

Lifesaving Liberty

By John A. Tirpak, Executive Editor



The MC-12 quickly added a valuable niche intelligence capability in Afghanistan.



USAF photo by SSgt. Eric Harris

Ground troops in Afghanistan have come to rely heavily on a rather unglamorous-looking airplane flying thousands of feet above. The small, unarmed aircraft listens for enemy signals and watches the blind curves ahead of the troops, looking for signs of planted bombs or contacts with people who may—or may not—be the enemy.

The eye in the sky is the MC-12 Liberty, a relatively recent addition to the Air Force's inventory, which serves a unique, niche role in the service's intelligence-surveillance-reconnaissance effort in Afghanistan. The Liberty—a converted civilian turboprop crammed with sensors, radios, surveillance gear, and perhaps most importantly, a crew—flies directly over troops on the ground, who are often making their way along

the perilously narrow mountain passes that offer no view of the terrain or hazards ahead.

MC-12 crews also watch over take-down operations, looking for the motion in the window, the escape out the back door, or the arrival of enemy reinforcements. The MC-12 crews consistently win the thanks and praise of the land forces: Ground troops routinely report that they prefer working with an actual crew overhead.

The common alternative is communicating with an analyst who may be thousands of miles removed from the fight and is watching the proceedings through the lens of a Predator or Reaper unmanned aircraft, via satellite link.

The MC-12 will offer unique capability until medium-altitude remotely piloted aircraft can operate in all weath-

An MC-12 Liberty lands at Kandahar Airfield, Afghanistan. The platform aircraft for the Liberty is the Hawker Beechcraft Super King Air 350.

er, achieve more in-depth situational awareness, and offer ground forces a much more user-friendly interface—preferably with real people somewhere in the information processing, exploitation, and dissemination chain.

The Liberty aircraft was literally rushed into service. In the spring of 2008, Defense Secretary Robert M. Gates publicly and sharply criticized the Air Force for not moving fast enough to satisfy the ever-growing demand for ISR in Iraq and Afghanistan—specifically, for airborne, full-motion video surveillance—and directed the service to find quicker ways to meet the need.



USAF photo by SrA. Larry E. Reid Jr.



USAF photo by SrA. Tiffany Trojca



General Atomics Aeronautical Systems, the maker of the Air Force's and Army's principal medium-altitude remotely piloted aircraft, was at the limit of its capacity to make those airplanes.

"We were producing [MQ-1] Predators and [MQ-9] Reapers as fast as we could, but the company was maxed out," a former senior intelligence official said. "So we had to look elsewhere."

Within a couple of months, the Air Force decided it could rapidly field a new, supplemental capability that would complement the unmanned Predators and Reapers, as well as bigger platforms such as the E-8 JSTARS. Gates

approved the plan and set in motion an effort to acquire 37 of the aircraft under the sobriquet Project Liberty. The name was inspired by the World War II effort to rapidly build an inventory of cargo ships, based on designs that were cheap and quick to assemble.

Full-Motion Video

The platform chosen for the Liberty was the Hawker Beechcraft Super King Air 350, and later the Super King 350ER. The airplane was picked because it was already in the US military inventory, in a variety of incarnations based on the militarized C-12 Huron. It could hold the

The Air Force's Big Safari office—which specializes in rapid prototyping and fielding of equipment needed for combat—took the lead in acquiring the system.

The principal sensor around which the MC-12 was built is a full-motion video system—the Wescam MX-15—since FMV was the No. 1 demand of ground forces in combat. However, the MC-12 would supplement video with a variety of radios able to listen in on cell phones, walkie-talkies, and other types of communications, as well as its own communication gear that was completely secure. In addition, the

An MC-12 Liberty aircraft prepares for takeoff on the ramp at Kandahar. The full-motion video system prized by ground forces is supplemented with a variety of radios and other communications gear.



USAF photo by SSgt. Eric Harris



Northrop Grumman photo

necessary amount of gear, was simple to operate, could self-deploy, and could be obtained in the needed time frame. Moreover, because of its civil aviation track record and simplicity, it was potentially a good platform on which to partner with emerging air forces, such as in Iraq and Afghanistan.

L-r: A Predator takes off on a training mission; an MC-12 Liberty aircraft; an E-8C JSTARS aircraft in the air. Liberty aircraft augment other intelligence-surveillance-reconnaissance assets.

crew could talk with offboard sensor specialists, imagery analysts, and other locations via secure chat.

All sensors would have a recording and playback capability, as well as the ability to transmit sensor takes and FMV to a variety of offboard recipients.

The aircraft would also offer something that Predators and Reapers could not: human eyes on the target. The MC-12 has a cockpit compatible with night vision goggles, so the crew, with a sensor as simple as binoculars, can



Above: An airman marshals a Liberty as it prepares for a mission in Afghanistan. Right: Army Spec. Thomas Unangst radios coordinates. The MC-12 serves as the “eyes” for dismounted troops.

also add four sets of eyes to understand what’s happening down on the ground.

Five-Person Crew

Because it would take the airframe contractor some time to spin up production, the first MC-12s were low-time civilian aircraft, bought from “doctors and dentists,” one USAF official said. He spoke on condition of anonymity because the Air Force declined repeated interview and information requests for this article.

After getting the initial go-ahead in July of 2008, the Air Force received the first mission-ready MC-12 less than a year later, and in June 2009, the first MC-12 arrived in Iraq and began promptly flying combat missions. Six months later, MC-12s began flying in Afghanistan.

A total of 37 aircraft have been acquired; seven are kept at Key Field in Meridian, Miss., for training, although Beale AFB, Calif., is the Air Force’s stated preferred permanent base for the MC-12. Hawker Beechcraft builds the airplane; L-3 Communications of Texas is the system integrator.

The MC-12 crew consists of five people: four in the airplane and one who monitors its sensors on the ground. The crew has a pilot, who is the mission commander; a copilot, who assures that the aircraft is properly positioned for the mission; a sensor operator who runs the FMV, other sensors, and a laser target designator; and a cryptological operator, who collects other kinds of

information. The ground member of the team is an imagery analyst who monitors all the feeds and provides observations on what it all means.

Crews can use laser-like pointers that ground forces, wearing special eyewear, can see. That allows an MC-12 crew member to point out a threat the ground troops can’t see from their vantage point, and without the ground troops having to look at—and interpret—a digital aerial image on their field laptops.

The crews of the MC-12 are forward deployed, and live and eat with the ground troops they support. They will be heavily involved in mission planning for ground action, and will know well



USA photo by Spc. Gary Silverman



Lt. Col. Rob Weaver (I) briefs an MC-12 aircrew. The Air Force has 37 of the aircraft, which entered service less than a year after the program was approved.

the joint terminal attack controllers with whom they may be working to call down air strikes.

Seeking a Permanent Cadre?

The MC-12 is not armed, however. The aircraft, with its full load of sensors and crew, cannot carry munitions. The laser target designator has been deemed sufficient to point out targets for other aircraft, such as fighters or RPAs loitering in the area.

Crews have been drawn from all over the Air Force, and as yet, a permanent MC-12 cadre has not been created. Unlike those who have been assigned to operate RPAs, and may remain assigned to that specialty for an open-ended period, MC-12 pilots go back to their previous specialties after their tours, typically, a six-month deployment.

Unlike many systems, crews for the MC-12 go through training together—12 missions are flown as a team before deployment—and they stay together through their tours. It is critical, according to one former MC-12 crew member, that they work effectively as a team, and know exactly how much to say—and when to keep silent—in a fast-unfolding combat situation, where irrelevant chatter can cost lives.

The MC-12, however, was always seen as an “80 percent solution” to the need to rapidly field a complement to RPAs and other ISR platforms. Rushed from the factory to combat with not much testing, the airplane has yet to be fully certified for operations. Crews are



USAF SSgt. Aaron Pickering checks over the forward-looking infrared (FLIR) ball on an MC-12 Liberty before a mission at Joint Base Balad in Iraq. The first Liberty aircraft arrived in Iraq in June 2009.

a little skittish that they don’t know, for example, how their engine noise could be heard by the enemy in mountainous terrain, or at what altitude they truly become “invisible” to the enemy, which is crucial to mission success.

Senior Air Force leaders have said the MC-12 will be retained in the inventory indefinitely, even after US forces withdraw from Afghanistan, because it could have a significant value in counterinsurgency operations elsewhere in the world, in Africa, South America, or Southeast Asia, for example. However, one former top intelligence official said the MC-12 was intentionally limited to 37 airframes, and doesn’t see the fleet growing beyond that.

Since the upbraiding by Gates, the Air Force has been aggressively building MQ-9 Reapers, toward an ultimate objective of achieving 65 “orbits” of 24-hours-a-day capability by 2013. That will satisfy all requirements in Afghanistan, and likely be more than enough for the post-Afghanistan environment.

Moreover, “we’ll be putting all these kinds of sensors on RPAs that are coming down the pike,” and potentially retrofitting them on Reapers, “so you’ll have that capability on an unmanned platform with days-long persistence,” as opposed to the MC-12, which can only stay aloft for five or six hours, one intelligence official noted.

The tradeoff, of course, is that an RPA—even an advanced one with lots of automated processing, exploitation,

and dissemination capability—won’t have four sets of human eyes onboard, each trained to know when to offer the right information to help combat troops.

“It’s an issue of manpower,” the official said. “We don’t have it. That’s why we’re having to pull people off all these other platforms. We’ve had F-22 pilots flying the MC-12.”

The Army fields its own version of the Liberty, called the Medium Altitude Reconnaissance and Surveillance System, or MARSS. Like other Army airborne ISR assets, it is assigned to certain ground units, rather than apportioned by the joint force air component commander. ■