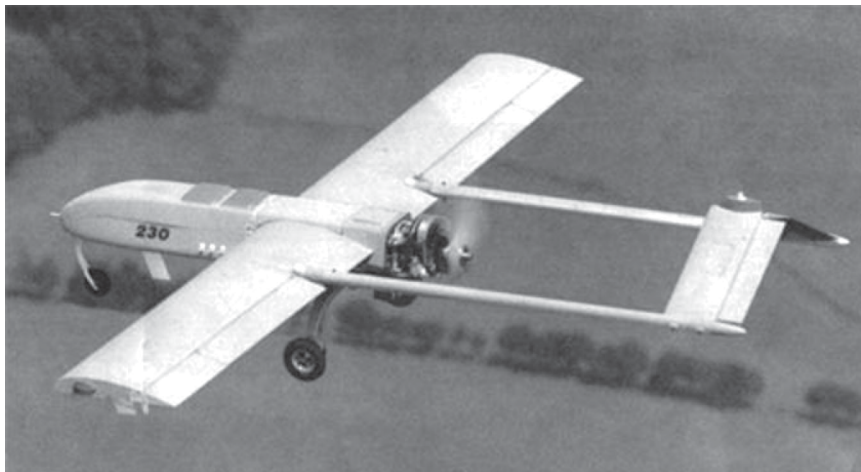


Shadow 200 Tactical Unmanned Aerial Vehicle (TUAV)

SUMMARY

- Shadow 200 entered full-rate production in December 2002.
- Follow-on testing continued in FY04 with Shadow performing an interoperability certification test in November 2003. The purpose of this event was to demonstrate connectivity with fielded versions of Army Battle Command System software. The system received only a specified interface certification.
- Shadow is executing a product improvement effort; known as Block 1B, to improve performance. Improvements have reduced target location error from the 200 meters during Initial Operational Test and Evaluation (IOT&E) to 78 meters in a developmental test event.



TUAV system is the ground maneuver commander's primary day/night reconnaissance, surveillance, and target acquisition system.

SYSTEM DESCRIPTION AND MISSION

The Tactical Unmanned Aerial Vehicle (TUAV) system is the ground maneuver commander's primary day/night reconnaissance, surveillance, and target acquisition system. The system is composed of four air vehicles, modular mission payloads, ground control stations, launch and recovery equipment, and communications equipment.

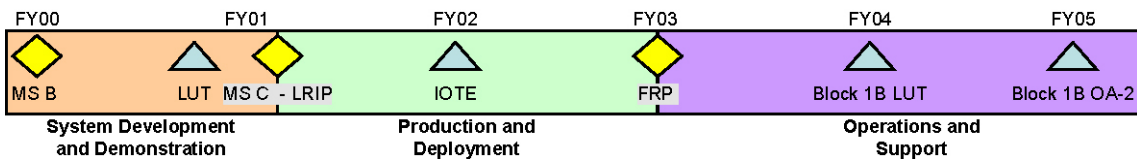
Shadow 200 entered into IOT&E prematurely in April 2001. The Army downgraded the IOT&E to a Limited User Test after two air vehicle incidents. DOT&E approved the revised test strategy in March 2002. The Army conducted a second IOT&E in April and May of 2002. We found the system to be operationally effective under fair weather conditions for cued reconnaissance and surveillance missions, and not operationally effective for target acquisition missions.

Although Shadow 200 met its requirement for operational availability, we found it to be not suitable due to the frequency of occurrence of crashes, hard landings, and engine replacements. DOT&E raised concern in the beyond low-rate initial production report that these deficiencies would be cost prohibitive for sustained operations. Shadow 200 continues to experience attrition at unsupportable rates.

Shadow 200 entered full-rate production in December of 2002. A Test and Evaluation Master Plan update is in the coordination process with approval anticipated in early FY05. There are two versions of the Shadow System. Block 1A is currently in the field. Block 1B is in development.

ARMY PROGRAMS

TEST AND EVALUATION ACTIVITY



Shadow 200 performed an interoperability certification test in November 2003 on the Block 1A system. The Army conducted this event in conjunction with the 2nd Infantry Division Capstone Warpath II exercise. The purpose of this event was to demonstrate connectivity with fielded versions of Army Battle Command System.

Shadow 200 is in the process of a product improvement effort. Because of the accelerated fielding schedule, the program office has already awarded the contract for the improved system, known as Block 1B. The Army intends Block 1B improvements to replace the avionics suite with a Global Position System (GPS)-coupled inertial navigation system, which improves target location error. Besides the change in the avionics suite, Block 1B also includes an increase in the size of the airframe. This larger airframe is necessary to make room for the Tactical Control Data link. The new airframe should also increase the range capability of the system.

The Army plans to conduct testing of the Block 1B upgrades in three phases: during developmental testing, during a customer test to verify improvements to target location error, and during an operational assessment of the first unit equipped. Developmental testing consists of a logistics demonstration, qualification flight-testing, and Electromagnetic Environmental Effects testing. The customer test for target location error followed the developmental testing. During the customer test, trained Shadow 200 payload operators reported on a variety of static targets with known geo-location. The contractor performed all other Shadow support functions including maintenance, flight operations, and air vehicle operation. The Army intends to conduct the final phase of testing during the capstone training exercise of the first unit equipped with the Block 1B system in early FY05. This event will include artillery fire adjustment for second round fire-for-effect missions.

TEST AND EVALUATION ASSESSMENT

The goal of the interoperability test was to obtain a system certification from the Joint Staff Command, Control, Communications, and Computers Systems Directorate (J6) on the fielded system – Block 1A. The Shadow 200 was able to demonstrate all of the required interfaces. However, the Shadow 200 did not receive a system certification. Just prior to the start of the test, the Army updated the requirements document to include many new required interfaces, which were still in development. The J6 granted a specified interface certification for the system present during test. This specified interface certification is sufficient for addressing interoperability requirements for employment for the next year until follow-on testing for the new requirements is complete.

The program office has not completed developmental testing of the Block 1B upgrade. A Block 1B air vehicle sustained significant damage during landing in flight-testing this summer. Due to the incident, the Army ceased all testing for a period of two weeks while the accident investigation occurred.

This incident also postponed the start of the target location error customer test for one week. The customer test also encountered difficulty. The Army shortened the 2-day pilot test to one day because of an unrelated crash of a Block 1A air vehicle. Difficulties continued as high winds prevented the resumption of testing even after the Army granted clearance for test flights to resume. The first day of the three-day customer went well. Data collection was limited on the second day because of rain. On the third day, the Block 1B air vehicle lost the command and control link with the ground station and crashed, indefinitely postponing the test. The cause was later determined to be a manufacturing problem with the flight processor board. The Army was able to collect sufficient data during the abbreviated event to continue testing. The target location error has improved from greater than 200 meters during IOT&E to 78 meters during a developmental test event. The Shadow 200 now meets the requirement for target location error.

The operational assessment with the first unit equipped has yet to be scheduled. The Army has postponed fielding for the near future. Fielding cannot occur until developmental testing is complete and the subsequent safety release obtained. We anticipate testing and fielding to take place early in FY05.