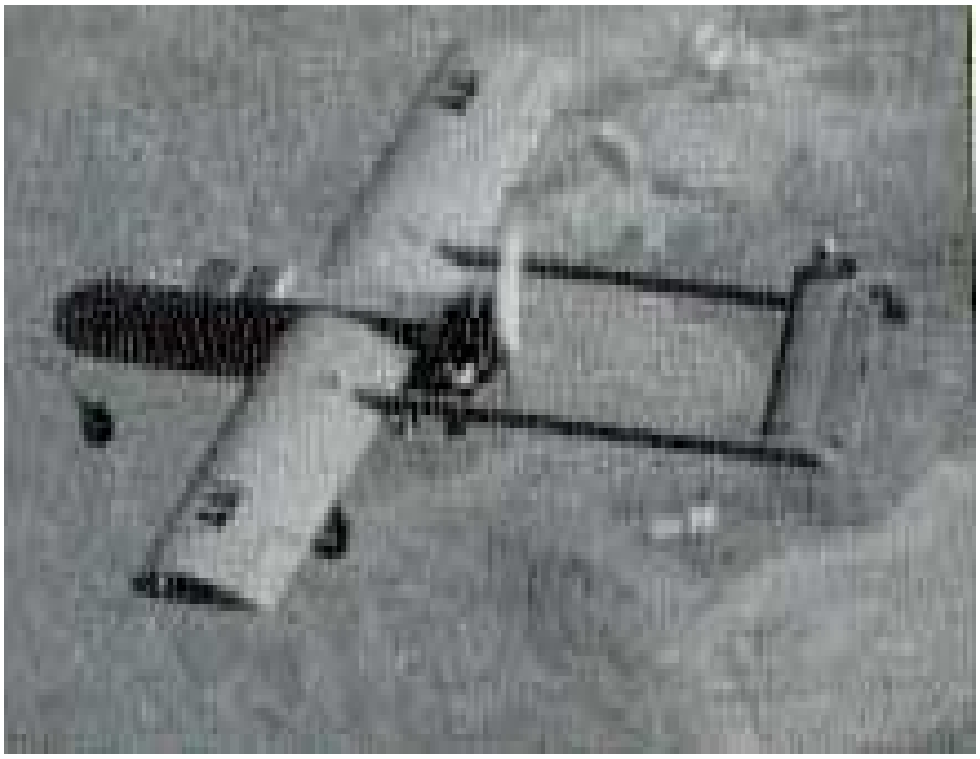
TACTICAL UNMANNED AERIAL VEHICLE SYSTEM (TUAV)
AND
VERTICAL TAKEOFF AND LANDING TACTICAL UNMANNED AERIAL VEHICLE SYSTEM (VTUAV)



TUAV

Army ACAT II Program

Total Number of Systems:	44 (4 LRIP)
Total Program Cost (TY$):	$211M (RDT&E)

Prime Contractor

Both systems are in full and open Competition.

VTUAV

Navy ACAT II Program

Total Number of Systems:	23 (2 LRIP)
Total Program Cost (TY$):	$171.5M (RDT&E)

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Tactical Unmanned Aerial Vehicle (TUAV) and the Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV) programs are intended to address the warfighters need for a responsive capability to conduct near real-time Reconnaissance, Surveillance, and Target Acquisition for lower echelon tactical units. The TUAV system will be a dedicated asset for the Army ground maneuver Brigade Commander, while the VTUAV system will be dedicated to the Navy Battle Group Commander and the Marine Corps Air-Ground Task Force or expeditionary Brigade Commander. These systems are to deliver timely, accurate, and complete information about the Commander's selected portions of area of

interest in near real-time. The TUAV and VTUAV will provide the tactical commander with ***information superiority*** contributing to the ***full-dimensional protection*** of his force and ***precision engagement*** of the enemy.

TUAV and VTUAV are intended for use in environments where real-time information feedback is needed, manned aircraft are unavailable, or excessive risk or other conditions render the use of manned aircraft imprudent.

BACKGROUND INFORMATION

In October 1995, the Joint Requirements Oversight Council (JROC) recommended termination of the Hunter Short Range Joint Tactical UAV program and proposed an Advanced Concept Technology Demonstration approach to satisfy the Joint Tactical UAV requirements and complement the newly developed Predator Endurance UAV. Expeditious fielding of tactical UAV capability was JROC's number one UAV priority in 1995. The TUAV Acquisition Decision Memorandum was signed in December 1995 and a paper source selection was conducted. In May 1996, the Joint Program Office awarded Alliant Techsystems a two-year Advanced Concept Technology Demonstration contract to deliver six complete Outrider systems with spares by March 1998. The Outrider program experienced many setbacks and delays. Initial plans called for a year of system demonstrations in the hands of users during major exercises and combat training center rotations, but Army III Corps direct participation at Ft. Hood did not begin until April 29, 1998 and concluded June 30, 1998. The brevity of the demonstration at Ft. Hood limited the Services' ability to fully assess Outrider's military utility.

The Army's Military Utility Assessment stated that within the limitations of the demonstration, Outrider TUAV displayed military utility to provide commanders with timely, accurate, and complete Reconnaissance, Surveillance, and Target Acquisition information in near real-time. However, due to a lack of time during the ACTD, the system could not demonstrate requirements such as night time and all weather operations, responsiveness to external tasking, sustained 24-hour operations, number of targets processed over time, launch and recovery on unimproved surface, and threat vulnerability avoidance. These factors would have to have been answered before gaining a positive decision on Outrider. Outrider's inability to meet requirements such as a heavy fuel engine and a short runway caused the Navy to determine it would not accept Outrider as its TUAV system.

Based on the military utility assessments by both Services, JROC directed the Navy and Army to pursue separate air vehicle solutions to satisfy their tactical UAV requirements. These tactical UAV requirements were originally delineated in JROC Memorandum 150-95; JROC subsequently validated the Navy's VTUAV Operational Requirements Document in January 1999 and the Army's TUAV Operational Requirements Document in March 1999. The Army and Navy are now conducting full and open competitions. Both Services are also using a best value approach; i.e., selecting the maturest system that provides the greatest technical performance at the lowest cost, and meets as many of the higher priority operational requirements. The contractors are allowed to trade off performance characteristics to meet higher priority requirements.

TEST & EVALUATION ACTIVITY

No operational testing was conducted this year on TUAV or VTUAV. The Army is conducting a systems capability demonstration with four competitors in 1QFY00. The systems capability

demonstrations will establish each baseline for maturity and technical/operational performance, and will be a significant evaluation factor during the TUAV source selection process. Each competitor will have a two-week period consisting of a ground demonstration phase and a flight performance phase at Ft. Huachuca, AZ. The U.S. Army Test and Evaluation Command will provide the source selection board with an assessment of each system's potential operational effectiveness and suitability. Immediately following source selection, the Army plans a Milestone II and a low-rate initial production award contract for four TUAV systems. Initial operational testing with TUAV is scheduled for April 2001. Due to the compressed schedule between contract award and IOT&E, interoperability with the tactical control system will be integrated as a block upgrade.

TEST & EVALUATION ASSESSMENT

The Outrider TUAV Advanced Concept Technology Demonstration was severely limited due to extensive redesign, development, and late system deliveries. The user was also unable to complete individual crew training and certification. As stated previously, the system demonstrated basic performance capabilities; however, this has been demonstrated in numerous other UAV programs. Assuming that any selected TUAV can meet the basic requirements of flying, the focus of future operational test and evaluation must be on the TUAV ability to support a unit (possibly at a different echelon from previous systems), and on its military utility.

To determine whether any TUAV has military utility, operations with a full up maneuver unit and other supporting Command, Control, Communications and Intelligence and Reconnaissance, Surveillance, and Target Acquisition assets should be conducted. For example, it may be the case that TUAV completes all of its mission tasking. However, it could also be the case that other Reconnaissance, Surveillance, and Target Acquisition systems found the same targets earlier and reported them more accurately. Or, it may be that TUAV detects and reports every target it is assigned but its unit's sensor-to-shooter loop is so long that the information is of little value at that echelon. Without conducting operations in a tactical context, these questions of military utility will be hard to establish.

LESSONS LEARNED

The time allowed to conduct the user demonstrations during an Advanced Concept Technology Demonstration should not be shortened, even if the delivery schedule slips to the right. As described above, a complete military utility assessment of Outrider could not be conducted in the short time period allowed.

Commercial off-the-shelf and non-developmental UAV programs have not withstood the rigors of operational environments. This lesson was factored into the Army's competitive demonstrations that include as much operational realism as possible, including high rigorous operational tempo and the deployment of operational targets to assess UAV image quality and final product.