TRANSFORMING THE UNMANNED AIRCRAFT SYSTEMS GENERATING FORCE IN CONTACT: COMPANY B, 2-13TH AVIATION REGIMENT

The Uncrewed Aircraft Systems Project Of ce is revolutionizing the battlef eld by delivering uncrewed weapon systems that extend operational reach. Photo by David Hylton.

By LTC Kent B. Monas and CPT Corbin G. Heard

The Challenge

How does the U.S. Army remain ready to **f ght** and **win** on future battlef elds dominated by drones, particularly small unmanned aircraf systems (sUAS)? How does our Army outpace our adversaries in the fe lding of sUAS in the face of rapidly advancing technologies? How does our Total Army train Soldiers at scale and echelon to employ sUAS in support of their mission-essential tasks? How does the Army transform in contact to ensure that American Soldiers on a future battlefe ld make enemy contact f rst with a forward line of robots, not a forward line of own troops? Our challenge is clear; the changing character of war requires our Army to achieve continuous transformation and build UAS Warf ghters at scale to defend our nation.

The Vision

Building UAS Warf ghters is the mission of the 2D Battalion, 13th Aviation Regiment (2-13th Aviation Regiment), which runs "the largest UAS training center in the world" at Fort Huachuca, Arizona (U.S. Army, 2024). Tactical UAS (TUAS) operator and maintainer training is conducted by Company B, 2-13th Aviation Regiment, who are taking the lead on TUAS transformation "in contact" with an initiative aimed at training Soldiers to operate cost-efe ctive commercial of -the-shelf (COTS) and Army program of record sUAS. Such training will address the insatiable need for sUAS supporting mission in the operational force.

T ese low cost, attritable systems serve as interim training platforms to develop tactics, techniques, and procedures across maneuver formations, ofer ing new training and innovation opportunities to f ll the TUAS role once held by the recently divested RQ-7 Shadow and RQ-11 Raven programs. Recognizing the need for a strategic shif , the Army is focused on maintaining its competitive edge to defeat any adversary across the competition and conf ict continuum. T is requires the transformation of doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) to address new challenges and opportunities. Given f scal constraints, the Army must rapidly transition from unsustainable systems to invest in transformative technologies for large-scale combat operations (LSCO). Current global conf icts highlight the urgency for rapid UAS adaptation, guiding the transition to future systems with smaller footprints, ease of use, low acoustic signatures, and enhanced mobility.

In line with the Army's ongoing modernization initiatives under the Army 2030 vision, Company B, 2-13th Aviation Regiment, aimed to transition away from the RQ-7 Shadow UAS. T is efo rt included updating the training programs for 15W (TUAS Operators) and 15E (TUAS Maintainers) by applying the analysis, design, development, implementation, and evaluation (ADDIE) instructional design framework to ensure that training aligns with future operational needs.

Small unmanned aircraft systems fi ght training. Photo provided by the authors.

T is framework guides the development of learning products by integrating feedback from various sources to improve instruction and adhere to budgetary constraints. T e objective is to prepare Soldiers as force multipliers at the company and platoon levels by

incorporating sUAS f ight training and tactics to ensure readiness for future tactical unmanned aircraf s ystems (FTUAS) fe lding. However, this transition created a capability gap that needed to be addressed.

To bridge this gap, the 15W program of instruction (POI) includes 10 sUAS f ight days within the f rst 29 days of the course, emphasizing sUAS tactical operations. T e 15E POI mirrors this approach, ensuring consistent training across both programs. Limited aviator-focused instruction in the 15E course is supplemented by the Basic UAS Qualif cation (BUQ) course provided by the sUAS manager. T is joint U.S. Air Force-regulated program enhances aviator knowledge for sUAS tactical f ight training, managing sUAS inventory, operator f ight logs, and training. Company B, 2-13th Aviation Regiment, uses this platform to track hours, currency, and maintenance for sUAS parts and systems.

Looking ahead, FTUAS is poised to transform operations for 15E and 15W Soldiers with key requirements, including vertical takeof a nd landing capabilities and simplife d logistics. T ese performance objectives are well-recognized within Army Aviation and are emphasized by senior leaders who advocate for mastering basic skills and focusing on Warf ghting capabilities. As the Army addresses the FTUAS challenges, it is crucial to explore how sUAS can bridge the gap and enhance operational efe ctiveness (Uncrewed Aircraf S ystems Project Of ce, 2023).

The Process

T e transformation of TUAS training at B, 2-13th Aviation Regiment, began with the development and approval of a 2024 deviation memo, allowing training beyond the 15W and 15E Critical Task Lists (CTLs). Approved by the U.S. Army Aviation Center of Excellence (USAACE) Commandant, this memo enabled innovative training approaches to meet evolving battlefe ld requirements. T e f rst step involved determining the method for equipment procurement, ensuring compliance with the National Defense Authorization Act for Fiscal Year (FY) 2024. T e System Readiness Directorate granted a Comprehensive Lightweight Airworthiness Release to introduce the RQ-28A (quadcopter) and COTS systems, which set the stage for enhanced training and operational capabilities. Some examples of COTS equipment we are experimenting with include the Parrot ANAFI drone, part of the Blue UAS program initiated by the Defense Innovation Unit, Department of Defense (Murison, 2019).

T e 2-13th Aviation Regiment collaborated with Libby Army Airfe ld (Arizona) to establish local airspace procedures ensuring safe and ef cient sUAS operations. A New Equipment Training Team was deployed to Fort Huachuca, providing initial RQ-28A qualif cations for instructors. T is training enabled the regiment to integrate sUAS systems efe ctively and expeditiously.

U.S. Cavalry Scouts train with the Puma UAS at Grafenwoehr Training Area, Bavaria, Germany. U.S. Army photo by SPC Orion Magnuson.

A 2024 waiver from the Directorate of Army Aviation allowed the 2-13th Aviation Regiment Instructor Operators to be designated as Master Trainers (MTs), expediting the qualif cation process for Soldiers on the RQ-28A and COTS systems. T is initiative ensures a consistent and robust training pipeline, preparing Soldiers for real-world operations.

T e Aviation Center of Excellence (CoE) is leading the rapid transformation of TUAS training at Fort Novosel, Alabama, and Fort Huachuca. T is transformation is not just a change in training methods but a comprehensive alignment with senior leadership objectives. By transitioning our TUAS force, the Aviation CoE ensures that UAS training is standardized across the Army, in concert with the Maneuver CoE, to meet the challenges of modern warfare.

Building on this foundation, the 15W TUAS Operator Training program now includes a combination of simulator and live f ight training for sUAS, Federal Aviation Administration (FAA) Part 107 certif cation (Remote Pilot Certif cate), and advanced training in LSCO environments. T ese enhancements are designed to develop subject-matter experts who can deliver sUAS combat power efe ctively at echelon, bridging the gap between theoretical knowledge and practical application.

Complementing the operator training, the program for 15E TUAS Maintainers focuses on sUAS training and certif cation, covering aviation maintenance fundamentals and updates on First Person View (FPV) sUAS fabrication and repair. T is comprehensive approach ensures that maintainers are well-prepared for Group 3 tasks, making them operator-qualife d and ready for future TUAS deployments.

Equally important is the role of the 150U TUAS WOs, known as the Army's UAS Master Integrators. T ese of cers are trained to manage UAS programs, conduct airspace planning, resolve frequency deconf iction, and lead mission execution. T e 150U course incorporates sUAS throughout the curriculum, preparing of cers for FTUAS while integrating valuable lessons from the U.S. European Command Area of Responsibility.

In late 2023, Company B initiated preparations for the divestment of legacy TUAS and the integration of emerging sUAS technology into the TUAS operator and maintainer POIs. Collaborating with the Network Enterprise Center and the FAA, Company B, 2-13th Aviation Regiment, transformed an existing classroom into a world-class instruction and testing facility, enabling students to attain the FAA Part 107 certif cation. Federal Aviation Administration Part 107 refers to the regulations set by the FAA governing the commercial use of sUAS (drones) in the United States. T is certif cation is required for anyone operating drones for commercial purposes and covers essential knowledge areas, such as airspace classif cation, aviation weather, f ight operations, and emergency procedures. Attaining the Part 107 certif cation demonstrates a drone pilot's understanding of aviation regulations and ensures safe and compliant drone operations (FAA, 2020).

To further emphasize the importance of sUAS training, course managers made a critical decision to reallocate 10 days from Shadow live f ight to sUAS training. T is change was implemented through a short-term course management plan (CMP) with class 24-007, ref ecting a shif i n priorities to better meet the Army's evolving needs.

As we moved into 2024, the momentum continued with the development of draf CMPs for sUAS integration by April. T is involved reallocating Shadow live f ight days to enhance academic instruction, ensuring that the curriculum was aligned with the latest technological advancements. T e integration of RQ-28A and COTS systems into the curriculum marked a signif cant milestone, with pilot classes commencing in June 2024. Feedback from these classes offered valuable insights, driving further updates and continuous improvement to adapt to emerging requirements.

By August, the f ight lesson plans were enriched with the inclusion of COTS systems into sUAS training, providing Soldiers with a comprehensive understanding of UAS operations. T is iterative approach continuously improves the POI to equip graduates with the skills necessary to efe ctively adapt to the dynamic conditions of the battlef eld and enhance their operational efe ctiveness.

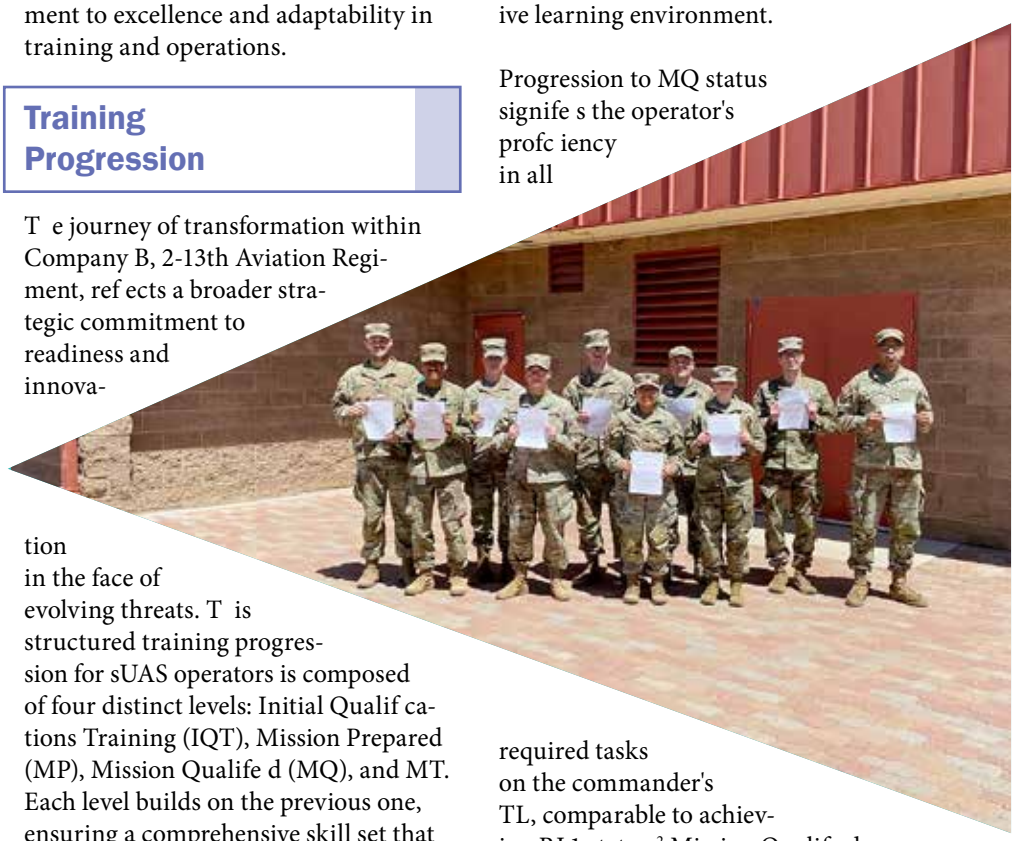
As with any robust operation, it is essential to conclude with an af er-action review. Although we have not yet reached this stage, it is crucial to plan how and when the Army will gather feedback on system usage and POI adjustments. Establishing this feedback loop will be vital for ref ning our processes and ensuring that the transformation of TUAS training continues to meet the operational needs of our forces efe ctively. T is iterative approach underscores our commitment to excellence and adaptability in training and operations.

Training Progression

T e journey of transformation within Company B, 2-13th Aviation Regiment, ref ects a broader strategic commitment to readiness and innovation in the face of evolving threats. T is structured training progression for sUAS operators is composed of four distinct levels: Initial Qualif cations Training (IQT), Mission Prepared (MP), Mission Qualife d (MQ), and MT. Each level builds on the previous one, ensuring a comprehensive skill set that aligns with the Army's operational goals.

T e IQT serves as the foundation, where students receive classroom instruction and hands-on f ight training for each system. T is phase covers essential skills including assembly, disassembly, pref ight and emergency procedures, f ight operations, airspace management, weather considerations, and standard operating procedures. Completing the IQT satisfe s the BUQ course Level I & II requirements outlined in Chairman of the Joint Chiefs of Staf I nstruction 3255.01 (2011), ensuring trainees are well-equipped for subsequent challenges.

Upon completing IQT, operators undergo a commander's evaluation to achieve MP status. T is designation is akin to achieving Readiness Level (RL) 3 status[1] in other aviation platforms, marking the beginning of their operational readiness. Operators in the 2-13th Aviation Regiment are automatically designated MP af er IQT, requiring them to complete all tasks on the CTLs within 90 days. At the MP level, operators are exempt from semi-annual prof ciency and readiness test (S-APART) requirements and can only f y with an MT, fostering a supportive learning environment.



Progression to MQ status signife s the operator's profc iency in all required tasks on the commander's TL, comparable to achieving RL1 status.[2] Mission Qualife d operators must meet S-APART requirements and maintain sUAS currency. In the 2-13th Aviation Regiment, the MQ evaluation f ight is conducted by an MT, who assesses all CTL tasks to ensure the highest standards are met.

Progression for sUAS operators culminates with the MT designation, where operators demonstrate prof ciency in conducting academic and f ight instruction. T anks to an exception to policy

[1] "RL3, uncertif ed, involves pilots, accompanied by a senior instructor pilot, doing basic maneuvers and learning to f y in formations with other helicopters" (Thibault, 2013).
[2] "RL1, certif ed, is where pilots can f y without instructor pilots and are considered ready for missions" (Thibault, 2013).

waiver, 15W and 15C Instructor Operators can be designated MTs without attending the Fort Moore (Georgia) sUAS MT Course, provided they have completed the Instructor Operator Course. T is f exibility ensures that training keeps pace with operational demands and personnel readiness.

Strategic Alignment and Future Initiatives

T e Joint Small Uncrewed Aircraf S ystems Capability Development Document (J-sUAS CDD) (Congressional Research Service, 2024b) FPV Annex is a top-priority efo rt spearheaded by the Chief of Staf o f the Army and the Maneuver CoE Commanding General. T is initiative is designed to enhance maneuver forces and support the Department of Defense Army's sUAS/Robotic and Autonomous Systems (RAS) Strategy.[3] T e system, intended for deployment at the squad or platoon level, signif cantly boosts unit lethality. Future applications include arming the system to enhance ofen sive capabilities, establishing a strong foundation for efe ctive operations by brigade combat teams (Maneuver, Aviation, and Soldier Division, Army Capabilities Integration Center, 2017).

As the TUAS transformation progresses, it exemplif s the Army's commitment to adapting to evolving threats and maintaining readiness for future conf icts. T rough innovative training programs, integration of cutting-edge technology, and a focus on mastering fundamental skills, USAACE is preparing Soldiers to excel in a rapidly changing operational environment.

T e Army's ongoing transition from legacy systems to new capabilities is informed by the lessons learned from this transformation, guiding broader initiatives across the force. By prioritizing agility, lethality, and adaptability, the Army ensures its UAS operators and maintainers are equipped to deliver decisive combat power in support of ground forces. T is unwavering commitment to excellence and innovation in UAS training underscores the Army's resolve to remain a dominant force on the battlef ld, capable of meeting the challenges of tomorrow's conf icts with conf dence and precision.

End-state

End-state would appear a contradictory term for continuous transformation, but there must be some objective at which to aim. T erefore, an end-state for continuous transformation of TUAS is to move from "In Contact" to "Steady State" transformation that sees the Joint Capabilities Integration and Development System (Chairman of the Joint Chiefs of Staf , 2005) execute rapid and continuous DOTMLPF actions that keep pace with advancing technology. Acquisition of "exquisite," meaning expensive, sUAS programs of record is untenable and would be done at peril to our readiness. Acquisition of sUAS must be conducted as rapidly as an upgrade to the General Service Administration f eet of vehicles or sof ware updates to our computers. T e Department of Defense bureaucracy must be incentivized to rapidly adapt and acquire low-cost sUAS for the American Soldier to train and prepare to **f ght** and **win** on battlef lds of the future. We must adhere to the maxim that "quantity has a quality all of its own" and acquires large numbers of low cost attritable sUAS, then train Soldiers at scale and echelon to employ these systems. T e Defense Innovations Unit's 2023 Replicator Initiative is championing this sUAS acquisition efo rt. T e United States manufacturing base for sUAS is beginning to adjust to this new requirement, with the Replicator Initiative stating that it will deliver "all-domain attritable autonomous (ADA2) systems," (Congressional Research Service, 2024a) to Warf ghters at a scale of multiple thousands in FY25. In light of these developments, it is imperative that Training and Doctrine Command and USAACE continue to transform the way we train Soldiers to employ these new systems. Company B, 2-13th Aviation Regiment, has initiated this transformation and will continue to innovate and adapt the way we train UAS Warf ghters for our Total Army.

Biographies:

CPT Corbin Heard currently commands Company B, 2-13th Aviation Regiment. He has served as a Special Electronic Mission Aircraft pilot, Chinook Company Executive Of cer, Platoon Leader, Explosive Ordnance Disposal Platoon Sergeant, and Team Leader. He has been in the Army for 17 years and is a recent University of North Carolina (UNC) Kenan-Flagler Business School graduate (MBA).

LTC Kent Monas is the commander of the 2-13th Aviation Regiment. Kent is an OH-58D Scout and AH-64E Attack pilot with f ve combat deployments to Iraq, Afghanistan, and Somalia. His assignments include: Air Cavalry Troop and MQ-1C Gray Eagle Company Commander, Operations Of cer for an Aviation Task Force in Afghanistan, Executive Of cer for an Airf eld Operations Battalion in the Horn of Africa, and Professor of Military Science at East Tennessee State University.

[3] This strategy "describes how the Army will integrate new technologies into future organizations to help ensure overmatch against increasingly capable enemies … the RAS Strategy describes how the Army will use human-machine collaboration to meet the JCS Chairman's goal of increasing operational options for Joint Force commanders" (Maneuver, Aviation, and Soldier Division, Army Capabilities Integration Center, 2017, p. i).

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