

Grumman OV-1 Mohawk



A U.S. Army OV-AD Mohawk.

Role: Light Attack and Observation Aircraft
Manufacturer: Grumman
First Flight: 14 April 1959
Introduction: October 1959
Status: Retired
Produced: 1959 – 1970
Number built: 380

The **Grumman OV-1 Mohawk** is an American armed military observation and attack aircraft that was designed for battlefield surveillance and light strike capabilities. It has a twin turboprop configuration, and carries two crew members in side-by-side seating. The Mohawk was intended to operate from short, unimproved runways in support of United States Army maneuver forces.

Design and Development

The Mohawk began as a joint Army-Marine program through the then-Navy Bureau of Aeronautics (BuAer), for an observation/attack plane that would outperform the Cessna L-19 Bird Dog. In June 1956, the Army issued Type Specification TS145, which called for the development and procurement of a two-seat, twin turboprop aircraft designed to operate from small, unimproved fields under all weather conditions. It would be faster, with greater firepower, and heavier armor than the Bird Dog, which had proved vulnerable during the Korean War. The Mohawk's mission would include observation, artillery spotting, air control, emergency resupply, naval target spotting, liaison, and radiological monitoring. The Navy specified that the aircraft must be capable of operating from small "jeep" escort class carriers (CVEs). The DoD selected Grumman Aircraft Corporation's G-134 design as the winner of the competition in 1957. Marine requirements contributed an unusual feature to the design. As originally proposed, the OF-1 could be fitted with water skis that would allow the aircraft to land at sea and taxi to island beaches at 20 knots (37 km/h). Since the Marines were authorized to operate fixed-wing aircraft in the close air support (CAS) role, the mockup also featured underwing pylons for rockets, bombs, and other stores.

The Air Force did not like the armament capability of the Mohawk and tried to get it removed, while the Marines did not want the Army's sophisticated sensors. However, the Navy then opted to spend the allocated budget on a fleet oil tanker instead, so the Marines had to drop out of the program in September 1957. The Army continued with armed Mohawks and developed cargo pods that could be dropped from underwing hard points to resupply troops in emergencies.

The radar imaging capability of the Mohawk was to prove a significant advance in both peace and war. The Side-Looking Airborne Radar (SLAR) could look through foliage and map terrain, presenting the observer with a film image of the earth below only minutes after the area was scanned. In military operations, the image was split in two parts, one showing fixed terrain features, the other spotting moving targets.

The prototype (*YAO-IAF*) first flew on April 14, 1959. The OV-1 entered production in October 1959.

In mid-1961, the first Mohawks to serve with U.S. forces overseas were delivered to the 7th Army at Sandhofen Airfield near Mannheim, Germany. Before its formal acceptance, the camera-carrying AO-1AF was flown by Ralph Donnell on a tour of 29 European airfields to display it to the U.S. Army field commanders and potential European customers. In addition to their Vietnam and European service, SLAR-equipped Mohawks began operational missions in 1963 patrolling the Korean Demilitarized Zone. Germany and France showed early interest in the Mohawk, and Grumman actually signed a license production agreement with the French manufacturer Breguet Aviation in exchange for American rights to the Atlantic maritime patrol aircraft.

The very nature of the joint Army/Marine program had forced design compromises, such as ejection seats, that made the aircraft expensive and, sometimes, an openly resisted item in Army budgets. Orders for the OV-1 stopped in Fiscal 1964, and the controversy in the Pentagon over the armed Mohawk peaked with a 1965 directive that prohibited the Army from operating armed fixed-wing aircraft (See the Johnson-McConnell agreement of 1966). Operational success in Vietnam led to

additional Mohawk orders in 1966, and by 1968, five surveillance companies were operating in Southeast Asia.

The last of the Mohawk versions to enter production was the OV-1D with more powerful T53-L-701 engines, improved avionics, and interchangeable mission pallets that made it possible to switch the aircraft from infrared to SLAR configuration in about an hour. The first four OV-1Ds were prototypes converted from earlier production airframes, and the first flew in 1969. These were followed by 37 new-build aircraft, the last of which was delivered in December 1970.

Over the years, the mission and the aircraft underwent many changes and roughly 380 were built over all variants. Mohawk variants included the JOV-1 [armed reconnaissance], OV-1A, [visual and photographic], OV-1B [visual, photographic, and side-looking radar (SLAR) pod], the OV-1C [visual, photographic, and infrared], and the OV-1D (SLAR pod and bigger wings), OV-1E [enlarged fuselage for more sensor operators or cargo], EV-1E [special electronic intelligence installation] and RV-1E [advanced ELINT reconnaissance]. A four-engine Model 134E with tiltwings and tail ducted fan for control for VTOL was proposed to the Army but not built. Model 134R was a tandem cockpit version offered to meet the Light Armed Reconnaissance Aircraft (LARA) requirement, but the NA300 was chosen instead becoming the OV-10.

Operational History

The U.S. Army flew the OV-1 operationally in the Vietnam War, with sixty-five lost to accidents and ground fire, and one shot down by a North Vietnamese fighter.

In early 1968, while flying an OV-1 over South Vietnam, U.S. Army Captain Ken Lee shot down a MiG-17 “Fresco” fighter jet with his XM14 .50 in. (12.7 mm) caliber gun pods as well as two M159 unguided rocket pods, becoming the only Army Aviator to ever down a MiG. Due to the Key West Agreement, the Army tried to keep the shootdown a secret for fear that it would allow the USAF to transfer Mohawks to its inventory. Lee's kill was finally formally recognized by the Army in 2007.

The Army also used the aircraft during Operation Desert Storm.

Starting in 1972, the Army National Guard (ARNG) began to receive the Mohawk, with the ARNG eventually operating thirteen OV-1Bs, twenty-four OV-1Cs, and sixteen OV-1Ds serving with three aviation units in Georgia and Oregon. The Oregon Army National Guard Unit operating the Mohawk was located at McNary Field in Oregon, initially as the 1042nd Military Intelligence Company (Aerial Surveillance), then reflagged as the 641st Military Intelligence Battalion (CEWI) (Aerial Exploitation).

U.S. Army OV-1s were retired from Europe in 1992, from South Korea in September 1996, and finally in the United States in 1996, superseded by newer systems, newer aircraft, and the evolution of reconnaissance satellites. The OV-1 was primarily replaced by the EO-5C, a militarized version of the de Havilland Canada Dash 7 turboprop airliner equipped with a SLAR system, until the U.S. Air Force's Northrop Grumman E-8 Joint STARS (Joint Surveillance Target Attack Radar System) aircraft became fully operational.

As of 2011, Alliant Techsystems partnered with the Broadbay Group and Mohawk Technologies of Florida in a venture to return an armed, modernized version of the OV-1D to operational use as a counter-insurgency aircraft. A demonstrator was equipped with a FLIR Star Safire turret and a ventral, trainable M230 chain gun.



MAPS OV-1A – Serial Number 63-13128



The airframe at the MAPS Air Museum is a Grumman OV-1A version carrying Serial Number 63-13128. Built in late 1963, it was delivered to the U.S. Army in November of 1964.

The initial assignment for this Mohawk was with the 20th Aerial Surveillance Target Acquisition (ASTA) detachment at Fort Riley, Kansas. It arrived on 1 July 1965.

On 15 January 1966, the aircraft was sent overseas and assigned to the 120th ASTA Detachment, Nha Trang, South Vietnam.

On 15 February 1966, it was reassigned to Phu Bi, South

Vietnam when the 120th ASTA was relocated.

On 31 May, 1966, it was assigned to the 131st Aviation Company, Phu Bi, South Vietnam. It was damaged by ground fire in 1969 and returned to Grumman for rebuild.

In 1970, 63-13128 was transferred to the U.S. Navy with Bureau Number 313128.

The next record of this airframe was when it was photographed at the Navy Test Pilot School Naval Air Station Patuxent River, Maryland on 1 June 1972.

In December of 1976, the OV-1A was Struck off Charge with the U.S. Navy and relocated to the Military Aircraft Storage and Disposition Center (MASDC), Davis-Monthan AFB, Arizona.

On 28 July 1977, the airframe was recovered and moved to the Pittsburgh Institute of Aeronautics at West Mifflin, Pennsylvania and registered with tail number N2036P. It was used as a ground trainer.

On 8 December 1997, the OV-1A was sold to Transupport, Inc. located at Merrimack, New Hampshire. It was registered with the FAA with tail number N87864.

In June of 2003, the aircraft was placed on loan to America Wings Air Museum, Anoka County, Minnesota and registered with the FAA as N2036P.

On 16 November 2018, OV-1A, Serial Number 63-13128 arrived at MAPS for restoration and display.

1965.

Variants:

YAO-1 (YOV-1A)

Initial prototypes (9 built).

OV-1A (AO-1AF)

Daylight observation variant (64 built). Short wingspan (42 ft).

OV-1A - Pittsburgh Institute of Aeronautics

Fitted with two additional Westinghouse J34 jet engines. A non-flying, mixed-power, testbed, operated by the Pittsburgh Institute of Aeronautics (1 conversion).

OV-1B (AO-1BF)

SLAR variant (101 built). Long wingspan (48 ft).

OV-1C (AO-1CF)

IR reconnaissance variant (169 built). Short wingspan (42 ft).

OV-1D

Consolidated sensor variant (37 new, 82 conversions). Long wingspan (48 ft).

JOV-1A

OV-1As and OV-1Cs fitted with armament (59 conversions).

RV-1C

Quick Look ELINT machines (two conversions).

RV-1D

Quick Look II ELINT machine (31 conversions).

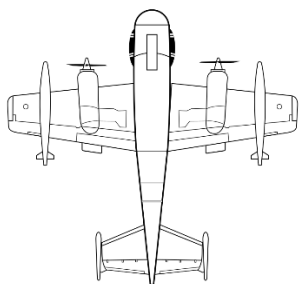
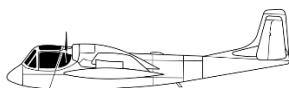
EV-1E

Quick Look III ELINT machine (16 conversions).

OV-1E

Prototype for unproduced modernized variant (1 built).

Specifications (OV-1D Mohawk)



- **Crew:** 2
- **Length:** 41 ft 0 in (12.50 m)
- **Wingspan:** 48 ft 0 in (14.63 m)
- **Height:** 12 ft 8 in (3.86 m)
- **Wing area:** 360 sq ft (33 m²)
- **Aspect ratio:** 5.35:1
- **Airfoil:** NACA 2412
- **Empty weight:** 12,054 lb (5,468 kg)
- **Gross weight:** 15,544 lb (7,051 kg) (Normal take-off weight, IR mission)
- **Max takeoff weight:** 18,109 lb (8,214 kg) (SLAR mission)
- **Fuel capacity:** 276 US gal (230 imp gal; 1,040 L) internal fuel
- **Powerplant:** 2 × Lycoming T53-L-701 turboprops, 1,400 shp (1,000 kW) each

- **Propellers:** 3-bladed Hamilton Standard Type 53C51-27 constant-speed propellers, 10 ft 0 in (3.05 m) diameter

Performance

- **Maximum speed:** 305 mph (491 km/h, 265 kn) (IR mission)
- **Cruise speed:** 207 mph (333 km/h, 180 kn) (econ. cruise)
- **Stall speed:** 84 mph (135 km/h, 73 kn)
- **Never exceed speed:** 450 mph (720 km/h, 390 kn)
- **Range:** 944 mi (1,519 km, 820 nmi) with external tanks (SLAR mission)
- **Endurance:** 4.35 hr (SLAR mission)
- **Service ceiling:** 25,000 ft (7,600 m)
- **Rate of climb:** 3,466 ft/min (17.61 m/s) (SLAR mission)
- **Take-off to 50 ft (15 m):** 1,175 ft (358 m)
- **Landing run from 50 ft (15 m):** 1,060 ft (320 m)