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Harvest Hawk Gives the KC-130J Bite

By Eric Tegler in Aerospace under Defense Technology, Featured with no comments



Affirming recommendations outlined in the latest Quadrennial Defense Review, Secretary of Defense Robert Gates stressed in a February Pentagon briefing that DoD would continue to switch acquisition resources from high-end/niche programs to dual-use efforts applicable to a range of operations, with priority given to those that address needs in Afghanistan.

Given that emphasis, it's likely that Gates is a fan of the Marine Corps' Harvest Hawk program, which

can turn its KC-130Js into reconnaissance and close air support aircraft in the span of eight hours or less.

The KC-130J ISR/Weapon Mission Kit (Harvest Hawk) answers an urgent universal needs statement from the fleet to provide persistent, manned intelligence, surveillance, and reconnaissance (ISR) with massed aviation fires. Harvest Hawk is a modular roll-on, roll-off system consisting of a Fire Control Console in the aircraft's cargo compartment, a Target Sight Sensor (TSS) mounted in the left under wing fuel tank and a launcher for four Hellfire missiles mounted on the left hand refueling pylon. An upgraded KC-130J recently completed evaluation of the TSS in April at Naval Air Station Patuxent River, Md.

In order to accommodate the Harvest Hawk package, a KC-130J is first outfitted with the necessary wiring, referred to as an "A" kit, then a "D" kit that includes all the hardware. Installing the A kit requires approximately six months, according to Doug Dawson, principal deputy program manager for the tactical airlift adversary and support programs at Naval Air Systems Command (PMA-207). Once an aircraft has the A kit, the TSS, fire control station, and Hellfire launcher can be installed or removed from the KC-130J in less than eight hours.



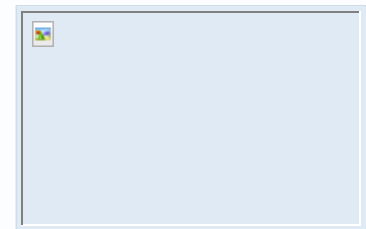
The Harvest Hawk mission kit uses an AN/AAQ-30 Targeting Sight System (left) and an AGM-114P Hellfire II weapons system (launch rails at right) mounted on the left wing of a KC-130J. A fire control operator at a fire control station located in the rear of the aircraft monitors these systems. Official U.S. Marine Corps photo by Cpl. Christopher O'Quin.

The Target Sight Sensor provides a wide field-of-view and incorporates a forward-looking infrared sensor and color camera. These send images to two computer monitors inside the aircraft, allowing operators to pinpoint and surveil long-range targets. The Hellfire missiles can be laser-guided from the KC-130J or from the ground. The TSS is slated to be mounted on the new AH-1Z Viper attack helicopter as well. The new sensor will allow Marines to relay information across aviation platforms in battle.

Phase one testing at NAS Patuxent River vetted TSS installation, software integration and modification for use on the KC-130J. The last required some recalibration, Dawson explains. "With the higher altitudes, we have different angles than [the TSS] sees on a helicopter, so there was some software tweaking associated with that."

The first test phase took just two weeks, a rapid turnaround compared with other test programs at

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Patuxent River. "It's a priority for the Marine Corps, so we really gave the program manning and staffing in line with that. There were some software integration challenges, but we overcame those quickly," Dawson reports.



Maj. Steve D. Puckett, a test pilot with Navy Air Test and Evaluation Squadron 20, takes a look at the AN/AAQ-30 Targeting Sight System, part of the Harvest Hawk mission kit. Puckett was one of the first few pilots to fly the modified Super Hercules. Official U.S. Marine Corps photo by Cpl. Christopher O'Quin.

Weapons testing of the Harvest Hawk package is now ongoing at Naval Air Weapons Station China Lake, Calif. The pylon-mounted Hellfire missiles will be launched against stationary targets (vehicles, tanks) during the China Lake tests, which should be concluded by mid June. Following the weapons tests, operational testing will begin and run concurrently with training at Marine Corps Air Station Yuma, Ariz.

Current plans call for the acquisition of nine Harvest Hawk kits. All KC-130Js will receive A-kits to enable them to accept the modular system, according to the KC-130 Requirements Officer, USMC Maj. J.P. Pellegrino. Final unit costs for Harvest Hawk were being negotiated as this was written. They will ultimately be contingent upon any other capabilities the Marine Corps may choose to add.

NAVAIR eventually plans to test and deploy the Standoff Precision Guided Munition (SOPGM) system with Harvest Hawk. Developed by Special Operations Command, the GBU-44 "Viper Strike" SOPGM system will be used to drop up to 10 laser-guided bombs off the KC-130J Harvest Hawk's ramp. A 30mm cannon will also be fitted, firing from a modified left hand paratroop door. KC-130Js thus equipped would offer much of the capability of a dedicated gunship like SOCOM's AC-130U/W or the upcoming USAF AC-130J.

The first three Harvest Hawk kits as well as the first aircraft modified to support the kits will go to Marine Aerial Refueler Transport Squadron 352 at MCAS Miramar, Calif. Harvest Hawk KC-130Js are expected to be available for deployment this summer.

The need for ISR and armed overwatch in Afghanistan drove the requirement for Harvest Hawk, but its flexibility, as Pellegrino notes, will likely have broad appeal within the Corps.

"The system is modular and tailorable to the mission, meaning if desired, only the targeting ISR sensor could be loaded for an ISR only mission. The targeting ISR sensor plus Hellfire could be loaded if the ramp is required for another mission. The sensor and ramp launcher could be loaded if both aerial refueling pods are required. Or, the sensor with the full complement of munitions and the cannon if a more traditional gunship role is desired."

"A main point to remember is the right wing of the aircraft is not affected. This means aerial refueling could still be accomplished from the right side of the aircraft with all elements of the system loaded onto the aircraft, and all of this is done without cutting a single hole in the aircraft."

Top photo:

- ➡ Test pilots and aircrew from Air Test and Evaluation Squadron 20 take off in a KC-130J "Super Hercules," belonging to Marine Aerial Refueler Transport Squadron 352 during its first flight with the new Harvest Hawk mission kit at Air Force Plant 42. Note the TSS mounted to the port under wing fuel tank and the four Hellfire launch rails on the outboard wing pylon. Official U.S. Marine Corps photo by Cpl. Christopher O'Quin



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