The Last of the Mohawks

Grumman's triple-tail, bug-eyed, heat-seeking camera platform

John Sotham
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The Grumman OV-1 Mohawk. (US Army)

Korea's demilitarized zone is the world's most elaborate tripwire, a ravaged strip of mine fields, barbed wire, and tank traps designed to slow an invasion. From fortified positions south of the zone, U.S. and Republic of Korea soldiers peer northward as if watching a long-dormant volcano for signs of eruption. They know that North Korea could react at any moment to its current dire economic condition by launching a military foray into the South

But for years U.S. commanders have relied on a set of eyes that look deep into the north from a vantage point high overhead and miles south of the DMZ. These eyes can instantly spot any vehicle movements and record them on film that is processed in seconds to be scanned and relayed to the ground. If even one truck were to move anywhere within a vast area to the north, U.S. commanders on the ground would know it within minutes. This powerful vision belongs to a combat-proven airborne radar system, and the system is mounted aboard one of the oddest looking tactical aircraft that has ever served the United States in combat: the Grumman OV-1 Mohawk. The Mohawk is also the only fixed-wing aircraft ever built specifically for the U.S. Army since the Air Force became a separate service in 1947. In September 1996, it flew its last mission over Korea and was retired after nearly 40 years of operations in two

wars over some of the most hotly contested geography on the planet. Despite its distinguished service record, the Mohawk remains largely unknown outside the small communities of men and women who flew, maintained, and loved the small, ungainly-looking aircraft.

"It's an unsung hero," says Russ Wygal, a pilot with the Army's 224th Military Intelligence Battalion at Hunter Army Airfield in Savannah, Georgia, the last stateside unit to fly the Mohawk. Wygal says that when he tells people he flew an OV-1, they often confuse it with the North American OV-10 Bronco, a twin turboprop developed specifically for counter-insurgency campaigns like the Vietnam war. "Then I have to describe what it looks like," he says. "It's not like an F-14 Tomcat, where everybody goes, 'Ooo, aah, Top Gun.'"

The OV-1 finally retired because it had been superseded by newer systems, newer aircraft, and the evolution of the satellite, which had been little more than a symbol of cold war one-upmanship when the Mohawk made its first flight on April 14, 1959. The OV-1 was designed to meet a joint Marine Corps-Army requirement for a short-takeoff-and-landing battlefield surveillance aircraft. It was intended to operate close to the front lines in support of unit commanders, and after the Marines dropped out of the project, development was continued for the Army. The first version, designated OV-1A, was configured to provide a platform for photographic and visual reconnaissance. Because form followed function, the result was an airplane with a large, bulbous cockpit, slender fuselage, and odd triple-tail arrangement; it looked like a cross between a helicopter, an airplane, and an insect.

The initial design called for a T-tail, with the horizontal stabilizer set atop the vertical fin, but because the aircraft had handling problems at low speed, Grumman adopted the Lockheed Connie-style three-tail arrangement. Two Lycoming turboprop engines sit atop the Mohawk's wings. Like many multi-engine airplanes, its engines are canted outward to improve handling when the aircraft is flown on only one engine. But Wygal, who was required to practice single-engine flight during training, likened the rudder pedal force required opposite the dead engine to being "in a gym doing leg presses with only one leg. It's very demanding."

The OV-1's roomy cockpit features large, bulging side windows that give the airplane a bug-eyed appearance and allow an unobstructed view of the ground immediately below. The pilot sits on the left, and a technician or observer sits on the right. Unlike other tactical aircraft in which the crew sat side by side, like the Air Force's F-111 or the Navy and Marine Corps' A-6, right-seaters on the Mohawk were almost always members of the enlisted ranks rather than officers. They were primarily responsible for monitoring the panoramic camera and surveillance systems while providing another set of eyes to scan the terrain below. Once it was in the air, there were no blind spots below: "You can lift the Mohawk 35 feet in the air and the pilot's vision and observer's vision will converge at a point directly underneath the aircraft," says Joel L. DiMaggio, who, as a Grumman production line worker, began an association with the Mohawk that would last the lifespan of the airplane.

The next version, the OV-1B, incorporated side-looking airborne radar (SLAR), which would ultimately shape one of the airplane's primary missions throughout its service life. The radar's antenna was contained within a long boom--like a big railroad tie--that was mounted below and to the right of the fuselage centerline, giving the Mohawk an even gawkier appearance. As the airplane flies along its assigned track, the radar creates a strip map of the terrain below and on either or both sides of the track. With this system, the Mohawk also gained the ability to detect moving targets, which would prove immeasurably valuable in Vietnam, along the borders of the former East Germany, along the DMZ in Korea, and ultimately, during the Gulf War. Over the relatively open terrain of Korea and Europe, Mohawks gathered SLAR intelligence by repeatedly flying over the same tactical areas and comparing the images.

"The reason you do it every day is that [the SLAR] is a surveillance and intelligence system, rather than just a target locating system," DiMaggio says. "You start out with a clean slate, look out there, and make a count on a road in East Germany, for instance, that normally has a certain number of vehicles going from one point to another. When things get hot, you begin to see more vehicles in different places--that's how you gather intelligence: by noting changes." DiMaggio, who after working on the Mohawk assembly line served four years in Germany and a year in Vietnam as a Grumman field representative, says that Mohawks could detect trucks and vehicles with SLAR and, using their infrared detectors, the hot engines of vehicles under cover at night. Once they were located by Mohawks, the targets could be attacked by fighter aircraft.

Successful SLAR missions required the Mohawk to provide an extremely stable platform while the radar scanned the land below, so most were flown on autopilot. However, straight-and-level is not the preferred flight orientation for a combat pilot. "It made you a sitting duck," said Gerry Durnell, who flew the OV-1 in Vietnam.

The OV-1C was the first Mohawk to be equipped with infrared systems, and they proved valuable for detecting Viet Cong guerrilla units, which were normally small, mobile, and hard to find. "The infrared Mohawks were able to pick up the heat from VC cooking fires," says Paul Reed, a former imagery analyst with both the Army and the Central Intelligence Agency. "There were a lot of VC that got very upset when artillery rounds came in on them while they were fixing breakfast."

The Mohawk's technological complexity gradually increased, but not the low-level, in-the-dirt nature of its missions. For pilots like Bob White, vegetation provided great protection as long as you kept the trees away from your wings. White was shot down while on a visual reconnaissance mission over the Mekong Delta in 1969. "We were real low, which was okay as long as you stayed close to the trees so you weren't in view very long. But we came out over an open area, and I'm sure that's when I got hit." White, who estimates he was at 50 feet and 150 knots when small arms fire set his right engine ablaze, suffered a compression fracture in his back when he ejected. He was captured and became a POW.

When they weren't dodging trees or hostile fire, Mohawk pilots were coping with acute discomfort. "You'd just be ringing wet in the summertime, which was most of the time in Vietnam," Durnell says. Before they were equipped with air conditioning, Mohawks had only vents that let in blasts of outside air, and the huge expanse of plexiglass turned the cockpit into a greenhouse.

In addition to their Vietnam and European service, SLAR-equipped Mohawks began operational missions in 1963 patrolling the 151-mile-long DMZ separating North and South Korea. "Until they were retired recently, they had been flying the same mission [in Korea] day and night for the past 32 years," says Reed, who was responsible for writing the operations plans to place the first Mohawk unit in Korea. The Army is currently flying a militarized version of the de Havilland DH-7 turboprop commuter airliner equipped with a SLAR system until JSTARS (Joint Surveillance Target Attack Radar System) aircraft, converted Boeing 707s with powerful side-looking radar, begin patrolling the DMZ. The difference between the capability of the Mohawk and JSTARS "is like comparing the abacus to the computer," DiMaggio says.

While many associated with the Mohawk understand the necessity to replace aging airframes and technology, some still question how quickly the information the Mohawk used to provide to front-line small-unit commanders will be distributed with new systems. "The Mohawk means more control on a smaller level," says Gulf War veteran Benny Hardman, a former Mohawk pilot and maintenance officer. "It seems to me that in the military intelligence field, it's going to be much more difficult for good, quick, accurate information to filter down to the battalion commander's level with JSTARS."

Mohawks were to get one last chance to fly the type of battlefield support mission they were designed for. Mike Summerville, who spent more than six months in Saudi Arabia as an OV-1 crew chief and flightline supervisor during the Gulf War, says the Mohawk was tested by long missions and harsh conditions. As the conflict intensified, Mohawks from stateside and European military intelligence units were deployed to the Gulf to begin flying reconnaissance sorties. Summerville's unit deployed 16 aircraft across the North Atlantic to the Gulf region, flew 10- to 12-hour missions around the clock, and returned to Fort Hood, Texas, without losing an aircraft. "Grumman Iron Works--that's the whole way to describe it, plain and simple," Summerville says, citing the time-honored slogan of reverence for Grumman-built aircraft.

Yet missions took their toll on men and machine alike. "When I didn't fly a mission, I was usually on the phone or the fax machine at night looking for parts," Hardman says. Hardman and his fellow pilots benefitted from field modifications to the Mohawk's SLAR boom, which was used to pinpoint Iraqi vehicle movements. "The Motorola guys helped us tweak the SLAR system out to its maximum range," Hardman says. The Mohawks flew pre-determined courses over friendly and unfriendly territory constantly scanning the desert for vehicle movements. In addition, special RV-1D Mohawks equipped to collect electronic-signal intelligence pinpointed and reported the location of Iraqi radar systems.

Crews of SLAR-equipped Mohawks provided instant intelligence results to airborne command and control aircraft and were data-linked to ground-based imagery analysts. "We could report 'Fifty movers along a ridge line,' for instance, and they could send an inbound sortie to attack the target," Hardman says. "We also talked to AWACS [Airborne Warning and Control System aircraft], who would let us know when there was a fast-moving aircraft coming in. Then we'd decide if we wanted to break track and get out of there."

Despite the Mohawks' dependable service in the desert, what the world saw on television were guided missiles piercing hangars and flying down airshafts while the OV-1s and their crews remained where they always were--in the background. "There were Mohawks in the air 24 hours a day, but they got absolutely no recognition," Reed says.

Exclusion from the headlines in its last campaign served only to strengthen the close-knit Mohawk fraternity. Its members became closer still when the OV-1's retirement came and went without fanfare. For most Americans, it was like the passing of a distant relative: It's hard to miss someone you never really knew. As the OV-1 was withdrawn from service in steps--first in Europe in 1992, then from Korea in September 1996, and finally, after retirement ceremonies during that same month, in Savannah, Georgia--there remained only one place for Mohawk lovers to turn. Elvis fans have their Graceland. Film buffs head west to Hollywood. For "Mohawkers," there's Anoka County Airport, north of Minneapolis, Minnesota.

Former Mohawk pilot Mike Langer, founder of the American Wings Air Museum, oversees a growing collection of aircraft used for reconnaissance, training, forward air control, and liaison, including 12 Mohawks in various stages of completion or restoration. The museum had three flyable Mohawks until a 90-mph wind gust severely bent one airplane's right main landing gear.

A partially restored Mohawk procured through a chance encounter with a military surplus catalog rests in the museum's hangar. "In paging through the catalog," Langer says, "I found that one of the aircraft available was the same Mohawk that I had put in at least half of my flight time in Vietnam. I said, 'I've got to have it, and I don't care if it never flies again'.I've got to have it.'"

Langer, who had gained restoration experience working on a Beechcraft T-34 Mentor, submitted the winning bid and trucked the airplane to Minnesota. Seeking help from Grumman officials, Langer received technical manuals and drawings but was told that only a non-profit museum or foundation was likely to obtain new parts. "I thought, there are a lot of little one-horse and one-hangar museums, particularly in the Midwest, and I've been able to pigeonhole enough interesting stuff in the last 15 years, so why don't I form a museum?" Langer says.

After four years spent securing donations and getting legal details ironed out, the American Wings Air Museum was born. Due in part to his insistence that the museum focus on the type of aircraft Langer and his volunteers knew best, the organization's credibility grew. "Our charter is four-fold: We're into photo reconnaissance, gunships, forward air control, and

trainers," Langer says. "We're fairly knowledgeable, and we're beginning to be pretty respected in those areas."

Bob Johnson, a former Mohawk crew chief who served in Vietnam, knew nothing about the Mohawk Association, but three years ago, a Mohawk flew over his house near an airport hosting a fly-in. "I just couldn't believe it," Johnson says. "I hadn't seen one since 1971." Johnson hurried to the airport, met Langer, and has been a faithful Saturday volunteer ever since.

"We do things right, by the book," says Dave Mattsson. A Northwest Airlines mechanic, Mattsson maintains all the operational Martin-Baker ejection seats found in the museum's Mohawks. "If I'm gonna go up in one of these things, I want to trust the pilot, and if I've got an escape system, I want to trust that too."

"Mohawks aren't going to retire up here," says Mike Summerville. "This will always be a home for them as long as there's someone to fly them and maintain them." The turboprop whine of the OV-1 may have been silenced by decisions made in distant Pentagon offices, but after the close of a 37-year career, the story will continue, at least as long as there are evenings and weekends free for Langer's volunteers to turn a wrench.