branch, Directorate of Training and Doctrine, U.S. Army Aviation Center of Excellence at Fort Rucker, AL. Additional major contributors to this article were: CW5 Tobias Long, CW4 Kenneth Kimber, CW4 Lee Kokoszka, CW4 Jenny Litherland, CW4 Christian Ramirez,

and CW4 Cesar D. Urquiza.



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Special Focus > Aviation Survivability

Susceptibility Reduction Using Modeling and Simulation

By Bart Schmidt and Warren Whitmire

oday's focus on Large Scale Combat Operations has highlighted challenges associated with training Army aircrews to survive against peer adversaries. In the past, Army Aviation mainly relied on aircraft survivability equipment (ASE) to provide a high degree of protection in a counterinsurgency environment. However, Large Scale Combat Operations against a peer adversary will challenge Army Aviation's ability to compete and penetrate enemy anti-access and area denial systems. Currently, Army Aviation relies on the use of tactics, techniques and procedures (TTPs) that may not be effective against the modern threat systems employed by peer adversaries.

Modeling and simulation is an essential element in validating TTPs. However, in 2017, the United States Army Aviation Center of Excellence (USAACE) Aviation Radio Frequency Survivability Validation (AVRFSV) Quick Reaction Test (QRT) team made an eye-opening discovery concerning modeling and simulation. The modeling and simulation community lacked engineering-based rotary wing models, which made them unable to validate TTPs in simulation before conducting test runs on a live range. To rectify this capability gap, the Aviation Survivability Development and Tactics (ASDAT) Team hosted a Susceptibility Reduction Work Group (SRWG) sponsored by the Joint Aircraft Survivability Program (JASP) in September 2018. This threeday workshop brought together aviators from all branches of the military and facilitated their interaction with the modeling and simulation, test development, and Aviation acquisition communities.



Our purpose was to identify gaps in the use of modeling and simulation for rotary wing TTP development.

As a result of the SRWG, three programs in particular have made important advances in modeling and simulation for rotary wing. The first is BlueMax, which is used to construct realistic air-vehicle time, space, position information (TSPI) data for input into other models, analysis tools, and environments for the purpose of conducting aircraft susceptibility analysis. The SRWG helped BlueMax solidify requirements in incorporating rotary wing flight dynamics models developed from test data. These models will be included in the next BlueMax software release.

A second advance involved the Air Combat Effects Library (ACEL), previously known as the Joint Anti-Air Model (JAAM). ACEL is a tool used to develop and validate operational tactics for aircraft and weapons. Specifically, ACEL enables test personnel to evaluate weapon system effectiveness from weapon launch through target intercept. ACEL does this in part by displaying results in a graphical 3D environment. In part because of the SRWG, the Joint Technical Coordinating Group for Munitions Effectiveness has now incorporated rotary wing requirements into ACEL.

A third advance involved the use of Enhanced Surface-to-Air Missile Simulation (ESAMS), a computer program used to model the interaction between an airborne target and a Surface-to-Air Missile (SAM) system. Since the SRWG, ESAMS has begun incorporating SAM rotary wing models, rotary wing dynamic blade flash, and improved radar features for close range gun systems.

In September 2019, a second SRWG was hosted to further refine the road map for high fidelity engineering based rotary wing models supporting TTP development. The two-day work group brought together nearly 40 subject matter experts to discuss the recent advancements noted above. By the end of the workshop, the SMEs paved a path ahead to incorporate static and dynamic rotary wing radar cross section data into ESAMS and BlueMax.

By 2021, rotary wing engagement scenarios will be conducted in both constructive and virtual simulations to assess recommended TTPs capabilities against various threats. In these environments, the maneuvers will be flown by a provided script or pilot in the loop and repeated numerous times with controlled variables. Data extracted from multiple executions will allow tactics developers to identify key attributes in breaking the kill chain in order to refine the maneuver prior to live test runs ultimately reducing cost, schedule, and more importantly lives.

Bart Schmidt is the training specialist (survivability) and Warren Whitmire is the intelligence specialist on the Aviation Sur-

vivability Development and Tactics (ASDAT) Team, headquartered at the U.S. Army Aviation Center of Excellence, Fort Rucker, AL.





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Special Focus > Aviation Survivability Ensuring Mission Readiness through Engagement and Innovation

By Mr. Eric R. Bowes



The Army established the Army Reprogramming Analysis Team-Program Office (ARAT-PO) in 1991 to fill a significant gap in Army readiness identified during the Cold War and amplified during Operation Desert Storm. When the Army could not rapidly adjust its aircraft survivability equipment (ASE) and approach to Air Electronic Warfare to changes in the operational environment (OE), something had to change.

While much has changed in 28 years, the need for mission readiness has not. Threats, as well as other factors in the OE, change rapidly and the Army must be able to adapt and respond accordingly. Better still, they need to anticipate change. The Army's answer for a rapidly changing OE - especially the environment affecting the Aviation community - rests with the ARAT-PO which provides ASE software which keeps pace with this rapid change. Through direct engagement with the Aviation community and software development innovations, the ARAT-PO enables the Army to maintain the Readiness needed to "Fight Tonight."

Aviator Engagement

One of the first opportunities for Aviator-ARAT-PO engagement comes at the United States Army Aviation Center of Excellence's Aviation Mission Survivability Officer (AMSO) Course. There, ARAT-PO subject matter experts interact with AMSO students to build their understanding of the ARAT-PO's mission, processes, and tools, key aspects of ASE software reprogramming, and ARAT-produced Aviator products such as Mission Data Sets. This engagement ensures AMSOs have current and relevant knowledge of, and countermeasures to, threat air defense systems in various combatant command areas of operations.

Two ARAT-PO imperatives are "Communication" and "Committed Customer Service" so the Aviator-ARAT-PO relationship does not end when AMSOs graduate and return to their units. When an AMSO runs into an ASE-related issue, the ARAT-PO stands ready as every issue presents both a challenge to overcome and an opportunity for the ARAT-PO to "up its game." For instance, after the ARAT-PO responded to a user request for a software download for a specific region, it determined its ARAT Warfighter Survivability Software Support Portal (AWSSSP) interface was not as user friendly as it could be. This, coupled with other user feedback, led the ARAT-PO to develop simpler searches, interactive maps, and updated interfaces for downloading of mission software. Feedback from Aviators is just one example of how the ARAT-PO makes it easier for its customers to access products, software, and mission-related information.

Through an Operations Center function available to Aviators 24/7, the ARAT-PO fosters unit readiness and resolves issues affecting ASE performance. Whether a request for assistance comes through a phone call, email, or the AWSSSP, aircrews can expect a response within 24 hours, with follow on engagement until Aviators get what they need.

Additionally, the ARAT-PO strives to be more than a faceless service provider on the other end of a phone call or an email trail, especially when a unit has a compelling need for face-to-face interaction. Recently, the ARAT-PO personnel travelled to a deploying unit's home station and assisted unit AMSOs with reprogramming their helicopters' ASE, understanding the threat warning indications and responses provided by these systems, and discussing regionally-specific Threat Coordination Packages and Aviator Products (e.g., Mission Data Sets [MDS], kneeboard cards). The result was a unit ready to bring the fight to the enemy.

No Soldier Engagement is too big nor too small. Regardless if the issue is a simple download error or a pilot noticing a system anomaly causing ASE to perform erratically, every issue has the potential to affect mission readiness. The active interaction between Aviator and engineer also serves another purpose - it takes care of people, the Army's "greatest strength and most important weapon systems."

From the classroom to the flight line, the ARAT-PO's Soldier Engagement is a never ending process, just as Readiness is a never ending process. It is a career



Above: A Multifunctional Display (left) and Multi-Purpose Display (right) Emulators bring actual cockpit display capabilities to the ARAT at a fraction of the cost of actual hardware.

Right: Automated testing provides the ARAT-PO with the ability to employ its suite of RF simulators 24/7, 365.

"lifetime relationship" for the AMSO and the many Aviators they help protect.

Innovation – Past, Present, and Future

In an ever-changing OE, maintaining the "status quo" leads to mission failure. What worked for the ARAT-PO in its early days, or even last year, may no longer be relevant. Through retrospect and innovation, the ARAT-PO has identified and challenged the "status quo" to get ASE mission software to the field faster while maintaining and improving quality.

One major ARAT-PO innovation is automated testing of ASE mission software which enables validation of any regionally-focused MDS on any piece or suite of ASE. Automated testing allows the ARAT-PO to truly test 24/7, 365 days a year, across multiple threat scenarios which Aviators may face in any designated region. Not only does automation permit continuous testing, it also produces test results faster and of higher quality than previous human-in-the-loop testing.

In addition to automation, the ARAT-PO employs emulation to its software development process. Emulation allows engineers to replicate, on computers and networks, costly and space-intensive ASE components such as the UH-60M Blackhawk and AH-64E Apache glass cockpit displays. This means, for a fraction of the cost to the Army, the ARAT-PO can accurately replicate, especially for software testing, the symbology and other system responses which pilots may experience when flying in their AO.

As another example of innovation, the ARAT-PO uses a kneeboard card generator to automatically publish Aviator products in conjunction with software releases. Once the ARAT-PO completes software development and testing, engineers quickly produce associated kneeboard cards of the quality which Aviators need in their information-intense cockpits.

From nearly its beginning, the ARAT-PO has relied on Radio Frequency simulators in their software labs to accurately replicate actual threats. However, just because the ARAT-PO has always "done it that way" doesn't mean it's good enough in a complex battlespace. In fact, for the ARAT-PO, "good enough," is not "good enough."

The ARAT-PO continues to grow, not only in number but in fidelity, its inventory of over 600 simulated emitters from around the world. Daily, the ARAT-PO works with the Intelligence Community to analyze, modify, refine, and build an accurate and relevant representation of threats aircrews face. However, even with the best interaction, sharing, and collaboration with intelligence stakeholders, this process is difficult and time-consuming. To reach an end-state of faster analysis and simulation development, the ARAT-PO is working with many partners to standardize intelligence data structures and file formats to enable automatic extracting and querying of key threat aspects. This automation will allow ARAT-PO the ability to analyze data quicker and provide real life simulations of all threats aviators may encounter.

The importance of innovation to



the Aviator is this – every minute and every hour saved during software development, and every incremental increase in quality, ensures the ARAT-PO can get ASE products to the Aviation Community when they need it, wherever they need it.

Formula for Success

For three decades, the ARAT-PO has coupled its innovation in its software laboratories and its engagement with Aviators to keep soldiers safe and ensure mission success in the OE. BLUF- The ARAT-PO's goal is to get mission software to the Aviation Community faster, easier, and of higher quality.

While the ARAT-PO is good at getting mission software to Aviators, it will always strive to do it more efficiently. This begins in the lab with innovations focused on reducing timelines and building better products. It continues by putting products into the hands of well-informed and well-cared for AMSOs and the aircrews they serve. Innovation plus engagement is a formula which equals mission readiness and success for the Army as it prepares and engages adversaries around the world in current operations and future Multi-Domain Operations.

Mr. Eric R. Bowes is the program officer for the CECOM Software Engineering Cen-

ter Army Reprogramming Analysis Team Program Office at Aberdeen Proving Ground, MD. Mr. Bryan Hull was a major contributor to this article.



Special Focus > Aviation Survivability



S&T Advancements in Threat Detection

By Mr. Ralph Troisio, Mr. Michael Zalewski, and Mr. Robert Di lenno

ast year we provided an overarching view of the Argos S&T program which is combining the advancements in the state of the art of infrared technologies with enhanced signal processing achieved through machine learning. The machine learning/artificial intelligence revolution of today can be attributed in part to the advent of modern computing hardware and the associated reduction in size, weight, and power (SWaP). This increase in performance and reduction in SWaP have enabled novel algorithms to be incorporated into aircraft survivability equipment (ASE) for Army rotary wing applications. The Argos threat warning S&T, as well as other S&T efforts, which are being conducted by the U.S. Army, Combat Capabilities Development Command (CCDC), Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) Center, have demonstrated significant improvements within threat warning domain for aircraft survivability equipment.

Artificial Neural Networks

Over the past twelve months various combinations of supervised and unsupervised learning techniques have been implemented with a focus on deep learning techniques derived from artificial neural networks. Artificial neural networks loosely mimic the human brain, comprised of interconnected neurons assembled into input, output, and hidden layers between the two interface layers (Figure 1). One strength of artificial neural networks is the ability to recognize shapes and patterns within data, and it is this strength which has driven wide application of artificial neural networks in the image recognition application. A significant finding within the threat warning domain was that this pattern recognition enables the algorithm to be easily ported with minimal redesign to alternative sensors generating different types of data. This results in a highly extensible algorithm which can take full advantage of future sensor hardware technology developments.

As machine learning is dependent upon the availability of high quality training data, the initial efforts have been focused on the application of machine learning techniques to data derived from current threat warning systems. Data for threat warning are comprised of two categories, threat signature and background content in which the threat signature is embedded. The threat signatures can take the form of both live, collected with actual threat warning sensors, and synthetic, generated using digital models of a



Figure 2. VISTA Detector Materials

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sensor. While there are efforts ongoing to develop synthetic background with sufficient fidelity to support threat warning algorithm development, due to the inherent limitations of synthetic background data the primary source of background data for algorithm development was live background data collected with actual threat warning sensors. Ingesting live and synthetic data, unsupervised techniques were utilized to generate robust statistical representation of threat signatures. Classification was performed by training supervised learning layers on the resultant representation of the input signals which was manually labeled. Through implementing both supervised and unsupervised learning the techniques increased performance over baseline algorithms have been demonstrated.

Leveraging Prior Investments

The inherent extensibility of the machine learning derived algorithms permit the application of these techniques to the advanced two color infrared sensor technology being concurrently developed by the C5ISR Center under the Argos S&T program. The advanced sensor design is taking advantage of prior investments within the infrared industry, such as the Vital Infrared Sensor Technology Acceleration (VISTA) program, a Tri-Service program established by the Office of the Secretary of Defense, as well as Government, academic and commercial developments in digital readout integrated circuit (DROIC) designs. The VISTA program resulted in new detector materials (Figure 2) producible within established silicon foundries resulting in reduced production costs, higher yields, and lower overall system SWaP requirements due to higher operating temperatures. Leveraging the technical advancements from VISTA, the Argos advanced sensor effort looks to achieve significantly greater sensitivities through increasing the resolution of the detector array. With a higher yield rate and more widely established processing method, the VISTA detectors materials enable this increase in resolution without significant impacts to manufacturability and overall sensor SWaP and cost metrics. Incorporating DROIC technology into the Argos advanced sensor results in an increased dynamic range enabling small signature difference to be resolved while preventing saturation during extremely bright events. (Figure 3)



Figure 3. Components of an infrared sensor

Decreasing SWaP

Other S&T efforts have focused designs on sensor multifunction capability to decrease the overall SWaP burden to Army Aviation platforms. Given the SWaP constraints of the enduring and future fleets, the federated systems approach becomes untenable driving a need for the capability of performing multiple functions. While the Argos sensor design has been optimized for the threat warning mission, it is anticipated it will have residual capability to provide imagery data which can assist the aircrew in maintaining degraded visual environment situational awareness (DVE-SA). Similarly, in coordination with the C5ISR Center Digital Dual Use Sensor (DDUS) effort, the team will be assessing threat warning capability of the DDUS two color imaging infrared sensor which is being designed for multifunction applications with a focus on the DVE-SA mission.

Multifunction capability is only one of multiple approaches to address SWaP constraints when managing overall platform impacts. Traditional infrared detector materials require cryogenic operating temperatures to achieve the level of performance necessary for threat warning. To reach these cryogenic temperatures the associated coolers consume a significant amount of SWaP relative to the overall sensor. Through the Dual Color High Operating Temperature Photonic Mid-wave Infrared Detector for Threat Warning Small Business Innovative Research (SBIR) program, novel infrared detector materials are being sought which enable operation at higher temperatures resulting in reduction of cooler SWaP. In addition to advancing the state of the art within the traditional missile warning bands, multiband sensing technologies for threat warning are being developed through the Multi-Spectral Threat Warning Adjunct Sensor (MIRA) SBIR program. The objective of the MIRA SBIR effort is to collect spectral data across the ultraviolet, visible, and infrared bands with the goal of being able to identify spectral data which is orthogonal and/or complementary to the traditional threat warning bands.

The inherent extensibility of the neural network design enables the threat warning algorithm to be readily applied to future threat detection sensors not limited to the traditional ultraviolet and infrared operating bands. Through adaptation of the Argos algorithm input layers, orthogonal data from sensors like the MIRA enable advanced threat detection capabilities. The Argos team at the C5ISR Center has shown through the application of machine learning and advancement of the sensor technologies significant advancements can be achieved in ASE threat warning systems. The team has further focused its efforts on ensuring the extensibility of the algorithm design enabling the inclusion of future sensor improvements and novel modalities realizing enhanced survivability. The team is actively participating in the development of future survivability technologies for Army Aviation and is posturing to support the development of advanced algorithms across the ASE mission space.

Mr. Ralph Troisio is the chief and Mr. Michael Zalewski and Mr. Robert Di Ienno are engineers of the Electronic Warfare Air/ Ground Survivability Division of the Intelligence and Information Warfare Di-

rectorate (I2WD), C5ISR Center, U.S. Army Combat Capabilities Development Command located at Aberdeen Proving Ground, MD.





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The Product Manager Air Warrior (PdM AW), under the leadership of BG Anthony Potts, Program Executive Office Soldier (PEO Soldier), is chartered to improve Army air crewmember mission effectiveness, survivability and Situational Awareness as the material developer for Aviation Life Support Equipment (ALSE). This equipment includes flight helmets and helmet mounted displays, mission gear carriage and associated personal survival equipment, protective equipment and systems required for missions in hostile environmental conditions including extreme heat or cold, overwater, and high-altitude missions. The PdM AW effectively integrates the Aviation Soldier with the aircraft platform to enhance aircrew survivability, mission effectiveness, and Situational Awareness (SA).

Air Soldier System Kit

The Air Warrior team achieved an important milestone in April of 2019 when the Product Office received approval from the PEO Soldier to move the new Air Soldier program forward to the production and fielding phase. In response, the team immediately began fielding the baseline Air Soldier System kit to deploying Aviation units. This kit consists of the new Rotary Wing Helmet, lightweight body armor, and a new set of 72-hour personal survival items. The AW team also continued to outfit UH-60 aircraft with updated HeadsWarrior EUD during Exercise Shak

A UH-60L crewmember wearing the Nett Warrior EUD during Exercise Shaken Fury. The future Aircrew Combat Equipment will provide integrated wearable power for Aviation Soldier-worn electronics.

Up Display (HUD) systems and is focused on preparing the Electronic Flight Bag (EFB) for fielding beginning in early FY20. The EFB, a commercial tablet computer, will consolidate and replace paper flight information publications and fundamentally change the way aviators perform their missions. The PM AW is also working with industry to identify or develop applications for the EFB that provide enhanced situational awareness and safety while reducing cockpit workload.

Common Helmet Mounted Display

The AW team also awarded a contract to buy, flight qualify, and field the new Common Helmet Mounted Display (CHMD) to replace the existing Heads-Up Display in the UH-60 and CH-47 aircraft. The CHMD provides a wider field of view and enhanced color symbology, thereby increasing aviator SA while resolving the obsolescence of the legacy HUD system. Expect to see the first CHMDs in the field in 2020.

Aviation Information System

In addition to Aviation Life Support Equipment, the AW PM team is responsible for ensuring the tactical mission planning and mission command (Blue Force Tracking) capabilities remain fully operational for the aircrews of the non-digital rotary wing fleet, many of which are deployed in support of contingency operations worldwide. In 2019, the team made noteworthy strides in developing, qualifying, and successfully demonstrating the PM AW's planned implementation of the Aviation Information System (AIS) capability. Capable of rapid integration on any air or ground platform, this AIS solution provides significant Air/Ground SA and Common Operating Picture (COP) capability to both the aircraft crewmembers and the Soldiers they transport to the mission objective. The AIS End User Device (EUD) is the convergence of Army Aviation with the Tactical Assault Kit (TAK)-based Air and Ground mission planning, execution, and command system. TAK is a geospatial infrastructure and military situational awareness app developed for military use. The Nett Warrior is the Infantry Soldier's tactical SA End User Device (EUD) and hosts a version of TAK on a modified Android smart phone known as ATAK (Android Tactical Assault Kit). The PM AW plan is to converge and evolve the Nett Warrior and the PM AW AIS EUD to provide a common mission planning and execution interface capability to aircrews and the Soldiers they carry into battle. The PM AW also envisions this merged system will evolve from modified commercial smart phones and tablets as the aircrew EUD to a helmetmounted system such as a visor-projected display. To achieve this end state, the PM AW plans to leverage the PEO Soldier's emerging Integrated Visual Augmentation System (IVAS) technology. IVAS will bring an unprecedented level of battlefield SA to the Army's close combat forces, and the Army Aviation platform must be equipped for the infantry squad to seamlessly connect to the tactical network while on the aircraft enroute to the objective.

Practical Demo

The Air Warrior team had the opportunity in June of 2019 to demonstrate our first generation AIS capability in collaboration with PEO Soldier's PM Ground Soldier Systems and the Tennessee Army National Guard during exercise Shaken Fury 2019, a full-scale disaster response exercise held at the thousand-acre Muscatatuck Urban Training Center in Indiana. A UH-60L Black Hawk was modified with the AIS kit, including the PM AW's next generation GMR-1000 with secure WIFI and an Automatic Dependent Surveillance-Broadcast (ADS-B) In receiver, Nett Warrior End User Devices for the aft crewmembers and passengers, and tablet computers for the pilots. The aircraft was also modified to include a Wi-Fi antenna in the cabin, an external ADS-B antenna, and an external antenna for a handheld PRC-163 radio.

This exercise successfully demonstrated how leveraging emerging Air and Ground SA systems has the potential to enable a capability leap in aircrew Situational Awareness and battlefield interoperability. The exercise provided key information on:



An Army National Guard Soldier watches as a UH-60L equipped with the Air Soldier AIS lands at the CASEVAC site he'd designated via text and map icon drop using the Nett Warrior EUD and tactical handheld TSM radio, the antenna visible over the Soldier's left shoulder.

• How quickly a digital mobile command post could be established

• The effectiveness of digital waveforms and Radio Over IP in an urban environment

• The appropriate mix of digital versus voice communications in high workload

• The SA and Air/Ground collaboration benefits of Secure Wi-Fi on an airborne platform

• The traffic and weather information SA enhancement of an ADS-B receiver

In 2019 the AW team also continued the push to complete the development and test of the Aircrew Combat Equipment (ACE), a direct replacement for the current AW survival gear carriage system. The ACE reduces ALSE bulk and weight, integrates body armor with the survival vest, introduces a completely redesigned personal water flotation system, and accommodates and interfaces Soldier-worn power and control of connected devices through the aircrew-carried EUD.

In summary, under the PEO Soldier, the PdM AW develops, fields, and sustains Army ALSE and provides enhanced aircrew SA and safety. Although our focus remains on integrating the Aviation Soldier with the platform, emerging SA and communications capabilities are allowing unprecedented SA enhancements for both the aircrew and the Soldiers they carry into battle. The Air Soldier System will increase Army aircrew situational awareness and mission effectiveness, and ultimately, the mission effectiveness of all Soldiers onboard the aircraft during a mission.

LTC Bryan Bogardus is the product manager for Air Warrior, located at Redstone Arsenal, Huntsville, AL.



Special Focus > Aviation Support





Aviation Mission Systems & Architecture (AMSA) – Keeping Soldiers First By COL Johnathan Frasier and Ms. JoAnna Wright

he sole reason that the Aviation Mission Systems & Architecture Project Office (AMSA) (formerly Aviation Systems) exists is to support the entire Army Aviation enterprise; and, while that answers the question of what we are as an organization - it fails to fully embrace what the AMSA Project Office stands for and what we do to provide support to the Combat Aviation Brigade, Army Aviation, and our Soldiers. AMSA's products are in the hands of current and future Aviators, Maintainers, and Command teams, enhancing their capabilities in executing rotary wing, fixed wing, and unmanned aerial system missions and maintenance. Our mission software, secure radios, air traffic control, tools & test sets, and future advanced pilotage systems define and support the architecture backbone of all Army platforms. Every day the AMSA team collaborates with the TRADOC Capability Manager for Aviation Brigades to ensure our efforts in bringing the most advanced products align with their requirements. With 49 distinct

product lines across four Product Offices, the AMSA organization is an essential component in preparing our Soldiers for maintaining, communicating, planning, executing, and safely negotiating the Army's battlespace. The entire AMSA organization is committed to remaining modernized, relevant, adaptable, and survivable – just like the professional aviation enterprise we support.



Aviation Ground Support Equipment Product Office (AGSE) – *Heavy Lifting*

By Mr. Sam Lamb, Deputy Product Director, AGSE

The Aviation Ground Support Equipment Product Office (AGSE) recently obtained approval from MG Thomas Todd, Program Executive Officer, Aviation and Milestone Decision Authority, to initiate full-rate production of the Self-Propelled Crane, Aircraft Maintenance and Positioning Increment II Expeditionary Crane (SCAMP II). The AGSE team is commended for keeping the program both ahead of schedule and under cost. On July 29, 2019 the Army Contracting Command at Redstone Arsenal awarded Spyder-Crane.com an \$8.3M production delivery order for 96 new SCAMP II systems. Fielding will begin in 2QFY20. The primary function of the SCAMP II is to remove and replace major aircraft components in support of Army Aviation maintenance. The SCAMP II is optimized for air movement in support of Downed Aircraft Recovery Team missions, split-based operations, deployment and redeployment operations, and operations in remote locations with unimproved terrain.

In March 2019, AGSE purchased two new Pitot Static Test Sets (PSTS) and four PSTS modification kits as test articles. These test articles are being used for explosive atmosphere testing, to develop the Modification Work Order



The SCAMP II is operated by a 16th CAB soldier at Joint Base Lewis McChord, WA.

(MWO), and to verify maintenance and calibration requirements. The PSTS will undergo several modifications which will include updated micro circuits, processor controllers, and communications circuit card assemblies. In July 2019, AGSE awarded a contract to procure 217 new PSTS and 579 MWO kits. The new PSTS will fill shortages created by an increase in the Basis of Issue Plan. The MWO kits will be applied to fielded legacy PSTS systems. Fielding is expected to begin 2QFY20.



Aviation Architecture & Environment Exploitation Product Office (A2E2) – Aviation Mission Common Server: A Key Enabler to the Army's Future Aviation Architecture

By Mr. Shawn Gresham, Product Manager, A2E2

The Aviation Architecture & Environment Exploitation Product Office (A2E2) is implementing an innovative strategy that sets the stage for Army Aviation to attain an aircraft platform architecture that is flexible and adaptable to support the insertion of new technologies. Aviation Mission Common Server (AMCS) strategy provides an approach that will deliver an advanced processing capability to meet evolving threats and future mission requirements of our aviation force. A2E2's focus is to develop a reconfigurable open system architecture that is mission adaptable and supports commonality across the Army Aviation fleet. As part of the A2E2 plan, the strategy is to conduct a demonstration of the AMCS capability in FY21. The AMCS will utilize a Modular Open Systems Approach to provide a decentralized mission

processing architecture capable of distributed processing among multiple nodes as well as hosting an Environment Exploitation System capability enabling operations in Degraded Visual Environments (DVE). The AMCS represents the next generation of hardware and software applications for Army Aviation rotary wing aircraft with a robust multicore processing capability for the hosting and processing of multiple applications within a Future Airborne Computing Environment. A reconfigurable Open System Architecture will allow for commonality, interoperability and an upgradable design supporting both current and future fleet aircraft. The architecture will provide an expansion capability supporting additional processing for the integration of other mission applications. Additionally, the AMCS will support the fusion of multiple database



Degraded Visual Environment System Light Detection and Ranging (LiDAR) and Long Wave Infrared Camera installed on an HH-60M, Ft. Eustis, VA, March 2019

inputs as well as sensor information to generate visual references to support operations in DVE. Through a comprehensive AMCS strategy, the Army will move forward with a resilient architecture that provides modularity and flexibility to support current and future mission processing requirements.



Aerial Communications & Mission Command (ACMC) Product Office – *Modernization Efforts*

By LTC Ty LaStrapes, Product Manager, ACMC

The Aerial Communications & Mission Command Product Office's (ACMC) current efforts and products directly align to Army priorities for Networking and Future Vertical Lift Cross Functional Team capabilities. Current ACMC programs consist of Aviation Communications, Mission Planning, and Blue Force Tracking (BFT) Systems.

Army Aviation communication ef-

forts are evolving to multi-channel, crypto-modernized, software-defined radios that allow for a more rapid introduction of emerging waveforms directly supporting Unified Network Operations, Air/Ground Convergence, and Joint Interoperability. Current efforts include the integration of a new generation Multiband VHF/UHF, an Air-Ground Networking Radio, and the introduction of new waveforms such as the next generation satellite communication Mobile User Objective System, Have Quick replacement SATURN, and a wide band networking waveform Trellisware Scalable MANET.

Also, in support of the Networking Cross-Functional Team, is Army Aviation's implementation and fielding of BFT-2. This system provides capabilities such as near real-time Beyond-Line-Of-Sight, Situational Awareness, Command and Control messaging, and a comprehensive air to ground common tactical picture. Army Aviation will continue to look for opportunities to enhance commander situational awareness and close technology gaps and address concerns such as low probability of intercept, low probability of detection, and operations in a satellite denied environment.

Aviation Mission Planning System efforts provide enhanced automation to aviation mission and performance planning, route generation, risk assessment, and transfer of mission data to aviation platforms. Synchronization with Mission Command Common Operating Environment Capability Drops for Air to Ground Operations, Multi Domain Operations, Airspace Awareness for mission planning and execution capabilities continue to be a priority as well as the evolution to a Mobile Mission Planning Software that can be hosted as an application on hardware agnostic devices to include tablets.



Assured Airspace Access Systems (A3S) Product Office – *Navigation and Surveillance*

By Mr. Patrick Layden, Product Manager, A3S

Navigation

The Assured Airspace Access Systems Product Office (A3S) has initiated multiple efforts to implement aspects of Assured-Position, Navigation, and Timing (A-PNT) to better support Army Aviators and Maintainers. These include a Global Positioning System (GPS) upgrade, a Military code (M-Code) capable GPS receiver integration upgrade, and development and qualification of an anti-jam antenna. The A-PNT upgrades to the programs listed below will continue in subsequent years culminating with the fielding of these new capabilities across the fleet.

The Doppler GPS Navigation Set (DGNS) AN/ASN-128D provides a combined GPS and Doppler navigation capability. The DGNS is Instrument Flight Rules (IFR) compliant and certified for use as a supplementary means of navigation for enroute, terminal, and non-precision approaches using the Digital Aeronautical Flight Information File non-corruptible database. A3S is obtaining certification to use the DGNS as a primary means of navigation and an Automatic Dependent Surveillance-Broadcast Out (ADS-B Out) position source. A-PNT efforts include Resiliency and Software Assurance Modification implementation efforts, and completion of the computer display unit upgrade, culminating in integration and fielding on the UH-60L Black Hawk.

The Embedded GPS Inertial (EGI), a tri-service program, provides a combined

GPS and inertial navigation capability for aircraft equipped with a MIL-STD-1553 digital data bus. The EGI also provides precise location, velocity, and altitude to the aircraft fire control computer or integrated system processor, for processing targeting information and sensor pre-pointing. Current EGIs are IFR compliant and certified for use of the GPS as a supplementary means of navigation. A3S is currently completing Enhanced Aviation Global Air Traffic Management Localizer Performance with Vertical guidance (LPV) EGI (EA-GLE) Phase II efforts to obtain certification for use of GPS as a primary means of navigation, ADS-B Out, and LPV approaches using precision positioning service or standard positioning service with the Wide Area Augmentation System.

Multi-platform Anti-jam GPS Navigation Antenna (MAGNA) is a small adaptive GPS anti-jam antenna system comprising a Controlled Reception Pattern Antenna and antenna electronics. The MAGNA reduces the effect of GPS jamming, enabling the Warfighter continued access to GPS-provided position, navigation, and timing in a GPS degraded environment. The MAGNA development and qualification program, production of prototype assets,



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and initial platform integration began earlier this year.

Surveillance

The Common Transponder program is a family of transponders used on all tactical rotary wing platforms, the Gray Eagle Unmanned Aircraft System, and select fixed wing platforms. The AN/ APX-123 is an upgrade to the AN/ APX-118, adding Mode 5 Identification Friend or Foe capability. The AN/APX-123A, an AN/APX-123 variant, was necessitated by obsolescence of the signal processor and Mode 4/5 crypto assembly. The Army is currently fielding both AN/APX-123 and AN/APX-123A in order to meet the joint Mode 5 Full Operational Capability (FOC) requirement. The Army has seven platforms that have achieved Mode 5 FOC and expect all platforms to meet the 2020 Mode 5 mandate. Platform operational flight programs software updates are required to enable the AN/APX-123(V) ADS-B Out functionality. Once implemented, the ADS-B Out capability will provide cooperative reports with data such as position, altitude, direction, and velocity to Air Traffic Services. In addition, ACMC is pursuing smaller, more effective transponders to address cyber-security, size, weight, power and obsolescence, while supporting emerging global air traffic management requirements, and working to ensure the Army's next generation transponder is compatible with legacy systems yet still meets Future Vertical Lift requirements.

Our Commitment

The Aviation Mission Systems & Architecture Project Office remains dedicated to keeping Soldiers first by ensuring current and future Army Aviation platforms uphold innovative and cutting edge technologies. It is with these technologies and continuous modernization efforts that enable Army Aviators and Maintainers to effectively, efficiently, and lethally execute their mission. We will continue collaborating with the Army and the defense industrial base to design, develop, deliver and support equipment that maximizes readiness and harnesses innovative and affordable future capabilities.

COL John Frasier is the Aviation Systems Project Manager, Program Executive Office Aviation and Ms. JoAnna Wright is a support contractor; both are located at Redstone Arsenal, AL.



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Special Focus > Aviation Sustainment



AMCOM – Improving Readiness Gains, Driving Future Sustainment By COL David K. Almquist

s the U.S. Army Aviation and A Missile Command (AMCOM) and the Army fast approach FY20, we stand at a strategic inflection point, working tirelessly to balance the need for maintaining the readiness gains we have achieved over the last few years while simultaneously supporting a modernizing portfolio of systems required to face military challenges across the global commons. AMCOM, as the Army's senior sustainer for Aviation and missile systems, must pivot beyond its historical role as a national supply chain and industrial base force generator, and transform itself into consistent sustainment readiness generator, delivering materiel readiness from the Nation's strategic support area to our units operating at the tactical edge of the battlefield.

The Campaign Plan

To this end, AMCOM will publish a comprehensive Campaign Plan (CAMPLAN), to apply our resources and expertise to defined end-states across FY 20-21. We have opted for a near-term, two-year focus to ensure AMCOM remains prepared for the Army sustainment challenges, while remaining agile and ready to adapt to the unforeseen. Our CAMPLAN directly nests with the Army's priorities of supporting near-term readiness while preparing to pivot to sustainment of modernizing systems. For example, across FY20, AMCOM will continue to press and execute initiatives specifically designed to improve our contributions to Army sustainment readiness. We've achieved tremendous success in recent years, providing outstanding supply availability to combat aviation, fires, and air defense units operating in support of every combatant command (CCMD). To improve, AM-COM is investing heavily in systems and technologies that prevent supply chain challenges and disruptions from surfacing. For example, our AMCOM Logistics Center (ALC) is pursuing a comprehensive set of leading indicators, paired with Army enterprise systems, that warn us in advance of disruptions leveraging changes in acquisition timelines, Depot capacity, and other factors that could prevent Army units from meeting readiness goals.

As we approach FY21, we will work in parallel with our FY20 initiatives to inject our Aviation and missile sustainment expertise into modernizing systems to drive reductions in sustainment



burden. As evidenced by the stand-up of the Army Futures Command (AFC) and its supporting Cross-Functional Teams (CFTs), the Army must rapidly transition requirements and field systems to remain operationally relevant to current and emerging threats. However, the systems-level sustainment decisions that take place during this brief period of the systems' life-cycle reverberate across the 40+ years we often operate and sustain these very systems.

AMCOM, as the Army's Aviation and missile sustainment leader, will inject its expertise at both the corporate and system level to reduce Soldier burden across the systems' lifecycle. At the corporate level, we will fully integrate our sustainment knowledge across the Army Requirements Oversight Council (AROC) and Life-Cycle Sustainment Plan (LCSP) processes. We will apply our institutional knowledge and expertise to acquisition and systems' requirements (e.g. KSAs, KPPs, tech data rights) to ensure we achieve affordable, expeditionary, Soldier-sustained systems capable of overmatch against near-peer threats. And at the system level, we will fully integrate our matrixed acquisition logisticians and provisioning experts to drive systems planning and documentation that reduces the life-cycle sustainment burden and fully embraces organic industrial base sustainment options relevant to future Army readiness.

Lines of Effort

To effectively channel our efforts to meet FY20-21 objectives and endstates, AMCOM will utilize three Lines of Effort (LOEs) across key staffs to ensure full accountability for outputs on behalf of our Army.

LOE 1: Sustainable and Materiel Readiness. Spearheaded by our Logistics Center, and our main effort, LOE1 is focused on enabling combat readiness via delivery of sustainment capabilities. Within this LOE, we will go beyond our traditional non-mission capable – supply (NMC-S) focus, and leverage our resources and expertise to directly affect operational unit non-mission capablemaintenance (NMC-M) time. We will finalize Army Aviation's digitization of tech manuals, providing updated and relevant information into the maintenance bay, where it matters most. Additionally, this LOE will drive improvements to supply chain practices to prevent future readiness drivers by pairing our existing data with key factors that alert us to problems before they arise. In parallel, the systems technologies we're using to improve our supply availability will directly inform our ability to forecast surge requirements and prepare our supply chain and industry partners to understand the potential production and delivery required by CCMD contingency operations. And finally, this LOE will be directly responsible for ensuring that our organic industrial base adapts, pivots and invests in the right skills, technologies and facilities to remain relevant to Army readiness.

LOE 2: Future Force. Led by our G-3/5, this LOE recognizes the synchronizing and forward-looking role of this staff function within a Command. This LOE is tasked to lead sustainment planning and development of Commander decision tools that drive ready and lethal Aviation and missile systems. To this end, the G-3/5 is leading Aviation and missile enterprise-wide integration of sustainment into all key system decisions all the way to the Service level. The G-3/5 led, Command-wide "tiger team" approach integrates the work of technical subject matter experts and Command-level acquisition process experts to inform, advise and prepare requirements decision-makers to effect sustainment outcomes. Additionally, this LOE will lead Command engage-





ment with Headquarters, Department of the Army (HQDA), Army Materiel Command (AMC), systems developers and Aviation and missile units to develop readiness-enabling but controlled procedures for additive and advanced manufacturing. G-3/5 will develop and coordinate a balanced tech data approach to sustainment requirements that enables both the organic industrial base and operational units to begin to embrace the power of manufacturing at the point of need. Furthermore, this LOE is tasked to redefine the Command's requirements accountability. The G-3/5 has seeded a new division tasked with ensuring every dollar we spend is tied to a strategic output, on the most effective contract vehicle, with a measured output that informs all our current and future investments.

LOE 3: Human Capital. Led by our G-1, this LOE readily acknowledges the Chief of Staff of the Army's (CSA) number one priority – people. To remain an effective Command, and an Army Aviation and missile sustainment enabler for our Army, we must improve our ability to attract, recruit and retain skilled, dedicated employees prepared to spend a career supporting Army sustainment. To this end, AMCOM is going beyond its traditional focus on creating a premier workforce, to creating a premier work environment. We must acknowledge and embrace broader trends such as wellness centers, flexible work arrangements, and related developments to maintain our relevance to both the talent we have, and the talent we want to acquire.

With this Campaign Plan framework in full effect starting October 2019, expect to see AMCOM's direct involvement across the full-spectrum of sustainment engagement, from the Army to the operational unit level. We will lead continuing improvements in our readiness gains, while driving smart, effective sustainment arrangements supporting ready and lethal systems. AMCOM possesses a clear understanding of the internal changes and investments that must be made to remain relevant to our Army, as well as the requirements of external Aviation and missile enterprise organizations and operational units that rely on us flexing beyond our traditional role to effect battlefield outcomes today and tomorrow.

COL David K. Almquist is the Aviation and Missile Command G-3/5 located at Redstone Arsenal, AL.





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From the Field > 15th Luther G. Jones Aviation Depot Forum-



Shaping Aviation Sustainment

By Corpus Christi Army Depot Public Affairs Office

In its 15th year, the Army Aviation Association of America (AAAA) Luther G. Jones Aviation Forum attracted Soldiers, innovators, aviators, and industry representatives to engage with Army Aviation leaders and learn more about the efficiencies in the field of Army Aviation and maintenance.

This year's theme, "Shaping Aviation Sustainment to Meet Multi-Domain Operations," was brought to life as Army leaders, Soldiers, industry professionals and educators channeled their thoughts, knowledge, and ideas towards a common goal of delivering sustainable



COL Gail Atkins, commander of Corpus Christi Army Depot, provides opening remarks at the Luther G. Jones Army Aviation Depot Forum, August 21, 2019.

Army Aviation readiness.

COL Gail Atkins, commander of the Corpus Christi Army Depot (CCAD), and COL Richard Martin, commander of Aviation Center Logistics Command (ACLC), led the forum with speeches centered on how each organization contributes to shaping the future of Aviation sustainment. "We want to better understand and appreciate the transformation of Army Aviation through its people who maintain and sustain the fight, (and) through the technologies we must employ that improve our efficiencies," said Atkins.



AAAA Corpus Christi Chapter President, Mr. Tyler Yeathermon pauses for the Kodak moment with COL Gail Atkins and (left to right) COL Matt Weinshel, CW5 Marcus Vanney and 1SG Jorge Cobo from the 101st Combat Aviation Brigade, Ft. Campbell, KY during an Artisan Breakfast at the Catalina Club, Naval Air Station Corpus Christi, August 22, 2019.

Martin said, ACLC's operation tempo is outside, if not on par with, the combat theater of operations, with an average of 200 thousand flight hours a year and 500 daily aircraft launches. The tempo allows ACLC to see the importance of meeting the challenges and changes in Aviation sustainment.

"We are making strides every day to improve our maintenance posture so we can increase the throughput the Army requires," said Martin.

Representative Filemon Vela, representing the 34th Congressional District, said Army Aviation "enhances military readiness and DOD efficiency." Vela said, while there is a lot of work in Washington that goes unseen, the Aviation community is benefiting from it, and he is thankful to the Aviation community. "I applaud your work and thank you for everything you do in support of our country and national defense."

A special addition to this year's forum was an Artisan Breakfast held on the second day. Soldiers from the 101st Combat Aviation Brigade "Wings of Destiny," 101st Airborne Division, Fort Campbell, Kentucky, were able to thank artisans for their continued service during the breakfast on Naval Air Station Corpus Christi. Chief Warrant Officer 5 Marcus Vanney, brigade Aviation maintenance officer, 101st CAB, recalled a time in Afghanistan when a UH-60 Black Hawk used for medical evacuation was repeatedly hit with small



Michael Mondragon receives the AAAA Donald F. Luce Depot Maintenance Artisan award from Luce's daughters Gail Davis (holding the award) and Robin Stokes, as (from left to right) AAAA President MG (Ret.) Jeff Schloesser, Representative Filemon Vela, COL Gail Atkins, and Mr. Don Nitti, representing AMCOM commander, MG K. Todd Royar look on.

arms fire, but despite the damage, the aircraft made its return to safety. "It was CCAD-built engines that kept them going," said Vanney. "I give thanks to all the artisans." First Sergeant Jorge Cobo, from the 101st CAB, said it was nice to finally put faces to those who have supported his Soldiers as either field maintenance teams or as instructors during his Soldiers' on-the-job training.

"I never question when I see a CCAD stamp on our parts, because I know I'm getting quality," said Cobo.

AAAA presented the 2019 Donald F. Luce Depot Maintenance Artisan Award to Mike Mondragon, a mechanical parts repairer and native of Corpus Christi. The National Award is presented to the person who has made an outstanding individual contribution to Army Aviation in the area of Depot Maintenance. Mondragon has worked at the Corpus Christi Army Depot for the past 11 years. He said the news of the award came as a surprise as there are a lot of individuals who deserve it. "It's very humbling," said Mondragon. "I am happy and very appreciative."

Panel discussions during the Forum centered on current aspects of Army Aviation and how it applies to Multi Domain Operations (MDO). Panel topics included technology initiatives, Army Futures Command support, depot field maintenance, workforce sustainment, and additive manufacturing. Some MDO highlights, as they pertain to Aviation, come from looking at using current technologies as integration not conceptualization, said retired U.S. Army

Brigadier General Steve Mundt, former AAAA president and chair for the Army Futures Command Support Panel. "Try to integrate (technology) not invent it," said Mundt. The forum provides an opportunity for those involved in depot maintenance and the Aviation industry to influence the future of Army Aviation.

It is more than sustaining the fight for MDO, it is a challenge to make a significant change in the doctrine that has been followed for the past 40 years.

In the end, the 15th Luther G. Jones Aviation Sustainment Forum served as an innovative and collaborative point to further Army Aviation sustainment.



Reprinted from the July 31, 1974 Issue of ARMY AVIATION Magazine

Grumman welcomes ex-POW back to Mohawk country

T was high noon at Stuart, Florida, as the entire 630-member workforce gathered in front of a reviewing stand that was flanked by two OV-1 Mohawks. As the guest-of-honor made his way to the platform, the crowd moved out of the hangar shadows onto the sunbaked runway. Army Captain Robert T. White was back in "Mohawk country"--and the crowd wanted him to know it.

Shot down in a Grumman OV-1 surveillance aircraft on November 15, 1969, Captain White was released by the Viet Cong in April 1973 after 3½ years in captivity. Almost a year to the day after his release he was presented with a Recognition Award from Bill Zarkowsky, Grumman Aerospace Vice Chairman of the Board. His wife, Judy, was also honored with a bouquet of roses and a Mohawk charm bracelet as a more lasting remembrance of the visit to Mohawk country.

Full turnout at plant

Besides the entire workforce at Stuart, Art Melrose, Stuart general manager; Lt. Col. Eugene Walsh, U.S. Army Commander-Grumman Plant Activity at Stuart; Tom Doyle, OV-1 program manager at Stuart; Bob Benito, director of Army programs for Grumman; and John Lueck, manager of Army programs at Stuart, were present to honor the captain and his wife.

Upon receiving the "Welcome Home" plaque and Mohawk model, Captain White commented that during his years as prisonerof-war he was concerned whether or not he "would have to pay for the expensive airplane" that was lost when he was shot down. Over the past year, the Army captain said he has had the pleasure of being exposed to a number of people and organizations, "but I have never been more at home than I feel right here today."

The Army captain had returned to Vietnam for his second tour in 1969. On November 15, while flying a survellance mission with a naval observer, Lt. Cdr. John G. Graf, his Mohawk was hit by enemy fire over the Mekong Delta. He ordered his passenger to evacuate, and when the cockpit began to fill with smoke he himself ejected. He was sighted by a U.S. Coast Guard ship patrolling the area, but due to a compound fracture of the spine, White



WELCOME HOME - Vice Chairman of the Grumman Aerospace Board Bill Zarkowsky (center) presented former POW Army Captain Robert T. White with a Recognition Award, and his wife, Judy, with a Mohawk charm bracelet at a recent ceremony at the company's Stuart, Fla. plant. [Fred Annette]

was unable to evade the enemy. (His back healed naturally without medical assistance during his capture.)

Chopstick entrepreneur

Over the next three and a half years, Captain White moved about the swampy countryside with his Viet Cong captors. During that time, he claims to have become a culinary expert on a variety of rat dishes. In his spare time (the captain says he had plenty of it), he perfected the handmade chopstick, which the Viet Cong made to trade for food and supplies. An average Viet Cong chopstick would sell on the market for about four cents, but due to his talent, Captain White's chopsticks were sold on the market for 10 cents.

'On several occasions, his Viet Cong captors would allow him to listen to the radio. It was from a Hanoi English-speaking radio station that he heard of the January 27, 1973 ceasefire agreement. He was finally released by his captors on April 1, 1973--the last of the 588 U.S. prisoners-of-war who were released.

Judy is finishing her senior year at William and Mary where she is majoring in German, and Bob is presently stationed at Fort Eustis, Va., undergoing Transportation Officer training. He hopes in the near future that he'll be back in a Mohawk cockpit once again.

6

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The Voodoo Chapter

The Voodoo Chapter was chartered May 18, 2002 by the founding fathers, BG Barry Keeling and CSM Don Everett. The Voodoo Chapter has remained strong and resilient with outstanding leadership directing the Chapter through challenging federal and state emergencies such as Hurricanes, natural and environmental disasters.

The members of Voodoo Chapter answered the call recently in July for Hurricane Barry, supporting 33 aviation missions. Since 2003, the Voodoo Chapter has experienced over 16 aviation deployments in support of Operations Iraqi Freedom, Enduring Freedom, New Dawn, Kosovo, Southern Strike, and Inherent Resolve including Haiti, Belize, New Horizons rotations and numerous Southwest Border rotations. The Chapter hosts the annual Emergency EMAC/ All Hazards conference at Jackson Barracks which helps maintain a strong response to emergency situations within Louisiana and the rest of CONUS.

Membership and Supported Units

The Voodoo Chapter has 223 members consisting of Soldiers, officers, alumni, friends and family of the State Aviation Command (SAC) of the Louisiana Army National Guard and is strong and growing. SAC consists of the 204th Theater Airfield Operations Group (TAOG), 1-244th Aviation Assault Battalion (UH-60), DET 38 OSA (C-12), 114th Security and Support Detachment (UH-72), 2-151th Medevac (UH-72), 248th Maintenance Detachment, 2-238th Medevac (UH-60), 1-171st & 1-169th Air Traffic Control, AASF #1 in Hammond, and AASF #2 located in Pineville, LA.

Awards and Scholarships

The Chapter has a robust awards program. It supports the state's prestigious Paul D. Alford award annually recognizing an officer and NCO who have demonstrated superior leadership in the LANG. To date, the Chapter has awarded 31 Bronze Order of St. Michaels, two Silver, and several Our Lady of Loreto awards. In addition, they also award two annual scholarships to highly successful students pursuing higher education. The scholarship program has left a positive impact on the awardees and parents alike that compete each year, arming the students for success as they reach the goal they set for higher education.

Golf, Spring & Winter Formals and Crawfish Boil Events

Golf tournaments are hosted by Voodoo Chapter every spring with great turnouts, creating rivalries between Louisiana National Guard units ranging from Engineers, Infantry, Military Intelligence, and Aviation. The trophies for 1st thru 3rd are outstanding models on a wooden pedestal of UH-72 and UH-60 aircraft and are well sought after as the 4-man teams complete for them. In addition, the Voodoo Chapter supports its annual Chapter Crawfish Boil competition in the spring where teams spar off to claim the "Best of Boil" coveted title. The Chapter hosted its 1st Annual spring and winter formals this past year where it was met with great success.

Soldier Recognition

The Chapter has initiated its Soldier of the Quarter program, having recognized its first Soldier, SPC Skylar



StPierre for 3rd Quarter. Soldiers selected for the honor receive a one-year membership, framed certificate and a designated front row parking spot at the Readiness Center.

Chapter Logo

Louisiana is a state that is deep in tradition, folklore, famous for parties, humidity, and the best food you could ever eat in the United States. It made perfect sense to name their AAAA Chapter, "Voodoo" based on strong religious communities such as Catholic, Baptist, Pentecost, or African and Haitian Voodoo (Voodoo dolls were introduced by Louisiana Voodoo, which is the mixed incarnation of African and Haitian voodoo) religions that are immersed in their culture. The Louisiana heritage mix of French, Spanish, Creole, English, Caribbean, and most notably Nova Scotia (where the Cajuns came from) and many more adds to the unique mixture of Soldiers within the Louisiana National Guard. Thus, it seemed fitting to have a Voodoo doll with a pin in it as everyone knows that New Orleans and Louisiana are synonymous with Voodoo. With last names that end in a Boudreaux, Thibodeaux, and Landreneau, vou know vou are amongst family and friends, and it's guaranteed that they can cook Cajun.

Summary

The Voodoo Chapter has been at the tip of the spear supporting Airborne Assault, Aircraft Maintenance, Medevac, Security and Support, and Theater



Airfield Operations in the state of Louisiana. The families within the Voodoo Chapter are proud members of such a versatile and resilient group. As we make our way through 2019, the Voodoo Chapter says, "les a bon ton roule" or let the good times roll.

Please contact me for help with your Chapter, Executive Board support, would like your Chapter featured in the AAAA magazine or to obtain clarification of National procedures. I look forward to working with you and supporting AAAA.

> LTC (Ret.) Jan S. Drabczuk AAAA VP for Chapter Affairs *jan.drabczuk@quad-a.org*

AAAA Chapter News

Air Assault Chapter Quarterly Meeting



Air Assault Chapter President, COL (Ret.) Hawk Ruth, presents guest speaker, BG Thomas R. Drew, U.S. Army Special Operations Command Deputy Commanding General, with a memento during the chapter's third quarter meeting at the Smokehaus Restaurant on Fort Campbell, KY, Aug. 28. Approximately 90 soldiers, NCOs and officers attended including the 101st Combat Aviation Brigade and 160th Special Operations Aviation Regiment commanders and former AAAA National President (and 160th SOAR commander) BG (Ret.) Howard Yellen.

Connecticut Chapter Supports Charity Golf Match



The Connecticut Chapter sponsored two foursomes in the 9th annual charity golf match to benefit veterans and servicemen on July 26th,

held at the Gillette Ridge Golf Course. Proceeds of the event benefitted the CT Chapter, Association of the United States Army (AUSA), Connecticut National Guard Foundation, Inc (CTNGFI), and Military & Veterans Support Coalition (MVSC). Pictured (I to r) chapter members are: Tom Nicolett, VP Government Affairs; Dom Fernandez, VP Programs; Matt Lisk, Treasurer; and John Palumbo (President).

Great Lakes Chapter Night at the Ballpark



Once again, the Great Lakes chapter hosted the annual night at the ballpark during a Lansing Lugnuts game, located in Lansing, Michigan on July 18th. The game took place on a Thirsty Thursday to encourage maximum participation. Turnout was fantastic and everyone had a great time as the Lansing Lugnuts beat the Burlington Bees of Burlington, lowa, 5 to 4.

Northern Lights Chapter Golf Tourney

North Texas Chapter Membership Meeting



CHAPTER COURTESY P

The North Texas Chapter hosted a chapter Dinner and Membership meeting on Thursday evening, June 13th at the Ruthe Jackson Center, in Grand Prairie, TX. More than 100 members and guests enjoyed the evening, to include the two guest speakers: MG Thomas H. Todd III, Program Executive Officer Aviation (pictured), and AAAA National President MG (Ret.) Jeff Schloesser.





The Northern Lights Chapter conducted their annual fundraising golf tournament on September 6, 2019 at the Chena Bend Golf Course, Fort Wainwright, Alaska. Approximately 100 people participated as 26 teams comprised of a mix of military, civilian and retirees from the Fort Wainwright Community enjoyed playing to raise money for the scholarship foundation general fund.

Wright Brothers Chapter Day at the Ballpark



AAAA Wright Brothers Chapter Members, family, and friends enjoyed a day at the ballpark July 7, 2019. Lunch was enjoyed by all in the chapter's private party deck overlooking the third base line. During breaks between innings the Chapter was recognized on the ballpark's giant scoreboard. A fun filled day and event was had by all attendees.

AAAA Membership Update By CW4 Becki Chambers

The Membership Corner

G reg and I recently had the opportunity to attend a Strong Bonds retreat hosted by 5-159th GSAB. I cannot say enough good things about the event. The content was enlightening and we learned some tools that will be beneficial to our relationship.

The speaker/listener technique will be especially helpful. We believe that the event would not have been as successful without the leadership of Chaplain (Candidate) 1LT Bruce Ausink. His professionalism and mentorship were essential to the success of the event.

1LT Ausink was born in the Philippines but grew up in the Hampton Roads areas of Virginia (Norfolk.VA Beach). He finished ROTC in 2012 and became an Army Medevac pilot (67J). This was his first passion and sole reason to join the Army; he wanted to airlift injured Soldiers to safety. Upon graduating from flight school, he went right to 3-82nd GSAB at Ft. Bragg, NC and deployed four short months later. Following a family emergency, he had to return home early from deployment. He then served in the rear detachment in various capacities until returning to a platoon upon the re-deployment of Charlie Co., 3-82. A few years went by and he found a new passion for Chaplaincy, which is where he finds himself today. 1LT Ausink is now an Army Chaplain candidate in the Reserve's 5-159th GSAB. Still in Aviation, but now in a different capacity, he says he loves what he gets to do for his unit. 1LT Ausink loves the fact that his priority of work is to be there for those going through difficult situations. Nothing gives him greater joy than helping someone through a hard time.

I asked 1LT Ausink if he could share what he believes a chaplain does for a unit. Here is what he shared with me: "A chaplain provides religious services and support within the practices of their denomination, and resource what they cannot provide themselves. However, this is only the beginning of what a chaplain provides for the unit. A chaplain advises the commander on everything from unit morale to the enemy religious situation. A chaplain is a workplace minister that makes himself available to all in the unit regardless of their belief systems and position. This is why the chaplain is a



Brian and Helena Ausink, with children (left to right) Netania, Rhema and Laura.

force multiplier. A good chaplain will support and mentor the Soldiers going through difficult personal circumstances that are otherwise highly distractive in the work environment. A chaplain addresses those needs to keep them from affecting the unit's mission."

Of course, there are struggles with any job. Here are some he faces as a Chaplain: "It is certainly not easy to see someone whom you have invested in continue in his or her pain without receiving the healing they need. A chaplain is not to coerce someone into an inner healing modality without that person's permission. I sometimes meet with Soldiers who say they want to be free of their pain yet do not want to take a spiritual approach. I respect that fully and provide a safe place for them to vent their frustrations. Even though the venting has a therapeutic effect in the short term, it does not solve their fundamental problems. I think for most chaplains this reality is difficult to repeatedly observe. For most chaplains in the Reserves I believe time is the main issue."

I particularly wanted to share what he said about his wife: "My admiration for my wife Helena cannot be overstated. She is the most loyal and kind-hearted person I have ever met. We met in College. She became an Army nurse right before I went to flight school, when we were married. Four children later, she is happily serving our kids wholeheartedly."

1LT Ausink first joined AAAA in 2012 because he believes it's good to be part of an organization bigger than yourself. He says that even superheroes have a support system.

> CW4 Becki Chambers AAAA Vice President for Membership



New AAAA Life New AAAA Members Members Air Assault Chapter

CW2 Phillip D.Knoecklein LTG Michael L. Oates, Ret. Charles K. Woollev

Arizona Chapter

CW4 John Vandenberg, Ret. **Aviation Center Chapter** CW5 M. Chad Trenary Black Knights Chapter W01 Thomas Seybold **Central Florida Chapter** COL Edward K.Lawson III Ret. **Colonial Virginia Chapter** LTC Boyce Ryan Buckner **Flying Gator Chapter** CW4 Ken Scher, Ret. CW3 Robert Smith **Frontier Army Chapter CPT Matthew Conner** Great Lakes Chapter COL Robert C.Effinger III **Greater Atlanta Chapter** COL Danny C. Cox, Ret. **Griffin Chapter** 1SG James L. Leonard. Ret. **Idaho Snake River** Chapter CW4 Jesse O. Anderson 1LT Alexander Blazek CW2 Brycen Alan Bullard SFC Tammi K. Crnkovich CPT Mark D. Dillon CW3 Jed D. Dilworth CSM David Henry CW2 Matthew S. Hensley CW3 John C. Jacobs WO1 Nicholas L. Jenson CW3 K. R. Kirkendall SGT Robert F. Langdale CW2 George G. Laubhan CW2 Kylianne Lowe CW2 Jeffrey D. Norris CW3 Matthew D. Peltzer **Minuteman Chapter** CPT Timothy Kranz North Texas Chapter LTC Noma C. Martini **Rio Grande Chapter** CSM Jeffrey D. Sturtevant **Tennessee Valley** Chapter AI A. Abejon LTC Jeffrey S. Amos Brian Cornett CSM Michael Muller COL Dennis Patrick, Ret. LTC Richard L. Williams. Ret. **Volunteer Chapter** LTC Brian E. Supko Washington-Potomac Chapter CW4 Fletcher S. Johnston, Ret. LTC Matthew R. Minear Wright Brothers Chapter CPT Walter J. Kohls. Ret. Yellowhammer Chapter

Air Assault Chapter 1LT Joshua Ciarlante 1SG Jason A. Coon CW2 Phillip D.Knoecklein LTC Michael Miller MAJ Todd Wical Donald O. Huffman SFC Arturo C. Gonzalez SFC Daniel R. Jetter SFC Donnie Taylor SFC John P. Brode SPC Matthew LaFeir W01 Robert B. Rudder **Aloha Chapter** CPT Anthony J. Magee CW3 hector fuentes MAJ Denise Souza MAJ Nathan Cary Travis Baxter Arizona Chapter MAJ Justin T. Horsfall Matthew Binstock Michael Schachte **Aviation Center Chapter** 2LT Abigail E. Bibb 2LT Andrew Hunt 2LT Chrystal J. Camacho 2LT Claudia J. Bacon 2LT Collin J. Shook 2LT Colton Cicutto 2LT Edward J. White 2LT Joseph C. Alexopoulos 2LT Joshua J. Keithline 2LT Kaela F. Lynch 2LT Kyle Stancik 2LT Matthew S. Horwitz **2LT Michael Catron** 2LT Nephi V. Carter **2LT Noah Staples** 2LT Peter E. Muller 2LT Ryan Stratton 2LT Sarah G. Gunnells 2LT Thomas G. Whittaker 2LT Tyler M. Triquet CW4 James Knight James Bonnette WO1 Adam D. Ames W01 Adrian L. Stowers W01 Amanda K. Collier W01 Amy R. Berner WO1 andres bello WO1 Andrew Fourtunia WO1 Andrew J. Ness WO1 Antonio D. Diaz W01 Austin W. Albany WO1 Benjamin H. Haulenbeek W01 Blake Dyer W01 Brandon J. Thornell W01 Brian M. Poulin W01 Cary D. Price WO1 Chaz Cooper WO1 Christian S. McWilliams WO1 Christopher Morihlatko W01 Christopher Munro WO1 Cody Bennett W01 Curtis E. Presley W01 Dane N. Beecham W01 Darren Ream W01 David Rolapp W01 Domain O. Thomas W01 Graham C. Curletta WO1 Hope M. Johnson WO1 Jacques A. Madere WO1 Jared Gowan WO1 Jared Wakefield W01 Jeffrey C. Tyler W01 Joe Loftus

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1SG Douglas Patterson Alexis Atkins Michael Mondragon SSG Hector De Leon **Delaware Valley** Chapter 1LT Seong Hong 2LT James L. Frazier Andrew M. Guaraldo Bill Law David G. Defruscio Don Hicks Jake H. Berkowitz James P. Gallen John D. Kivitz John Forti John L. Russo Joseph S. Lyons Mike Quake Nick Scotto Peter Flecknoe Raymond Costello Roder Stewart Ronald M. Hild Stephen J. Burbelo Stephen K. Parker Steve Jaworski **Desert Oasis Chapter** SFC James Lippencott **Empire Chapter** LTC Shawn Hatch **Flying Gator Chapter** CW3 Robert Smith **Follow Me Chapter** CPT Matthew Lee St Clair MAJ Daniel Gazzano **Frontier Army Chapter** CPT Matthew Conner LTC Bryan Travis Woody SGT Deborah Lamere **Gold Standard Chapter** MAJ Stephen Kramer Mr. Stephen Rogers Great Lakes Chapter LTC David Abke Kim Noble PV2 Rebecca Sage SPC Matthew K. Hunter **Greater Atlanta Chapter** CPT Nathaniel L. Shapiro CW2 Hunter M. Holder Christopher Thompson PV2 Kyle C. Langston

Corpus Christi Chapter

Idaho Snake River Chapter

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CSM Michael Twaddell SFC Benjamin Peralta SFC Travis Harden SPC Crystal Ellington SPC Dwayne V. Johnson SPC Madden M. White SSG Corey Christopherson SSG Jayme H. Charlson SSG Johnathan A. Castillo North Country Chapter 1SG Christopher Margiano MAJ Jeffrey Kneer North Texas Chapter CW2 Brandon P. Blackburn Jonathan Johnson Jovita Adjabeng SPC Robert J. Boykin **Old Tucson Chapter** CW4StevenA.Overhaug, Ret. SSG Heather Kennedy **Oregon Trail Chapter** SGT james Brown Phantom Corps Chapter CPT Andrew M. Glenn Cheryl "Tori" Seals **Pikes Peak Chapter** SFC Chase J. Downey SPC Valerie Bragg WO1 Joseph M. Halla **Prairie Soldier Chapter 1SG John Ternus** WO1 Dayton C. Rasmussen **Rio Grande Chapter** CW2 Antonio Rios CW3 James LeBlanc CW3 John Conwell, RET CW5 Michael J. Robertson **Rising Sun Chapter** Felix Ramos Jr Savannah Chapter CW3 Jonathan Marsh MAJ Christopher Cail Southern California Chapter PV2 Garrett J. Miller PV2 Justin O. Villamor **Tarheel Chapter** Anthony Fielden Tracy Rector PV2 Rodolfo Marmoieio **Tennessee Valley** Chapter CSM Michael Muller Continued on Page 67

ARMYAVIATION Magazine Photo Contest



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W01 John C. Clark

SSG Cody Sullivan



The Art of Communications

By Judy Konitzer

ommunicating with your children in a positive way is an agreed upon premise and one that can be further explored without this forum "preaching to the choir."



"Parenting" (quoted from John Rosemond in our Augusta Chronicle Newspaper), means "going to great lengths to ensure their child does not experience frustration, hardships, defeat, failure, insult, rejection, unhappiness or anything else that goes along with living an authentic life. It is a vain attempt to emancipate a child and as a result, parents could be inadvertently holding their child back from becoming a rational, responsible, emotionally-resilient, self- controlled adult."

By contrast "raising" a child focuses on character rather than achievement, respect for others as opposed to selfesteem, whereby lifting them out of childhood and into genuine adulthood. Positive communication along the road promotes this process. The bottom line is all children deserve to feel loved and accepted and we can communicate those feelings simply by the way we choose to speak. Their self-esteem is closely tied to their interactions and relationship with us as parents. Communication is more than just talking, as it involves your tone of voice, the words you choose, the set-

Major Adam Lulay, Oregon National Guard 158th Aviation Unit, and former President of the Oregon Trail AAAA Chapter shares a morning "communicating" with his son William's class at Boons Ferry Primary School, Wilsonville, Oregon, prior to his current two-year tour in Vietnam.

ting where you are speaking, the volume of your voice, and your body language.

Get Your Child's Attention

Children have a limited attention span and ability to focus so when you are speaking engage them in eye contact. Get on the same level physically and mentally and choose words that a child will understand.

Be Polite

Saying "please" softens requests and when followed with a specific request for action can get kids moving. Adding "thank you" in closing with any request reinforces that you expect a child to complete a job. It is important to control your emotions and not show anger or pleading.

Prepare to Repeat

Immature development enforces the need for children to be told over and over before they can commit it to memory. Focus on making sure your child understands what behavior you want to see and why that behavior is important to you.

Watch for Body Language

Research shows that as much as 90% of communication is nonverbal. Your stance, facial expressions, eye contact, and other nonverbal cues say far more than the actual words you use. Watch your body language and pay attention to your child's nonverbal communication as well.

Choose Your Words Carefully

A carelessly chosen word spoken in haste can have great impact on a child's self-esteem. Take care when choosing your words and do not let stress or frustration cause you to use negative words that can hurt your child's feelings. Focus on the behavior



you want changed, not the personality or attributes of the child.

Listen Carefully

Listening involves giving a speaker your full attention and focusing on what they are saying. Listen to your children without cutting them off. Make eye contact, then repeat back what you have just heard, so your child knows you understand. Be patient when younger children are speaking as it can take them longer to express their thoughts, feelings, and emotions. But in communicating with a teen, realize that the teen brain is not fully developed (the frontal lobe, which is responsible for problem solving and logic, does not mature until the mid to late 20s depending on gender) and is also good at tuning parents out and turning their words around at them. Listening to teens involves listening to them talk about their here and now. Sharing your experiences, good and bad, when you were a teen does not necessarily equate to their experiences today, so it is important to empathize with them and express how they would handle a situation or their frustration and fears for their future.

Studies show that family strength comes from commitment, time shared together, approval, acceptance, and the willingness to talk to each other. A recent quote attributed to Barbara Bush says, "You must read to your children, and you must hug your children, and you must love your children. Your sense as a family, our success as a society, depends not what happens in the White House, but in what happens in your house."

Another noteworthy quote is from Maria McConville, spouse of GEN James McConville, our Army Chief of Staff, and although from an unknown source, she encourages us to: "Watch your thoughts, they become words. Watch your words, they become actions. Watch your actions, they become habits. Watch your habits, they become your character. Watch your character, it becomes your destiny."

Words and positive communication are vital and worthy of consideration for all of us.

Judy Konitzer is the family forum editor for ARMY AVIATION; questions & suggestions can be directed to her at judy@quad-a.org.

New AAAA Members Continued from Page 65

Yolanda Powell-Friend MAJ Jeffrey C. Sullivan MAJ Simon Beattie Brian Cornett Carl E. Noyes David V. Dickens Douglas Ford Gregg McAdams Jarrett Branch Joseph Parsley Laurence H. Burger Scott Sieger Skyler L. Austin Steve Reed Steven Sanders Jr. Lindsey Barron Anita K. Delaney Billie Sikes Lorilee Crisp WO Paul Beiss Thunderbird Chapter PFC Kai C. Ouverson PFC Tyler J. Meadows SGT Daniel A. Milam SGT Haley Alexander SGT Levi D. Mosier SGT Philip I. Miles SGT Travis R. Floyd SPC Aaron J. Krusemark SPC Cody A. Rayan SPC Gregory D. Watson SPC Isai L. DeLeon SPC Jeremy L. White SPC Nathaniel A. Ediger SPC Nickey J. Jones SPC Thomas D. Cavner Utah Chapter Matthew Moss WO1 Rory C. Hileman Volunteer Chapter CW4 Angela S. Watson

CW4 Robert L. Karban Voodoo Chapter PV2 Joey C. Mason Washington-Potomac Chapter 1LT Gerald A. Foster, III 1LT Kelly Morgan Russell SFC Robert Ballard Winged Warriors Chapter 1LT Zachary T. Mitchell Zia Chapter CPT Zachary Haynes SPC Erica R. Glover WO1 Brandon W. Thomas No Chapter Affiliation **1SG Brenton Hall** COL David Romine CPT Amanda Clary CPT Taylor F. Guinan CW3 Andrew A. Bellotti CW3 Brandon L. Bennett CW3 Joseph M. Lawrence CW3 Raul H. Dsouza CW3 Ryan C. Czarnetzki CW4 Bradford Z. Vance CW4 Dallas W. Bundy CW4 Joyce Desveaux CW4 Marcus A. Groetzinger CW4 Matthew Greathouse CW4 Matthew G. Spawn CW4 Steven F. Skoda CW4 William B. Allison LTC Daniel Gross LTC Gerald McDonald MAJ Andre Levy MAJ Harrison Walters Chelsea Jarvis Christopher Brumlev Christopher R. Betz Gian M. Prosperi

Mark O'Brien Scott Burdick Scott Lockman PFC Gonzalez Colon PFC John Riviere PFC Maria D. Campos PV2 Dale E. Kruse PV2 David L. Patchen PV2 Dillon L. Rogers PV2 Dylan A. Pritchard PV2 Ethan C. Wildt PV2 Evelyn Harrington-Bennett PV2 Jesse D. Walters PV2 Matthew B. Southern PV2 Matthew S. Crawford PV2 Ramil A. Sanchez PV2 Shaquan C. Brown SFC Baker Dustin SGT Luis E. Rodriguez SGT Timothy FitzGerald SPC Brian D. Acevedo SPC Jared Towner SPC Jeong Woo Song SPC Ricardo Sotonieves WO1 Christopher Yurko WO1 Jenson G. Bartlett WO1 Nathan H. Dungan WO1 Robert I. Powell WO1 Stephanie L. Hempel

Lost Members

PFC Anthony Aleman CPT Robert S. Boham Mr. Harold V. Bowie, Jr. MAJ James E. Bruckart SPC Brett C. Butler E. W. Cavanaugh LTC Richard G. Cercone, Jr. LTC Tzu-Shan Chang SPC Derrell L. Coats

MAJ Harry L. Connors Jr. Ret. Bruno Cussigh SGT Travis Bonham Darnell CW3 Matthew John Decker 2LT Arthur W. Galloway Mr. Michael F. Glass MAJ Gregory W. Glover LTC William T. Goforth Ms. Mary H. Gorman COL Gerhard Granz, Ret. Trevor Harker Tashia Harris Smith COL Jose L. Hinojosa, Ret. SFC Carroll Elmo Hinson, V CW4 Delbert Jackson, Ret. MAJ Gregory R. Jenkins MAJ David A. Jobe LTC Peter D. Kowal Beth N. Kramer CW3 Vladimir Kultschizky CW3 Timothy J. Larz MSG David W. Little, Ret. SPC Poblo C. Lopez SFC Jim P. Moore Fred A. Newcomb SFC Henry R. Rathbone, Ret. SPC Cameron B. Rumbo LTC Martin Scheld Thomas R. Schiltz LTC Jerry D. Scott SPC Jeremy L. Sharkey SPC Shelton T. Shia Jeremy Smith MAJ James F. Speelman LTC Friedrich Stern WO1 Armando B. Torres Kevin L. Tucker Rose Weast Nadia O. Whatlev SSG Johan G. Zarae



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- Active Army Aviation Unit of the Year
- Outstanding Army Aviation Unit of the Year
- Top AAAA Chapter of the Year
- Top Senior Chapter of the Year
- Top Master Chapter of the Year
- Top Super Chapter of the Year

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edbly much for your vested interest in my acade we to becoming a vetorinarian and grant me some peace of mina part of such a wonderful and close-limit organization of whom for

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the attached enrolment verification confirming my registra

DBU AAAA Schedunster, p. Hum, bonds courses been beigen to expires, mig operatulat, the this schoolarch in I was analyzed, theories to this work Coopers matching, with the conger Coopers matching, with the conger

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IDY AMAA SCHOLDHOLD HOLM,

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the Central Florida Chapter Matchin ed as a recipient

o Florida State University this week og a career as a derm wards defraying

ely grateful and Central Florida Cl

written verification

Sincerely.



for this scholarship, it is a tremendous honor as well as a finan as been given but even more so I thank the members of this orga ng men like me can go to school John Adams once said "I must s by mathematics and philosophy," as many in this organization h s of what inspires us (even though I plan on studying politics any hing I will long remember. Thank you once again.

Since 1963, the AAAA Scholarship Foundation has played an important role in supporting the education of Army Aviation Soldiers and their families. This year, the Foundation awarded \$516,500 in scholarships to 304 deserving applicants. This would not have been possible without the constant and generous support

of the Army Aviation Industry and Private Donors.

For more information on how you can contribute or to learn more about the application process, please go to quad-a.org/scholarship

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Thank You To Our Scholarship Fund Donors!

AAAA recognizes the generosity of the following individuals, chapters and organizations that have donated to the Scholarship Foundation from July through September 30, 2019. The list includes donations received for all scholarships. as well as the General Fund which provides funding to enable the chapter, corporate, heritage and individual matching fund programs as well as national grants and loans. Donors marked with an * are partially or totally for the Families of the Fallen Scholarship. Every penny donated to the Scholarship Foundation goes directly to a grant or loan as a result of the Army Aviation Association of America subsidizing ALL administrative costs!

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FALLEN HERO

AAAA is saddened to announce the loss of the following Aviation Soldier.



MAJ Joseph

Trevor Philip Joseph, 33, Colliersville, TN, was killed when a UH-60 Black Hawk helicopter, which he was piloting, crashed shortly after midnight on September 26 at the Joint Readiness Training Center at Fort Polk, Louisiana. Three other crewmembers were injured.

At the time of the mishap, the Black Hawk was enroute to recover a soldier with a heat-related injury on the training ranges. The aircraft was

assigned to Company C (Cajun DUSTOFF), 1-5th Aviation Battalion, based at Fort Polk. Joseph was the company commander.

The accident is presently under investigation. May he rest in peace.

(Information from Defense Department news releases and other media sources.)

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For more information about the Foundation or to make a contribution, go online to www.guad-a.org; contributions can also be mailed to AAAA Scholarship Foundation, Inc., 593 Main Street, Monroe, CT 06468-2806.

In Memoriam

Colonel Edward L. Landry Jr. U.S. Army Retired





It is with great sadness that AAAA announces the passing of a member of the Army Aviation Association of America's "The Originals," otherwise known as the Cub Club.

Colonel Edward L. Landry, Jr., U.S. Army Retired died August 31, 2019 in Sun City, FL. He was 92. Born in Great Falls. Montana he spent his early years on a cattle ranch. Following high school, he joined the Wartime Merchant Marines and served for 2 years just prior to joining the Army as an enlisted man in 1946. His military career spanned more than 29 years and he was a veteran of World War II, Korea, and Vietnam. He attended Air Force Liaison Pilot School in 1950 and had numerous aviation maintenance assignments from platoon leader through battalion command in Vietnam before retiring in 1973 as the Army Director of Aviation Acquisition Programs. His awards included the Legion of Merit with two oak leaf clusters, and the Air Metal with oak leaf clusters among numerous others. He joined Bell Helicopter International as the project manager for organizing and managing a national helicopter depot repair facility for the Government of Iran. Returning home in 1977, he joined National Systems Management Corp., a small providing contract acquisition business and engineering support to U.S. Naval Air Systems Command, ultimately becoming Vice President for Logistics, managing numerous logistics support contracts for Army, Navy and Air Force aircraft and airborne missile systems until his retirement in 1997.

He was interred with full military honors at Florida National Cemetery, Bushnell, September 10.

May he rest in peace.

AAAA Legislative Report

By LTC Kevin Cochie, Retired AAAA Representative to the Military Coalition (TMC) *kevin.cochie@quad-a.org*

Continuing Resolution

Last month we were happy to report that peace broke out in Washington, DC and the two political parties arrived at a bi-partisan compromise on a two-year budget deal to fund the government through the next Presidential election in 2021. Many DC insiders were surprised with this development, but happy nonetheless with the thought of a second year in a row by which the military does not have to succumb to the pressures of a Continuing Resolution where short term spending bills bridge the gap to full funding legislation.

Well, we spoke too fast. The two-year spending compromise was a compromise on top line numbers, but not in action. The compromise comes in the form of an "Omnibus" spending bill that wraps all the government budgets into two pieces of legislation. H.R.2740 passed the House and contains various appropriations to include Defense funding and H.R. 3055 contains Military Construction and VA funding. So even though there is a bi-partisan agreement to end Sequestration and establish two years of funding levels, the House and Senate must both pass appropriation bills that establishes how much funding goes into each budget line within the appropriations bills. Then they have to resolve differences and pass a final version that will be signed into law by the President.

This bi-partisan agreement was reached back in June, so what's the hang up? Here we are, one week prior to the end of FY19, and the Senate has still not passed their version of the bill. The Senate Appropriations Committee did pass their version out of the committee narrowly by a vote of 16-15 (31 Senators on the committee), but the legislation has yet to go to the full Senate for passage.

It's safe to say that the hang up can be attributed to many reasons, but the big one is border wall funding. The reason not one Democrat on the appropriations committee voted to pass the defense appropriations bill is because they do not want any of the funding to be pushed from the Pentagon to the southern border for a wall.

So, when this article hits your mailbox, the question will lie with how long CR will last. Ideally, only a few weeks to a month

until the parties arrive at a compromise, but politics is stubborn, and should expect several stop gap funding bills while the parties overcome their differences. Expect a lot of back and forth rhetoric, threats of government shutdowns, but rest assured they will resolve the issues because neither party wants to own the ramifications as they go into a Presidential election year.

NDAA Update

Similar to the Defense appropriations situation, the status of the National Defense Authorization Act (NDAA) is contributing to the imminent situation of a continuing resolution. The House and Senate Armed Services committees, however, are further along than their appropriations counterparts. Both chambers passed a version of the NDAA and are in their conference period where they resolve the differences in policy provisions. The House passed a version with a top line of \$733B whereas the Senate's top line was \$750B. The policy issues with the authorization bill, again circle back to the diversion of funding to pay for part of the border wall. To remind our reader base, the issue with a continuing resolution situation lies with unpredictable funding streams. The short-term funding bills allow the DoD to continue operations, but funding lines are capped at levels from the previous fiscal year and new start programs are prohibited from being initiated. This alone perturbates into the defense industry causing issues with production planning, schedule delays, etc., etc.

Ahead to FY21 Budget Cycle

While we await the political moves that will resolve the FY20 budget cycle and end continuing resolution, we must move onto the FY21 cycle that will officially kick off in February of 2020 when the FY21 President's budget moves from the White House to Capitol Hill. So, it's only October 2019, why would we care about something that begins 4 months from now? The short answer is all the stakeholders mentioned in previous articles have been working that budget cycle for months and months already. The annual budgetary planning processes in the Pentagon have been developing this budget cycle in support of long-term funding plans. In the case of Army Aviation, this boils down to planning to keep the future vertical lift funding streams flowing. When this budget goes to Congress in February, it is guickly followed by many visits from our senior leadership, but what you should recognize is that the leadership has been setting the stage already to advance our funding needs for FY21. The fall months prior to a budget cycle are when our leadership makes many trips to Capitol Hill to deepen relationships with staffers and Members to underscore the need for future year funding. They are not the only ones engaging lawmakers either. Industry also uses the fall months when staffers are not buried in mark ups and negotiations to meet and advance the parochial interests of their companies. While we may not be done in securing FY20 funding, the entire enterprise is very much focused on the FY21 cycle that will have a huge impact on the future of Army Aviation.



Bob Lachowski or Erika Burgess

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Order of St. Michael and Our Lady of Loreto Inductees

Colonial Virginia Chapter



MG David Francis, commanding general of the U.S. Army Center of Excellence and Aviation Branch Chief, inducts **COL Rick Zampelli** into the Silver Honorable Order of St. Michael during a ceremony at Joint Base Langley-Eustis, VA on July 16, 2019. Zampelli was recognized for his significant contributions to Army Aviation while serving as the commander of the 128th Aviation Brigade, successfully training more than 6,000 maintenance personnel supporting the Aviation Enterprise. He has moved to Redstone Arsenal as the AMCOM Chief of Staff.

Gold Standard Chapter



CW5 Chris A. James is inducted into the Bronze Honorable Order of St. Michael by BG Scott R. Morcomb. Deputy Commanding General-Reserve Affairs, U.S. Army Central Command and immediate past CG of Army Reserve Aviation Command, and Gold Standard Chapter President COL (Ret.) Andrew Doehring during an August 3, 2019 ceremony at Fort Knox, KY. James was recognized for his 36 years of service and dedication to Army Reserve Aviation; from his beginnings as a UH-1 pilot to becoming the ARAC Command Chief Warrant Officer he contributed immensely to the relevance of Reserve Aviation and specifically to Aviation Warrant Officer recruitment.

Mid-Atlantic Chapter



COL Mark M. Beckler (center) is inducted into the Bronze Honorable Order of St. Michael by COL (Ret.) Charles H. Schulze, Senior VP Mid-Atlantic Chapter AAAA; and BG Janeen L. Birckhead, Commander, Maryland Army National Guard in conjunction with the 29th Combat Aviation Brigade change of command ceremony June 9, 2019 in Edgewood, MD. Beckler was recognized for his contributions to Army Aviation throughout his career and culminating with nearly four years as the 29th CAB commander.

Tennessee Valley Chapter



Layne B. Merritt (left) is inducted into the Silver Honorable Order of St. Michael by AAAA National Senior Vice President, MG (Ret.) Tim Crosby on July 11, 2019 in Huntsville, AL. Layne was recognized for his significant contributions to Army Aviation science and technology programs over the course of his military and civilian service, culminating with his accomplishments as Acting Director of Aviation Development, Combat Capabilities Development Command Aviation and Missile Center.



Tennessee Valley Chapter President, Gary Nenninger (right) and COL John Jones, commander of the Redstone Test Center, induct **LTC Cornelius L. Allen Jr.,** RTC Aviation Flight Test Directorate, into the Bronze Honorable Order of St. Michael at Redstone Arsenal, AL on July 10, 2019. Allen was recognized for his significant and lasting contributions to Army Aviation during his 19 years of service as a combat aviator and Army acquisition professional.



APTER PHOTO BY GLORIA BELL, KBR

Mr. Forrest W. Collier (left), HELLFIRE Product Director, PEO Missiles and Space Joint Attack Munition Systems, is inducted as a Knight of the Honorable Order of St. Michael by COL (Ret.) Mathew Hannah, Chapter VP Operations during a change of charter ceremony at Redstone Arsenal, AL, July 18, 2019. Collier was recognized for his significant contributions to Army Aviation while serving as PD HELLFIRE. He subsequently assumed the responsibilities of Deputy Project Manager of the Apache Attack Helicopter Project Office, at Redstone.

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Industry News Announcements Related to Army Aviation Matters

Editor's note: Companies can send their Army Aviation related news releases and information to editor@quad-a.org.

GSA Plan for One Award Schedule



Government contractors see promise in the General Services Administration's plan to consolidate the current 24 multiple award schedules into a single schedule over the next couple years, according to preliminary results from the agency's request for information (RFI) on the plan, released Aug. 1. The current system requires agencies using the program to purchase certain goods and services from pre-negotiated contracts that have been separated by topic areas, such as human capital, information technology and professional services. GSA announced in late 2018 that they would begin the process of consolidating the schedules, citing problems with the current system that sometimes requires agencies to purchase multiple services from different schedules to complete a single project. The hardest phase of consolidating the multiple award schedules is also vet to come, as coordinating the contractors that have multiple awards across different schedules will likely require the most work. As of press time, GSA planned to release its final solicitation based on the RFI by Oct. 1.

Contracts – (From various sources. An "*" by a company name indicates a small business contract)

BAE Systems Information and Electronic Systems Integration Inc., Nashua, NH, was awarded two contracts: a \$242,251,919 hybrid (cost-no-fee, cost-plus-fixed-fee and cost-plus-incentive-fee) contract for systems engineering, integration, logistics, and other technical support services for the OT-225 Advanced Threat Infrared Countermeasures System and the AN/AAR-57(V) Common Missile Warning System; work locations and funding will be determined with each order, with an estimated completion date of July 31, 2026; and

a maximum \$83,934,598 firm-fixed-price, cost-plus-fixed-fee, and cost-no-fee contract for the AN/AAR-57A(V) Common Missile Warning System; this is a five-year contract with no option periods; work will be performed in Nashua, with a completion date of Aug. 26, 2024.

General Atomics Aeronautical Systems Inc., Poway, CA, was awarded a \$21,742,996 modification to contract W58RGZ-18-C-0037 for MQ-1C Gray Eagle extended range aircraft unique initial spares and ground support equipment; work will be performed in Poway with an estimated completion date of July 31, 2021.

Lockheed Martin Corp., Orlando, FL, was awarded a \$40,614,330 modification to contract W52P1J-17-D-0043 for Modernized Turret kits for the Apache attack helicopter; work locations and funding will be determined with each order, with an estimated completion date of Feb. 28, 2023.

Messer Construction Co., Cincinnati, OH, was awarded a \$28,968,000 firm-fixedprice contract for construction of a maintenance hangar, maintenance hangar area, general purpose shop area, corrosion control area and avionics shop area; work will be performed in Louisville, Tennessee, with an estimated completion date of Aug. 15, 2021.

Northrop Grumman Systems Corp., Rolling Meadows, IL, was awarded a \$481,576,687 hybrid (cost-no-fee,

UPCOMING EVENTS

NOVEMBER

' PHOTO BY VISUAL INFORMATION SPECIALIST PASCAL DEMEULDRE

VMAV

18-19 AAAA Aircraft Survivability Equipment Symposium, Huntsville, AL
20-21 AAAA Joseph P. Cribbins Aviation Product Sustainment Symposium, Huntsville, AL
28-30 Association of Old Crows, 56th Annual Intril Symposium & Convention,

28-30 Association of Old Crows, 56th Annual Intril Symposium & Convention, Washington, DC

DECEMBER

14 120th Army/Navy Game, Lincoln Financial Field, Philadelphia, PA

cost-plus-incentive-fee and firm-fixedprice) contract for Common Infrared Countermeasure Quick Reaction Capability 3; work locations and funding will be determined with each order, with an estimated completion date of July 30, 2024.

Textron, AAI Corp., Hunt Valley, MD; Arcturus UAV,* Rohnert Park, CA; Martin UAV,* Plano, TX; and L3 Technologies, Ashburn, VA, will compete for each order of a \$99,500,000 firm-fixed-price contract for Future Tactical Unmanned Aerial Systems; work locations and funding will be determined with each order, with an estimated completion date of July 24, 2022.

WHH Nisqually-Garco JV 2,* Olympia, WA, was awarded a \$22,252,000 firmfixed-price contract for construction of a hot refueling system at Gray Army Airfield at Joint Base Lewis-McChord, WA; work will be performed in Joint Base Lewis-McChord, with an estimated completion date of Feb. 22, 2021.

Advertisers Index

AD2
ALKAN 15
ASU 45
BAE Systems
Bell Helicopter Textron Inc25
Chief Commercial Claims Branch
Cobham Aerospace Communications 11
Collins Aerospace 1, 7
Columbia Helicopters, Inc 56
David Clark Company 12
DynCorp International17
Eclypse
Erickson
FLIR Systems, Inc9
Garmin International Inc 41
General Atomics Aeronautical Systems, Inc. 5
King Aerospace
King Aerospace
King Aerospace
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19MD Helicopter21
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19MD Helicopter21Millennium International33
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19MD Helicopter21Millennium International33Northrop Grumman Corporation80
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19MD Helicopter21Millennium International33Northrop Grumman Corporation80PeopleTec. Inc28
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19MD Helicopter21Millennium International33Northrop Grumman Corporation80PeopleTec, Inc28Phantom Products, Inc.57
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19MD Helicopter21Millennium International33Northrop Grumman Corporation80PeopleTec, Inc28Phantom Products, Inc.57Science and Engineering Services, Inc.47
King Aerospace 23 Helibasket 13 L3 Harris Technologies 2 L3 Wescam Communications 19 MD Helicopter 21 Millennium International 33 Northrop Grumman Corporation 80 PeopleTec, Inc 28 Phantom Products, Inc. 57 Science and Engineering Services, Inc. 47 The Distinguished FlvingCross Society 56
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19MD Helicopter21Millennium International33Northrop Grumman Corporation80PeopleTec, Inc28Phantom Products, Inc.57Science and Engineering Services, Inc.47The Distinguished FlyingCross Society56Viasat, Inc.27
King Aerospace23Helibasket13L3 Harris Technologies2L3 Wescam Communications19MD Helicopter21Millennium International33Northrop Grumman Corporation80PeopleTec, Inc28Phantom Products, Inc.57Science and Engineering Services, Inc.47The Distinguished FlyingCross Society56Viasat, Inc.27Yulista Holdings, LLC23
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SPC Madden M White September 2019 Connecticut Chapter SPC Cyrus J Thomson

August 2019

NCO of the Month

Mount Rainier Chapter SSG Johnathan A. Castillo September 2019 Connecticut Chapter SSG Raymond R Maselek III August 2019

DAC of the Quarter

Tennessee Valley Chapter David V. Dickens *Q3 2019*

DAC of the Month

Tennessee Valley Chapter Anita K. Delaney September 2019 Jarrett Branch August 2019 Skyler L. Austin July 2019



LTC Christopher P. Downey, Ret. Delaware Valley Chapter Recruited 22 members in July 2019!

For more information on this and other programs, contact your Chapter officers or go to quad-a.org

People On The Move

Aviation General Officer Promotions/ Assignments

James Assumes Command of 53rd TC



BG Jack James receives the 53rd Troop Command (TC), New York Army National Guard, colors from MG Ray Shields, Jr., The Adjutant General, during a change of command ceremony at Camp Smith Training Site, Cortlandt Manor, N.Y., Sept. 7, 2019. He assumed command from BG Michel Natali. A Master Army Aviator qualified in UH-60 Black Hawk, UH-1 Huey and fixed-wing aircraft, James is the former commander of 42nd Expeditionary Combat Aviation Brigade.

Changes of Command/Responsibility Griffins Welcome Brohm



Incoming commander, COL John B. Broam, receives the 12th Combat Aviation Brigade colors from 7th Army Training Command commanding general, BG Christopher R. Norrie, before returning them to CSM Mark A. Smith (left) during a change of command ceremony at Katterbach Army Airfield, Germany Aug. 9, 2019. Outgoing commander, COL Kenneth C. Cole (right), has been in command since June 2017.

Myers Assumes Command of the Ivy Eagles



COL Scott Gallaway, outgoing commander, 4th Combat Aviation Brigade, 4th Infantry Division, passes the brigade colors to BG Joseph Ryan, acting senior commander, 4th Infantry Division and Fort Carson while incoming commander, COL Scott Myers (left) stands by to receive them, together with 4CAB CSM James Ethridge (center right) during a change-of-command ceremony on Founders Field, Fort Carson, Colorado, July 26, 2019.

Ferguson Takes Command of 29th ECAB



COL Richard Ferguson, incoming commander, receives the colors of the 29th Expeditionary Combat Aviation Brigade from Maryland Army National Guard commander, BG Janeen Birckhead, while outgoing commander, COL Mark Beckler and CSM Steve Mckenna (left) look on during a change of command ceremony June 9, 2019 in Edgewood, MD.

USAWOCC Welcomes New Commandant



COL Ross F. Nelson assumes command of the U.S. Army Warrant Officer Career College from COL Kelly E. Hines (back to camera) as he accepts the unit colors from BG Stephen J. Maranian, deputy commanding general of the U.S. Army Combined Arms Center, during a change of command ceremony July 25, 2019 at the U.S. Army Aviation Museum, Ft. Rucker, AL.

Hoecherl Memorial Scholarship Scramble



The 2nd annual COL Joe Hoecherl AAAA Memorial Scholarship Scramble was held on Aug. 6, 2019 at the Robert Trent Jones Golf Trail in Hampton Cove, AL. Thirty-one teams participated in the event that raised over \$12,500 for the AAAA Scholarship Fund set up in memory of COL Hoecherl who served as the Apache Project Manager from 2016 to 2018 and passed away in May of 2018 after a heroic battle with cancer. Pictured (left to right) COL Talmadge Sheppard, current Apache Project Manager, announcing the results with Hoecherl's sons, Kevin and Maj. Joey Hoecherl, USAF, and COL Hoecherl's wife, Kelly. NETWORK | RECOGNITION | VOICE | SUPPORT

People On The Move Flight School Graduates

AAAA provides standard aviator wings to all graduates and sterling silver aviator wings to the distiguished graduates of each flight class ... another example of AAAA's **SUPPORT** for the U.S. Army Aviation Soldier and Family.

WO1 Napier. Ethan E.



39 Officers, August 1, 2019

Commissioned Officers 2LT Behnke, Timothy J. - DG CPT Brock, Seth D. - HG 2LT Dinverno, Steven J. - HG 2LT Dangler, Cody A. * 2LT Dow, John P. 1LT Foster, Gerald A. ' 1LT High, Andrew M. 2LT Jahr, Virginia M. 2LT Lindsey, Tyler B. 2LT Minondo, Julian 2LT Morford, Nathan J. 2LT Murphy, Michael E. 2LT Nicola, Bernard J. 2LT Phomsopha, Trinity C. Warrant Officers WO1 Smith, Kevin T. - DG WO1 Moore, Nicholas C. - HG WO1 Rabii, Alexander A. * - HG WO1 Rudder, Robert B. * - HG WO1 Toledano, Josue - HG WO1 Abel, Christopher S. WO1 Barba, Anthony J. WO1 Bartlett, Jenson G. * W01 Dejesus, Daniel L. WO1 Dobbins, Andrew Z. WO1 Dungan, Nathan H. * W01 Ferguson, Korteaze C. CW2 Hall, Timothy J. WO1 Hood. Christina J. WO1 Hubenthal, Isaac N. WO1 Jensen, Tyler F. WO1 Jones, Alex W. WO1 Norton, Austin T. III W01 Perez, David N. WO1 Peterson, Scott W. WO1 Taylor, Matthew K. WO1 Thomas, Brandon W.* W01 Thomas, Domain 0.* WO1 White, Dennis M. WO1 Yurko, Christopher M.*

48 Officers, August 15, 2019 Commissioned Officers

2LT Heard, Corbin G. - DG 2LT Friedrich, Joshua C. - HG 2LT Smith, Craig Z. - HG 2LT Tracy, Shane P. - HG 2LT Basmajian, Blake L. 2LT Cooper, Calli 2LT Corcia, David J. 2LT Dellinger, Christopher R. 2LT Foster, Benjamin A. 2LT Freebairn, Conayn E. 2LT Green, Antonesia A. 2LT Harter, Elijah P. 2LT Ho- Dge, Adam C. 2LT Huston Albert C 2LT Jack, Mary G. 2LT McClintock, Leanna E. 2LT Monceaux, Brody R. 2LT Neidert, Joseph L. 1LT Pena, Noah T. 2LT Perry, Andrew M. * 2LT Rummery, Katie J. 2LT Stein, Kevin A. Warrant Officers WO1 Napolitano, Jonathan P. - DG WO1 Monplaisir, David I.

W01 Coleman, Nicholas M. - HG WO1 Downing, Travis C. - HG WO1 Elliott, Forrest P. - HG W01 Misheff, Michael E. - HG WO1 Allen, Erin M. W01 Alvey, Jacob R. WO1 Amsbaugh, Chris W. W01 Bamford, Peter J. WO1 Barnes, Maclean P. CW2 Foreman, Nicholas S. WO1 Hammond, Jeremiah P. W01 Herber, Andrew E. W01 Infinger, Matthew J. W01 Jesmain, Keith D. W01 Lliteras, Paul A. W01 Lum, Shane H. W01 Mertes, Nathan L. W01 Morey, Shaun M. W01 Palermo, Matthew J. WO1 Schnoberger, Andrew D. WO1 Schnoberger, Michelle M. WO1 Shelton, Robert F. W01 Sieverding, Ryan D. W01 Takach, Matthew L. W01 Wilstead, Brandon S.

51 Officers, August 29, 2019 Commissioned Officers

2LT Hamilton, Brett M. - DG 22LT Quednow, Cole T. - HG 2LT Wood, Austin D. - HG LT Bobbitt, Karson E. 2LT Dobson, Richard O. * 2LT Goodnow, Cole A. 2LT Goree, Jacob T. 2LT Hagan, Anna V. 2LT Hall, Ethan A. 2LT Martinez, George J. 2LT Schmitz, Michael R. 21 T Sembert, Mitchell C. 2LT Shapira, Carla P. 2LT Standish, John A. 2LT Stumme, Jacob O. 1LT Vargas-Pabon, Jean C. Warrant Officers WO1 Pratt, Robert J. - DG WO1 Anderson, Jonathan R. - HG W01 Greenhill, Mathew J. - HG WO1 Koestering, Walter T. IV- HG W01 Wilson, Cheddie D. - HG W01 Amarello, John K. W01 Bennett, Ritchie J. WO1 Bolten, Christopher C. WO1 Bourguignon, Daniel I. W01 Boyland, Patrick A. W01 Brown, Ryan J. W01 Brugh, Joseph M. W01 Burleigh, Andrew P. WO1 Debeauvernet, Konnor J. W01 Dillaman, Brvan L. WO1 Enright, Tylor D. W01 Erlenbach, Brad H. W01 Fulks, Brian M. W01 Gifford, Dakota K. W01 Herron, Alex A. WO1 Hinrichsen, Cody S. WO1 Huffman, Nathan A. W01 Mandernack, Spencer M. WO1 Mayorga, Aaron P.

W01 O'Connell, Frederick E.
W01 O'Connell, Taylor J.
W01 Parker, Keyden J.
W01 Pirmer, Matthew L.
W01 Searcy, Duncan J.
W01 Stowers, Adrian L. *
W01 Strosnider, Carter A.
W01 Thomas, Anthony D.
W01 White, Joseph E.
48 Officers,
September 12, 2019
Commissioned Officers

2LT Senn, Michael B. - DG 1LT Barefield, Ryan W. - HG 2LT Bruneau, Glenn E. - HG 2LT Bailey, Samuel J. 2LT Haby, Christopher M. 2LT Haby, Christopher M. 2LT Hawkins, Paige A. 2LT Logen, Adam W. 2LT Lowe, Emery I. 2LT Medina, Nathan D. 2LT Miller, Todd J. 2LT Mulholand, Connor M. 2LT Plotzke, Zachary R. 2LT Schreffler, Anthony J. 2LT Stewart, Madison N. Warrant Officers

WO1 Sheldon, Sean T. - DG WO1 Campbell, Bradley D. - HG WO1 DeCino, Aaron C. - HG WO1 Oakes, William L. - HG WO1 Whitehead, Ashley A. - HG WO1 Anderson, Anthony C. * WO1 Arrington, Justin T. WO1 Berzinas, Paul D. W01 Blackowl-Armstrong, Jeremy-Thomas A. WO1 Cartner, Garrett W. WO1 Ditmars, Griffin R. WO1 Duerr, Garrett T. W01 Dzialek, Patrick M. WO1 Epley, Ryan J. WO1 Grasso, Nicholas J. WO1 Hetherwick, Daniel D. WO1 Lombardo, Christopher M. WO1 Lopez, Daniel WO1 Luke, Diante M. W01 Macias, Mathew D. W01 McCord, Brian D. WO1 Mingoia, Joseph M. WO1 Neal, Terry P. W01 Peiter, Chad M W01 Purinton, Michael B. W01 Rex Alexander M WO1 Ryznic, Stephen W. * WO1 Sanchez, Connor J. WO1 Shake, Anthony H. WO1 Stevens, Tyler S. W01 Ta. Trenton L. WO1 Tekelenburg, Ty M. CW2 Thomas, Jamaal G. W01 Wallace, Walter R.

DG: Distinguished Graduate
 HG: Honor Graduate
 * = AAAA Member











People On The Move

FY 2019 **Army Captain** Competitive Category Selection Board

Results The fiscal year 2019 Army captain competitive category promotion board results were released August 8, 2019. AAAA congratulates the following 243 Aviation first lieutenants on their selection: Name SEQ Anderson Duncan L 2278 2772 Andrews Benjamin N 0495 Armstrong William 1880 Bail Elijah J 0882 Bailey Tanner A 0578 Baldwin Matthew A 3444 Barnes Sarah M 1715 Barraclough Christ 2641 Basnett Jonathan K 3187 Basnight Natalie A 2891 Basnight Peter L 3060 Batina Thomas L 3266 Beck Gabriel W 2934 Bedo Ian F 3345 Bell Joshua E Berkman Thomas E 2642 3030 Bilodeau Steven W 3296 Binkley Chase E 1992 Blake Turner L 3463 Blevins Zachary A 0884 Bonorden Jamés T 2650 Boorman Reid J 3190 Bosselaar Jordan D Boyette Travis L 4258 1860 Brackin Collin J 1606 Bradley Bryan R Brischler Nicholas 3479 1955 Brito Patrick M Brown Thomas Rober 0083 3267 Browning Jacob N 3016 Caidloos Marissa L 3312 Camacho Daniel K 1852 Cantu Jontell J Cespedes Alejandro 1630 Chaney Tyler S 3188 4261 Choiniere Gabriel 3393 Clark Jesslyn F 0885 Clark Raleigh J Clark William W li 3827 0880 Cleppe Steven R Cochran Morgan L 0870 3080 Coleman Samuel A 4422 Connell Peter T 3124 Connolly Shane W 2290 Conover Jacob M 0817 Coombs Zebulon A 3917 Cornelison Sterlin 0836 Cotton Maurice J 0541 Cox John W Cox Joshua M 0517 Crowe Joseph B 0597 Dahl Christopher J

2974 Dailey Kenneth D 4268 Davis Dylan T Davis George P lii 0471 Deets Alexandra T 3158 Delano Blake R 1783 0863 Delisle George E 4266 Deluca Nicholas A 1057 **Diazcarrion Guille** 4421 Dittus Thomas Joha 1572 Douglas Travis Ren 1924 Duddleston Timothy Edelmon Graham D 1625 Eifert Steven W 0651 0477 Emery Katie L Eres Álbien Brian 1629 1476 Feigenbaum Christo 3892 Fertich Benjamin D 2140 Fini Andrew J Finley James S 2708 Fischer Brennan L 0963 3508 Frantz Jonathan M 1206 Frassetto Julia M 3035 Fritz Anthony J 2646 Funfrock Ludovic A 4143 Furman Brian Allen 1519 Galli Donald Edmun 1512 Gebhardt Justin M Geiger George M 2385 Geiger John N 3225 Gibson Joshua J 0818 Gill Ryan J 2432 Goodman Daniel J 2949 1036 Goodman David M 3318 Gothard Lowell D 3392 Graber Laura F 2881 Greif Benjamin R 1253 Grossmann Luke A 4263 Guy Joseph A Habel Jared R 4264 1971 Haberly Nicholas P 3243 Hager Madison G 0883 Hall Jeffrev B 3232 Hall Justin L 1732 Hambrecht Neal E 0871 Hardt Logan G 2892 Hargis Cameron J 0050 Harris Luke Randal 3116 Hartford Samuel K 4371 Hartman Cassidy M 0082 Hartz Daniel Paul Harvey John M 3022 0295 Havcraft James Rva Heibel Zachary M 3647 0991 Hendrickson Trevor 3213 Hill David K 3528 Hill Matthew Jared 0520 Hilton Jeremy C 2927 Hinklev Rvan C Hinrichsen Kyle W 2929 4447 Hirsch Derek U 0524 Hobbs Christopher 0647 Hodnett Lane S Hoffinger Patrick 3150 3173 Hogg Aaron P 2926 Holder Kathleen H 0860 Hooker Christopher Hvde Colbv M 2635 Idrache Alix S 2596 1264 Ivey Kelly E

3145 Jaksha Clayton B 0840 Jamison Tyler J 4025 Jones Steven Greao 0888 Jordan Hunter J Kane Andrew W 2999 0577 Keklik Aren A Kiefner James W 0961 Kim Isaac H 3157 2386 King Aimee M 2239 Kirch Michael E Korzan Kristonher 2699 Kushnak Michael R 2980 2330 Lamagna Joseph | 0889 Lee Kyong Joo Leinen Michael B 2616 3117 Leonard Zachary S 3487 Lewis Amber R 4202 Link Brandon J Lloyd Daniel J 1884 3377 Lopezrevnoso Juan Luce Chad N 0572 Lukens Michael E 2192 Lynch Olivia A 2457 3309 Lynch Timothy J 3056 Malcolm John D 2004 Marshall Will D Marsiglio Stefan L 3792 Mathenge Albert Nd 0492 3624 Mathewson Maura M McAfee Robert W 2027 McCormick Daniel H 3306 1916 McCrary John R 2935 McFadden Michael B 0000 McGuire Patrick C 0982 McHale Daniel S Miller Chase A 3071 1993 Mistr Carson A Moorhouse Mark A 1701 Moreland Joseph M 1966 2431 Morgan Joseph T 0579 Morton Christopher 2063 Moss Jeffrey N Jr Moyer Grant A Naifeh Timothy C 2466 2955 4267 Norris Jacob M 2277 Olszewski Marie R O'Reilly Adam G 0516 4432 Ortiz Nicholas A 1614 Osgood Jonathan D 3628 Owen Jason R Padilla Ralph Rich Palomino Michael J 0645 Palowitch Brendon 3331 0344 Peeples Brittany P Pendergrass Brando 0156 2018 Phillips Joshua S 0583 Pido Kyle L Pierce Karina E 1622 3197 Pieringer Nathanie Pilkington Andrew 2953 Pollard Cameron S 0841 4071 Purewal Rusman S Raimondi Michael 2624 1687 Ramoslopez Jose C 0515 Ran Long C Ravenna Daniel J 4354 3238 Read Spencer B Reece Justin S 3012 Reffke Adam R 0859

0921 Reynolds Justin M Rhea Brandon L Ritchie Thomas A 1842 2761 Romig Bradley S Rose Kyle A 4265 2483 Sager Amanda Nicol 0084 Saleck Ryan James 0456 1513 Sanchez Edwin A 0909 Sanchez Nicholas A 3206 Senft Jack D 1633 Shaw Griffin T Shepherd Savannah 0780 Shiheiber Elias N 1251 3794 Silverthorn Nathan 4439 Sipantzi Jeremy V 3627 Skoloda Jonathan L Sledge Jesse R Smagh Brian M 4425 1956 0886 Smith Tyler A Snow Justin M 0962 0308 Spinks Dana Kathle 0322 Steinesberkemeier 1837 Steward Jordan D 3430 Storey Daniel E 2758 Strobehn Alyssa B 3215 Swiniarski Steven Taylor Jack M Tetro Jeremy P 3925 3357 2095 Teufel Andi L 2610 Valencia Raoul N Valle Brandie A 4207 2210 Valle Brandon R 1841 Vess Derek W 0582 Vu Trong M Walsh John P 3045 Warfield Kaeleigh 3265 3316 Watson William M 2939 Waugh Alexander C Welch Jason J 1224 0868 Wengraf Justin P 0881 Westrick Tyler J 4430 Wilgenbusch Benjam 3632 Williams Robert J Wilmoth Hobert L 1697 1119 Wilson Kyle J Winebrenner Marcus 1853 3128 Wulff Brian R 4426 Wynne Jonathan D 3034 Yi Si H Yoon Andrew D 3183 Yozamp Zachary J Zeidler Peter R 1785 3251 3153 Zeigler Christophe **ADVANCED**

INDIVIDUAL **TRAINING (AIT)** GRADUATIONS AAAA congratulates the

following Army graduates of the indicated Advanced Individual Training (AIT) courses at the 1Ž8th Áviation Brigade, Joint Base Langley-Eustis, VA and the U.S. Army Aviation Center of Excellence, Ft. Rucker, AL.

AH-64 Attack Helicopter Repairer (15R) Class 016-19

PV2 Dillon Lee Rogers - DG* SPC Cody Christian Karl PFC Soo Yub Lee Lascelles Patrick Malciolm PV2 Joseph John Meyer PV2 Michael Meza PV2 Jonathan Lee Putman PV2 Nicholas Andrew Putnam PV2 Joseph S.Quintanilla PV2 Kenly Scott Randecker SPC Julian Blake Welch Class 513-19 PV2 Roschelle L. Deschenes-DG * PV2 Vanessa Bennett PV2 Steven Paul Bowman PV2 Evan Brooks PV2 Luke Lamaar Clunis PV2 Angelo D. DaSilva Soria PV2 Adonys N. Hernandez PFC Jonathan Anthony Hunter PV2 Dakarat Lane Jackson Class 525-19 PV2 Ramil A. Sanchez - DG * PV2 Sung Hyun Shin PV2 Joseph Anthony Steele Class 017-19 PV2 Vishal D. Modha - DG * PV2 Daniel Gooc Abot PV2 Alvaro Acosta PV2 Austin Jeremiah Byrd PV2 Carlie Elizabeth Cochran PFC Park Daniel Garrett PV2 Sean Michael Gibbons PV2 Jarvn Edard Hemann PV2 Calvin Richard Hinson, Jr PV2 Nivlek Dearonte Lewis PV2 Stephen Mark Mayorga SPC Nicolas Leeearl Miracle Class 018-19 PV2 Alexander Louis Caves SPC Ethan Aaron Flory PV1 Andrew T. Hernandez PV2 James Trevor Naquin PV2 Dominick Jesus Ortega PV2 Benjamin Reiley Peart PFC Ernésto J.Románrivera SPC Xavier Angel Rosa PV2 Nicholas R. N. Shankaran PV2 Kyle Anton Warns Class 019-19 PFC Gonzalez Colon - DG * PVT Carlos Breton PV2 Julian Burd **PVT Eric Byous** PFC Adams Carmona PVT Figueroa Carmona PFC Silva Cortes PVT Cotreras Cruz PVT Braylon Espree PVT Sergio Garcia PVT Zoe James Class 514-19 PFC John R. Bermudez - DG * PVT Paul Gomez PV2 Jaiden Hopkins

PV1 Carlmishinski, Jr

PFC Manuel Moncibais PVT Freddy Ortiz SPC Patrick Poe PFC Mitchell Price PVT Cross Stephens SPC Donte Tinnin PVT Joshua West, I CH-47 Medium Helicopter Repairer (15U) Class 016-19 SPC Nicholas Armand Cole SPC Shaun Andrew Jennins SPC Tavla Kortnee Jessie PV2 Denver William Jones SPC Matthew B. Lallman SPC Joshua Michael Marple PV2 Edgar Manuel Munoz PV2 William Randall Parham PV2 Zachary Dalten Price Class 017-19 PFC Shawn Paul Oneil - DG * PV2 Isaac William Ballard SPC Paulo Arthur Borges PV2 Hunter Jude Bourque PV2 Kyle Matthew Dearmon PV2 Arthur Elton Frost PFC Collin Michael Hagerty SPC Daniel James Lininger PV2 Alexander R. Randazzo PV2 Madison Lee Snodgrass Class 508-19 PV2 Jessse Dale Walters-DG * PV2 Leo Thao PV2 Raym,Undo Torres PV2 Daniel Craig Towers PV2 Demetri N. Vorhees PV2 Mathew Pavton Walden PV2 Brandon J.Weathers Class 018-19 PV2 Matthew S.Crawford - DG* PV2 Isaac Justin M.Bokoskie PV2 Brenden Wade Briggs PV2 Dylan Anthony Bryant PV2 Michael Ein Carr SGT Mark Alexander Cole PFC Luis Angel Cuellar Ortiz PV2 Devin Oktay Dikmen PV2 Payton Timothy Guth PV2 Marc Joseph Hackl PV2 Harley Darron Huskey PFC Tj Tererai Majaura Class 509-19 PV2 Matthew B.Southern - DG* PV2 Michael A. Medrano PV2 Josef Oliver Roberts PV2 Geoffrey Alexis Rosario PV2 Andrew Devin Stanek PFC Carissa Michele Tironi PFC Mark William Turner PV2 Michael Logan Wallsmith PV2 Daniel Mitchell Wyncoop **UH-60 Helicopter** Repairer (15T) Class 043-19 SPC Valerie M. Bragg - DG * SPC Charles Robert Black SPC Humberto Castellano SPC Joel Keith Church * PV2 Jared Patrick Clark

Statement of Ownership, Management, And Circulation (Required by PS Form 3526)

Statement of Ownership, Management, And Circulation (Required by PS Form 3526) Title of publication: Army Aviation (ISSN 0004-2480). Date of filing: October 1, 2019. Frequency of issue: Monthly, except April and September (10). Annual subscription price: \$30.00. Location of known office of publication: 593 Main Street, Monroe, CT 06468-2806. Location of headquarters or general business office of the publisher: Same. Publisher: William R. Harris, Jr., 593 Main Street, Monroe, CT 06468-2806. Editor in Chief: William R. Harris, Jr. Owner: Army Aviation Publications, Inc. (AAPI), 593 Main Street, Monroe, CT 06468. Known bondholders, mortgagees, and other security holders owning or holding 1% or more of the total amount of bonds, mort-gages or other securities: None. The average no. of copies each issue during the preceding 12 months, and the actual number of copies of the issue published nearest to the filing date (latter appears in parenthesis) were: a. Total Number of Copies (Net press run): 18194 (18416); b. Paid Circulation Mailed Outside-County Paid Sub-scriptions Stated on PS Form 3541 (Include paid distribution above nominal rate, advertiser's proof copies, and exchange copies) 17430 (17496); c. Total Paid Circulation 17443 (18106); d. Free or Nominal Rate Distribution (By Mail and Outside the Mail) (1): 90 (90);(3): Free or Nominal Rate Copies Mailed at Other Classes Through the USPS (e.g. First-Class Mail) 796 (610); e. Total Free or Nominal Rate Distribution (Sum of 15 d (1) and (3): 886 (700); f. Total Distribution (sum of 15c and 15c): 18329 (18806); g. Copies Not Distribution 200 (2001); b. total (Sum of 15 d (1) and (3): 886 (700); f. Total Distribution (sum of 15c and 15c): 18329 (18806); g. Copies Not Distribution (200); b. total (Sum of 15c and 15c): 18529 (19806); g. Copies Not Distribution (Sum of 15c and 15c): 18529 (19806); g. Copies Not Distribution (Sum of 15c and 15c): 18529 (19806); g. Copies Not Distribution (Sum of 15c and 15c): 18529 (19806); g. Copies Not Distributide 2 18806); g. Copies Not Distributed 200 (200); h. total (Sum of 15f and 15g): 18529(19006); Percent Paid and/or Requested Circulation (15c/15fx100): 95% (95%). I certify that the statements made by me in this statement and dated October 1, 2019 are correct and complete. William R. Harris Jr., Publisher William R. Harris Jr., Publisher



People On The Move

PFC William Austin Eiland SPC Ricky Isaac Hernandez PV2 Joy Rosanna Humble SPC Timothy E. Sizemore PFC Denise Ida Smith PV2 Alexis Reese Spivey SPC Samantha Rae Stinsman Class 044-19 PV2 Garrett J. Miller - DG * PV2 Matthew Thomas Fritsch PV2 Eduardo Garciadiaz PFC John Michael Jaramillo PV2 Thomas Edward Muller PV2 Brandon Albert Ranzie PV2 Deaaron Deon Rozier PV2 Lucas E.Schlesselman PV2 Christopher D. Segrest PFC McQuade Mariur Šeklii PFC Timaas D. Thompson PFC Edwin Omekang Yaoch Class 516-19 PV2 Bush Peyton Conard PV2 Johnny Dee Sellers PV2 Andrew Christian Streiff PV2 Justin Michael Sullivan PV2 Brett Michael Thompson PV2 Jonah Lee Tomblison PV2 Bryan Aaron Torres PV2 Kyle Vincent Whaley PV2 Sammie Leee Williams PV2 Logan Allen Williamson PV2 Alexander Phillip Wren PV2 Trevor Vincent York *Class 045-19* SPC Erica Rae Glover - DG * SGT Justin Lee Bryant SPC Robert Thomas Clark PFC Alvssa Corinne Duval PV2 Katelyn Caraleigh Dyson PV2 Christian James Guthrie PV2 Kolby Alexander Kendall SPC Jenny Kim Luu PV2 Rayvaughn McDonald PFC Natalia Rodriguez SPC David John Tlougan PV2 Dalen J. Benjamin Scott Class 046-19 SPC Tanner Alexander Bounds PV2 Brandon Lee Coleman PV2 William Charles Cordoza SGT Gigi Jose Disasi PV2 Isaiah Ahmad Hall PV2 Ethan Merrick Hawley PFC Zachariah David Kline PV2 Neil Cory Kuykendall PV2 Brock Alan Minton PV2 Hector Javier Morales PV2 Douglas E.Terzigni, Jr PV2 Joseph Patrick Wolski III Class 517-19 SPC Matthew Hunter - DG * PV2 Roberto Antonio Alvarez PV2 Arison Takyan Au PV2 Seth Adam Camarena PV2 Aaron Christopher Clark PV2 Tyler Russell Eshelman PV2 Álejandro Joseph Gomez PFC William Francisco Hefner SPC Donghoon Lee PV2 Devon James Marble PV2 Christian Rosario Teotico PV2 Justin Cade Wood Class 047-19

PV2 Ethan C. Wilt - DG SSG Jamal Jalis T. Al Harbi PV2 Travis Michael Davidson

SPC Patrick Maerion Duffy SPC Scott Hrivnak PVT Rastislav Majernik SPC Brendan Miller PFC Tyre Moody SGT Randall Morgan

CPL Nasser M. A. Mukrish

SFC Erik Takac Class 048-19

PV2 Justin O. Villamor - DG * PV2 Galarza E.Cardenas PV2 Russell Dewain Couev PFC Larry Anthony Falcon, Jr SPC Fernando Lopeztorres PV2 Robert Warren Lutman PV2 Luke Trenton Newman PV2 Kevin Jeffrey Palm PV2 Benjamin James Rudolph PV2 Christopher J. Wilson PV2 Dalton Tanner Woods Class 518-19 PV2 Ian Michael Gainan - DG * PV2 Keyan C. Bowermaster PV1 Dylan Mitchell Bryan PFC Samuel Charles Cole PV1 Tristen Michael Conn PV2 Delton James Crockett PV1 Jarrettglenn Naputi Cruz PV1 Daniel Corneilious Durm PV2 Nicholas Mitchell Haves PV2 Jared Earl Jacobs PFC Corey Matthew Orr PV2 Dylas Elliott Selten Class 049-19 PV2 Evelyn R. Harrington-Bennett - DG* WO1 Abdulrahman A. M. Al Fageeh CPL Rashed S. M. Al Huraysi WO1 Abdulmohsen A. D. Al Jaqthmi WO1 Mohammad J.H.Al Shammari SSG Wan-Tzu Chen SPC Jordan A. Fernandez 2LT Jozef Hazincak PV2 Jonathan A.McKerrow SGT Michael Price SPC Adam Hosein Zabolzadeh Class 050-19 SPC Brian D. Acevedo - DG * SPC Charles Andrew Bowling PV2 Logan Michael Campbell SPC Matthew Aribon Casillano PV2 Jacob Layne Koonce PFC Jonathan A.Mayberry PV2 Tyler Joseph Melancon PV2 Kristopher Montes PV2 Bradley Scott Morris PV2 Jerry Tull PV2 Austin Blake West PV2 Timothy Michael Yenter Class 519-19 PV2 Elias B. Larson - DG * PV2 Evan Michael Bradshaw PFC Jose Jaim C.Villalobos PFC Stoney Miles Childers PV2 Justin Tanner Cox PV2 Steven Lawon Hall Jr PV2 Dante Quincy Isom PV2 Tanner Joseph Kobal PV2 Jonathan L. Lindemann PFC Misha A. J. Pieterse PV2 John G. Simshauser, Jr PV2 Ethan Wilkinson Aircraft Powerplant Repairer (15B) Class 008-19 PV2 Rodolfo Marmoiejo - DG * PV2 Jake Alexander Blake PV2 Marcell Obrian Brown PV2 Nathaniel Delb Chandler

PV2 Jeffrey Javan Collins PV2 Andrew Samuel Dunn PV2 Matthew Perrey Fitch PV2 James Andrew Kiser PFC Matthew Thomas Kulovitz PFC David Kibet Langat SPC Federico Maisano SPC Daniel Evan Minnaert PFC Emmanuel Nforcho Kari PV2 Andre Prinsloo Class 009-19 PV2 Dylan A.Pritchard - DG *

PV2 Logan Jacob Chess PV2 Matthew Payton Okelly PV2 Patrick John Rowan

PV2 Joseph T.Westenberger Aircraft Powertrain Repairer (15D) *Class 005-19* PV2 Tyler C. Steele – DG * SPC Richard E. Chafin PFC Juan Flores PV2 Michael Garcia Joyce SPC Yuanrui Lu PV2 Terry Jamal Neely PV2 Martin Refrow PV2 Jason Richard Ross PV2 Jadin Bradley Theisen PV2 Andrew Joseph Tinner PV2 Julian Feitschy Velez Aircraft Electrician (15F) Class 010-19 PV2 Kyle C. Langston - DG * PV2 Carlos Luis Cobas Rojas SPC Brandon Allen Jones SPC Steven Earl Keiter PFC Gerad T. R. Lopez PV2 Jose Luis Lopez PV2 Trevor Dylan Neade Aircraft Pnedraulics Repairer (15H) Class 007-19

PV2 David Lee Patchen - DG* PV2 Anthony Blake McCowell PV2 Jaime Rodriguez **Aircraft Structural**

Repairer (15G)

Class 006-19 PV2 Shaquan C.Brown - DG * PV2 Jerod Daniel Alanis PV2 Robert Dennis Barry PV2 Analdo Bertoli Ortiz PV2 Kevin Y. D.Rodriguez PV2 Kyler Race Edmunds PV2 Jesus Gallegos PV2 Alvaro Grana PV2 Clifford Ryan Henson PV2 Joseph Warburton Holt PV2 Lensley Jeansimon PV2 Joshua Jusino PFC Pemon N. R.Kouadio PV2 Mark Sandor Krizsan PV2 Raphael Diniz Logato Class 505-19 SPC Jeong Woo Song - DG * PV2 Benjamin John Landry PV2 Lamar Nathaniel Myers PV2 Matthew Eli Nuttall PV2 Zachary Paul Olscher PV2 Rafael Orellana PV2 Parker Alexander Pruett SPC Jonathan Scott Reid PV2 Quinn Allan Robinson PV2 Justin Tyler Sarns PV2 William Alexander Tejada PV2 Daniel Ray Stanley PV2 Robert Melvin Wright Avionic Repairer (15N) Class 005-19 PFC Maria De La Luz

Campos – DG* PV2 Dawson Michael Burns PV2 Hayden Ray Coulter PV2 Victor Javier Gonzalez SPC Kevin T. Parker PV2 Isabel Mae Raposa PV2 PFC Kayla Leann Smith Class 006-19 PV2 Dale E. Kruse Jr. - DG * PV2 Angel Ismael Ledezma PV2 Luis Angel Lopez PV2 Scott Mason McKernan PV2 Spencer Jordan Payne PV2 Carlos Deshaun Stroud SPC Aaron O. Wissmann Class 007-19 PV2 Joseph C. Mason Jr. - DG PV2 Carlile Jones Cointment SPC Gary Nathan Salsgiver PV2 Tyler Jabrucee Tate

Air Traffic Control Operator (150) Class 19-017 SPC Antonio Gastelo SPC Gariela Herrera-Delgado SPC Damon Turman PV2 Ashley Avina PV2 Keegan Crotchett PV2 Johnny Curry PV2 Alvaro Espinoza PV2 Laura Renteria Class 19-018 PV2 Kimberly Bottge PV2 Andrew Logan PV2 Jailine Ramos Caraballo PVT Aaron Day PVT Michael Dichiara PVT Anthony Dicostanzo PVT Cherokee Wade Class 19-020 SPC Mason Berdeaux SPC Lamar Croom PVT Tayler Erickson-Engerbrecht PFC Ashley Galley PV2 Galvin Hillyard SPC Tyler McKinney PV2 Kurt Rodrigues PVT John Richardson PFC Jarvis Thomas SGT Precious Wells **Aviation Operations** Specialist (15P) Class 19-033 PEC Anna Cook SPC Eric Dawson PFC Ka'Dondre Crawford PFC Xavier Efird SPC Roger Eklof PFC Donovan Grant PFC Jade Marsh SPC Patrick McMahan PVT Javiar Medina PEC Edwin Meijas SGT Shawn Waters Class 19-035 PFC Elijah Reilly -DG PVT Jessica Atkinson PV2 Trenea Booker SPC Anthony Britt PFC Kenneth Center PVT Sariah Fluharty PV2 Jayden Garcia PVT Parker Gross PFC Yesel Mercedes PFC Leif Nordgren Class 19-036 SPC Sanjay Shrestha -DG PFC Arrianna Ackerman PFC Chiana Blackwell **PVT Cameron Carter** SPC Omar Ceesay PVT Israel Medina PFC Laura Molina PFC Kristina Rodriguez PV2 Mizael Ramirez SPC Dylan Santiago Class 19-037 **PVT Enrique Bush** PFC Constance Brockman PV2 Marcus Bryant SGT Justin Dallas PFC Michael Diaz PV2 Adrian Espinoza PVT Jeidaliz Gonzalez PV2 Dexter Lum PFC Steven Osmek AH-64 Armament/ Electrical/Avionic Systems Repairer (15Y) Class 007-19 PV2 Epifanio Gonzales -DG * SPC Gabriel Altruz

PV2 Anthony Tylor Vick-Hunter PV2 Aaron Joseph Watson PV1 Nathan Fitzg PV1 Nathan Fitzgerald PV1 Kaleb Hallturpin PV1 Rade Hudson PV1 Joel Jimenez PV1 Tyler Klein PV1 Logan Koehler PV1 Wesley Kubasiak Class 008-19 SPC Ricardo Sotonieves - DG * PV1 Khiem Luong PV2 Jose Medinasaluv PV2 Miguel Mendez SPC Brent Pizzamiglio PV1 Justin Ridlev PV2 Joshua Rodriguez PV1 Jacob Schott PV1 Alec Tomaszewki SPC Steven Vega

UNMANNED AIRCRAFT SYSTEMS (UAS) GRADUATIONS WARRANT OFFICER

AAAA congratulates the following Army graduates of the Tactical Unmanned Aircraft Systems Operations Warrant Officer Technician Course, MOS 150U, at Fort Huachuca, AZ.

Tactical Unmanned Aircraft Systems **Operations Warrant Officer Technician** Course

9 Graduates, 28 Jun 2019 WO1 Jessica A. McIntire - DHG WO1 Tyler P. Compart - HG W01 Steven R. Lowe W01 Brenton C McCollum W01 Randy M. McIntire WO1 John L. Pecic W01 Russell M. Petersen WO1 Tyrone E. Silver WO1 Gabriel N. Varela

UAS REPAIRER

AAAA congratulates the following Army graduates of the Unmanned Aircraft Systems Repairer Course, MOS 15E, at Fort Huachuca,

Shadow UAS Repairer Course

5 Graduates, 26 Jun 2019 SGT Joshua M. Pierce - HG SPC Michael C. Byrne II SPC Shae T. Perdue PV2 Cody D. Hazel PV2 Tyler M. Vincent 5 Graduates, 12 Jul 2019 PV2 Antonio Árriola - HG SGT Alessandro Marchetti PVT Tray E. Massey PVT Colyn G. Stewart PVT William S. Toombs 5 Graduates, 29 Jul 2019 PVT Colton J. Hicks - DHG SGT Joshua M. Smith - HG SPC Wilfredo AlemanyAponte PFC Ryan G. Mathews PVT Matthew A. Gobin PVT Paul M. Rodriguez Gray Eagle UAS Repairer Course 14 Graduates, 30 Jul 2019

PVT Miquel G. Jacinto - DHG PVT Frankie Gonzalez - HG

PFC Jeremiah S. Casey PFC Cody A. Eden PFC Stephen A. Villa PV2 Osvaldo CruzMartinez PV2 Matthew R. McCord PV2 Nathan J. Tervino PVT Aaron M. Adams PVT Jeffery L. Farkasdi PVT Brandon A. Hitchens PVT Derek M. Smith PVT Cody L. Vrell PVT J'mes A. White

UAS OPERATOR

AAAA congratulates the following Army graduates of the Unmanned Aircraft Systems Operator Course, MOS 15W, at Fort Huachuca,

Shadow UAS Operator Course

25 Graduates, 01 Jul 2019 SGT Benjamin Yuen - DHG SPC Phillip J. Standlev - HG SGT Angel J. Rosas SPC Jack W. Mathews PFC Ozzy L. Aufang PV2 Justin C. Crandall PV2 James D. Hershberger PV2 Marguel A. James PV2 Chad R. Kelly PV2 Matthew J. Kennedy PV2 Hunter L. Moosman PV2 Samuel Q. Rainey PV2 Miguel A. Ramirez PV2 Kerim Salcinovic PVT Darwin Buster PVT William J. Gensure PVT Sheldon M. Keith PVT Cade H. Labriola PVT Jarid A. Mitchell PVT Isaac L. Morrow PVT Louis G. Ordung PVT Andy W. OrtizVazquez PVT John D. Pennington PVT Brandi N. Schimonsky PVT Devin L. Torres Gray Eagle UAS Operator Course 12 Graduates. 09 Jul 2019 SGT Wyatt A. Hinesly - DHG PFC Conor L. Crouch - HG SPC Jose A. Sosatoro PV2 Joshua Z. Agnew PV2 James A. Concepcion PV2 Jose A. Diaz III PV2 Daniel G. George PV2 Byron M. Hogan PV2 Matthew R. Johnson PV2 Michael A. Whitt PVT Brandon L. Godwin

PVT Arik D. Larrance 10 Graduates, 24 Jul 2019 PV2Thomas R. Richardson - DHG PFC Antonio J. Agurs PFC Jonathon T. Ngo PV2 Trevion D. Edgar PV2 Tremayne J. Joiner PV2 Liam J. Mahler PV2 Dominique R. Sumter PV2 Ethan M. Tahtinen PV2 Casey R. Tittle PVT Devon O. Frank

DHG = Distinguished Honor Graduate DG: Distinguished Graduate HG = Honor Graduate

= AAAA Member



Art's Attic is a look back each issue at 25 and 50 years ago to see what was going on in ARMY AVIATION Magazine. Contributing editor Mark Albertson has selected a few key items from each decade's issues. Art Kesten is our founder and first publisher from 1953 to 1987. He is also the founder of the AAAA in 1957 and served as its Executive Vice President. The cartoon, right, was created back in 1953 by LT Joe Gayhart, a friend of Art's and an Army Aviator, showing the chaos of his apartment-office in New York City where it all began.





25 Years Ago October 31,1994

ASE Strategy on Target

MG Ronald Adams rams home the point to Army Aviators of being abreast of Aircraft Survivability Equipment; which

he states, "is an essential aspect of protecting the force." To which he adds: "Active and passive ASE will save your life if correctly employed... The proliferation of various surface-to-air and shoulder-fired weapons forces us to take ASE training very seriously." Source: See page 12, "ASE Strategy on Target," by MG Ronald E. Adams, Army Aviation, October 31, 1994.



AAÂA Executive Director;

Lee Grannis, Support Ser-

vices Manager, 1995 Special

Olympics World Games;

Art O'Leary, Chapter Presi-

dent and Toni Patti, Chapter Senior V.P. and Chairman

of the Aviation Committee

for the Special Olympics

Fundraising Committee.

Special Olympics

The Connecticut Chapter of AAAA donated \$300 to the 1995 Special Olympics World Games. The check was turned over to the Special Olympics at the September 16, 1994 AAAA meeting. Left to right: Bill May, V.P. Programs, Connecticut Chapter; Terry Coakley,



Top Guns as of 1 October 1994

The member who sponsors the greatest number of new members during the contest year ending 31 December 1994, wins an all-expense paid trip to the AAAA Annual Convention, as well as a \$300 cash award in addition to a plaque. Leaders thus far: CW3 Eddie L. Sullivan, 162; 1SG Luther D. Kible, 75; CPT H. Michael Brinkman, 63; CW2 Brett J. Armstrong, 45; and CPT James L. Jacobson 44.



50 Years Ago September-October 1969

AAAA Refund

Colonel A.T. Pumphrey (left), director of instruction, U.S. Army Aviation School, Fort Rucker, Alabama, and president of the Army

Aviation Center Chapter of AAAA, presents a rebate check of

\$375 to Warrant Officer Candidate Carl E. Smith (right), class leader of Warrant Officer Rotary Wing Aviator Class 69-35. The AAAA rebate, given to aviation primary classes boasting of 100 percent enrollment in AAAA, was presented at the chapter's recent "Shrimp Bust."

Up, Up and Away! in Vietnam



A U.S. Army CH-54A Skycrane is shown in the process of removing an observation tower from the firing line of a 105 mm howitzer of Alpha Battery, 1st Battalion, 8th Artillery. The battery had set up shop along the east perimeter of Cu Chi base camp, which is the HQ for the 25th Infantry Division.

"Crash Resistant Fuel Systems" By MG John L. Klingenhagen, Director of Army Aviation

The U.S. Army Board for Aircraft Accident Research has determined that post-crash fires are the largest single killer of

Army Aviators, crews and passengers. A solution towards this dilemma is the development of the Crash Resistant Fuel System (CRFS) for the UH-1 Huey helicopter. The first production model with the system will be delivered in April 1970. A program of retro-fitting earlier machines will begin in May 1970. Source: Pages 9 and 10, "AAAA Convention: A Look Back to '59," Army Aviation, Vol. 18, Nos. 9 & 10, September-October 1969.





The Army Aviation Hall of Fame, sponsored by the Army Aviation Association of America, Inc., recognizes those individuals who have made an outstanding contribution to Army Aviation.

The actual Hall of Fame is located in the Army Aviation Museum, Fort Rucker, Ala.

The deadline for nominations for the 2021 induction is June 1, 2020

Contact the AAAA National Office for details and nomination forms at (203) 268-2450 or visit www.quad-a.org

Army Aviation Hall of Fame

Lieutenant General William H. Forster

Army Aviation Hall of Fame 2010 Induction



TG "Bud" Forster made countless outstanding contributions to Army aviation over his 30 year career. He applied a hi-tech Ph.D. degree and command

leadership experiences in Europe, in two Viet Nam tours (173rd Assault Helicopter Company) and in CONUS (10th Combat Aviation Battalion) to drive aircraft combat and logistics systems innovations across the entire aviation fleet. Many years after his retirement from the Army, his technical contributions remain a part of every major Army helicopter in service.

Dual-rated, an experimental test pilot, and program manager (PM) for both the Kiowa and Apache programs, he pioneered the integration of high capability electro-optic and radar systems on Army aircraft.

He was the first officer selected by the Army for astronaut training and the first Aviation Program Executive Officer. In 1992, he became the first U.S. military officer elected to the Russian Academy of Natural Science. A rare professional, he was the "Renaissance man" of Army aviation from the 1970s to the 1990s.

His combat, military service and civilian recognitions, medals and awards include two Distinguished Service Medals, two Legions of Merit, two Bronze Stars, the Distinguished Flying Cross, 17 Air Medals, two Meritorious Service Medals, the Army Commendation Medal, the Senior Army Aviator Badge, the Senior Space Operations Badge, the Army Aviation Association of America Order of St. Michael (Gold Award) and the NASA Award for Outstanding Service.

After retiring in 1995, he continued to excel in private industry, receiving the American Helicopter Society (AHS) Special Award for Lifetime Achievement in advancing vertical flight technology. He also chaired the Board on Army Science and Technology and served on the Army Science Board.

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