

THE
Grumman
MOHAWK
FOR CLOSE SUPPORT

9/1961

MULTI-MISSION VERSATILITY PRODUCES

THE GRUMMAN MOHAWK

The Grumman Mohawk is a two-place, twin turboprop STOL airplane designed for multi-mission duties with today's armies. It is currently in operational status with the U.S. Army as an all-weather surveillance aircraft. Its capabilities in this role include visual, photographic, and electronic surveillance, as described in more detail in "The Grumman Mohawk for Export" brochure.

As with all Grumman products, versatility is a keynote in the design. This brochure briefly outlines the capabilities which make the aircraft a powerful weapon for support of ground operations.



MAXIMUM OPERATIONAL EFFECTIVENESS AT MINIMUM EXPENDITURE.

STOL CAPABILITY

The STOL capability of the Mohawk is evidenced by its take-off and landing ground roll distances of 158.5 m (520 ft) and 119 m, (390 ft) respectively. Lycoming T53 turboprop engines, combined with Hamilton Standard hydromatic propellers, produce up to 3630 kg (8,000 lb) of thrust to give the Mohawk its exceptional performance. High power plus high lift means greater load carrying ability which permits operation from small, unimproved areas. The reversible-pitch propellers provide power plant braking action for positive stops on all types of landing surfaces.

Close air support for the ground forces need no longer be limited by long runway and fixed-base requirements. The STOL Mohawk can operate with the troops wherever they may be.

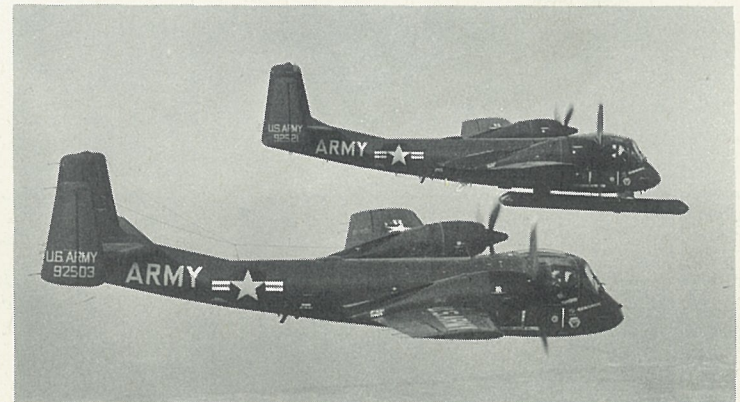
MISSION VERSATILITY

Up to 10 external store stations are available for a wide variety of stores and weapons. Basic airplane design, together with this stores versatility, makes the Mohawk equally effective for close support, low level attack, tactical observation, photographic surveillance, training, and escort.

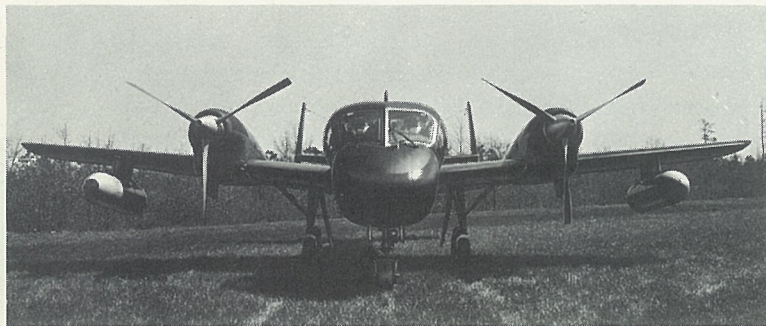
MULTI-BASE OPERATION

The use of low pressure tires permits operation from unprepared fields, grass surfaces, and rough terrain. Still greater mobility and utility are achieved by means of skis, which can be readily installed with the standard landing gear for operation from snow, ice, and soft natural terrain, as well as prepared surfaces.

A TWO-PLACE, TWIN-TURBOPROP,



STOL AIRPLANE FOR CLOSE SUPPORT



OPERATIONAL SIMPLICITY

The Mohawk is commended for its ease of handling by pilots and ground crews alike. Excellent natural stability and responsiveness of both airplane and engines to control commands are the special attributes which make the aircraft simple and easy to fly. For maintenance personnel, systems and equipment are readily accessible and free of complexity. Low airplane height, gravity fueling system, and self-contained starting unit permit servicing and turn-around without any auxiliary ground support equipment.

LOW MAINTENANCE

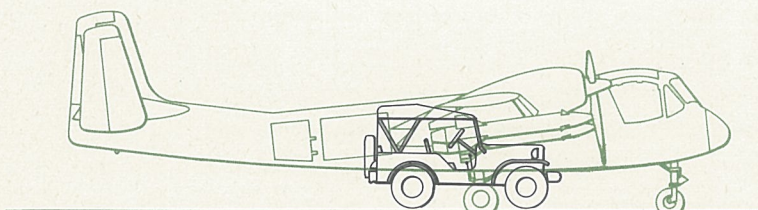
The Mohawk boasts the same rugged construction and trouble-free operation which has always characterized Grumman airplanes. The reliability and long fatigue life of the more than 23,000 Grumman-produced fighter/attack aircraft have been proven by their outstanding service availability record, under the rigorous conditions of carrier-based operations and front-line combat during World War II and the Korean conflict. Designed for a 10-year minimum service life, the Mohawk similarly affords low maintenance requirements and maximum operational availability.

EARLY AVAILABILITY

The Mohawk is a proven, "off-the-shelf" airplane. In quantity production for the U.S. Army since 1959, the aircraft has undergone exhaustive flight trials and rigorous evaluations by U.S. military personnel.

SMALL SIZE FOR:

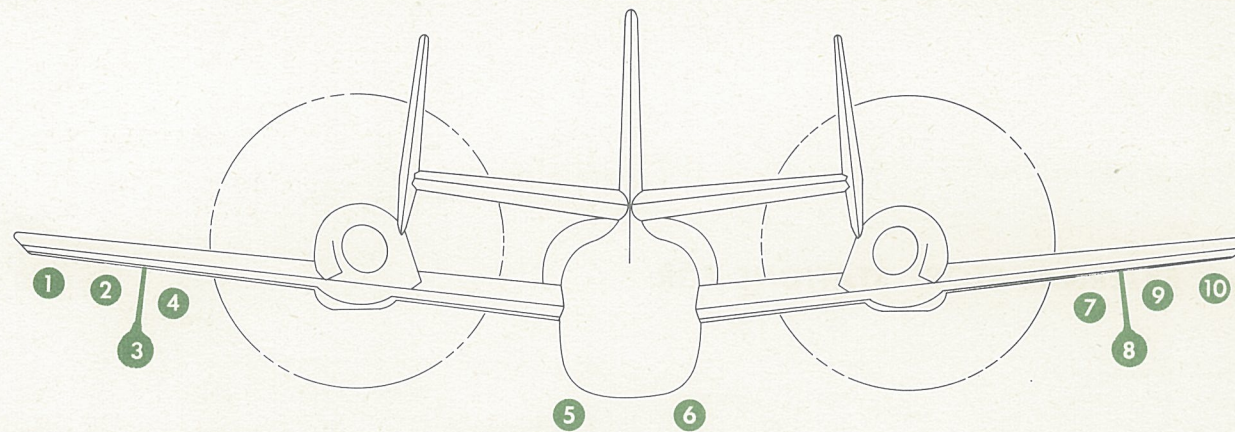
- Operation from restricted and unimproved areas.
- Wide operational dispersion on the ground, even in mountainous or wooded sectors.
- Concentration of combat units outside the limits of vulnerable fixed bases and primary target areas.
- Rapid deployment to strategic points.
- Transportability by air.
- Concealment for secrecy.
- Avoidance of detection by enemy radar.
- Ease of servicing for quick turn-around and high aircraft utilization.
- Low maintenance and logistics costs.



The diminutive size of the Mohawk, combined with its extended ferry range (carrying 1136-litre (300-gal) external fuel tanks) of 2840 km (1537 n mi) and service ceiling of over 7620 m (25,000 ft), allow virtually unrestricted operation as well as deployment anywhere in the world. The airplane can also be transported to strategic points by C-124, C-130, and C-133 cargo aircraft, when particular conditions warrant such conveyance.

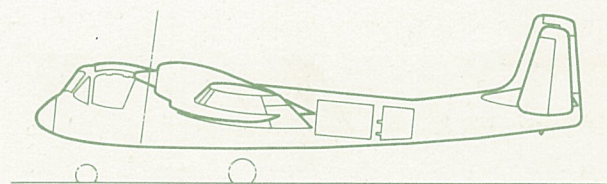
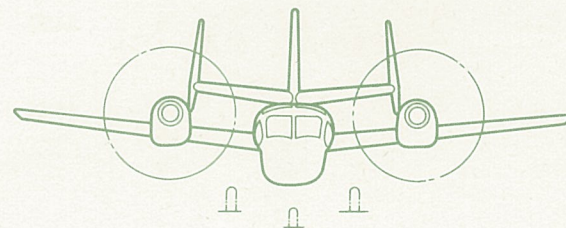
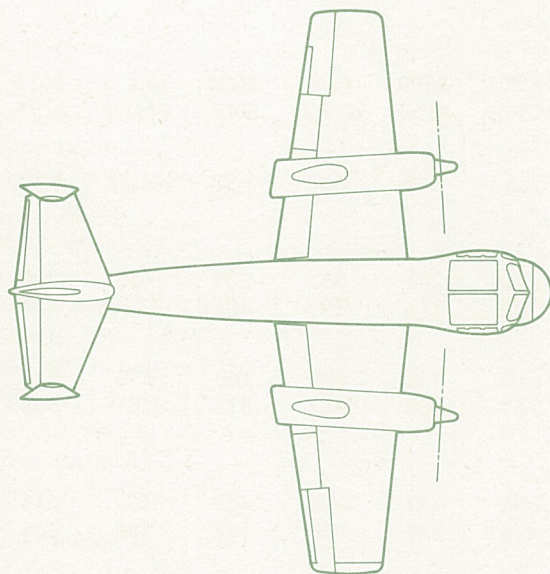
In areas of conflict, the Mohawk, by virtue of its size, can be secured against enemy observation by dispersal in woods or rough terrain from which it can be dispatched for surveillance missions or surprise attacks on hostile forces.

The small size and simplicity of the airplane also contribute greatly to economy of operation by simplifying maintenance and service procedures and minimizing the need for replacement parts and ground support equipment.



STORE STATIONS*		1	2	3	4	5	6	7	8	9	10
CAPACITY	Kg Lb	227 500	227 500	227 500	453 1000	227 500	227 500	453 1000	227 500	227 500	227 500
Bullpup Missile		←→		←→					←→		←→
AERO 6A Pod (7 Rd 2.75-in. FFAR)		→	→							→	→
AERO 7D Pod (19 Rd 2.75-in. FFAR)		→	→							→	→
LAU-10/A Pod (4 Rd 5.00-in. FFAR)		→	→							→	→
Resupply Container					→			→			
Drop Tank, 568 Liters (150 Gal)					→			→			
Drop Tank, 1136 Liters (300 Gal)					→			→			
Smoke Tank					→			→			
Tow Target Container					→			→			
Gun Pod, 7.62 mm						→	→				
Vulcan Gun, M-61 20 mm							→				
GP Bomb, 453 Kg (1000 Lb)					→			→			
AP Bomb, 453 Kg (1000 Lb)					→			→			
DML Bomb, 453 Kg (1000 Lb)					→			→			
Napalm Bomb, 453 Kg (1000 Lb)					→			→			
Frag Cluster, 372 Kg (820 Lb)					→			→			
Frag Cluster, 312 Kg (688 Lb)					→			→			
Frag Cluster, 227 Kg (500 Lb)		→	→		→	→	→	→	→	→	→
Frag Bomb, 118 Kg (260 Lb)		→	→		→	→	→	→	→	→	→
Frag Bomb, 100 Kg (220 Lb)		→	→		→	→	→	→	→	→	→
GP Bomb, 227 Kg (500 Lb)		→	→		→	→	→	→	→	→	→
AP Bomb, 227 Kg (500 Lb)		→	→		→	→	→	→	→	→	→
GP Bomb, 113 Kg (250 Lb)		→	→		→	→	→	→	→	→	→

*Store stations 4 & 7 are available for immediate use, stations 1, 2, 9, and 10 have structural provisions in the wing with stations 5 and 6 becoming available after minor structural modifications. An adapter to store stations 2 and 4, and 7 and 9 provides for stations 3 and 8. Store stations 1, 2, 4, 7, 9, and 10 can accommodate the NORAD aviation AS-11 and AS-12 guided missiles. E-33 smoke tanks may be carried on store stations 4 and 7.

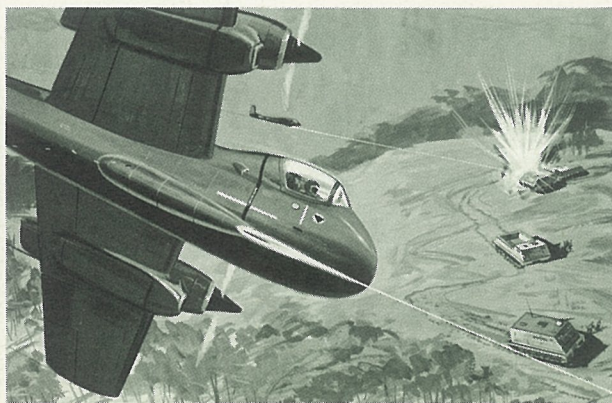


2 Lycoming T-53-L-3 Engines—1005 ESHP Each
 2 Hamilton Standard 53C51 3-Blade, 3-m (10-ft) Diameter, Hydro-
 matic, Full-Feathering, Reversible-Pitch Propellers

Wing Span	12.8 m	42 ft 0 in.
Overall Length	12.5 m	41 ft 0 in.
Max. Height	3.86 m	12 ft 8 in.
Wing Area	30.65 sq m	330 sq ft
Main Gear Tread	2.8 m	9 ft 2 in.
Take-Off Gross Weight	5,432 kg	11,978 lb

EXTERNAL STORE STATIONS FOR:

- Missiles, bombs, rockets, and gun packages for ground attack, combat training, and air escort missions.
- Fuel tanks for increased range.
- Resupply containers for delivery of provisions to ground troops and disaster areas.
- Sensory equipment pods for electronic surveillance missions.
- Dispensers for wire-laying operations.
- Tow target containers.



The effectiveness of an aircraft in the ground support role is determined primarily by payload capacity and delivery rate. In this respect, the Mohawk excels. Although small in size, the airplane offers unusually large load carrying ability, plus high speed and STOL performance for minimum mission time.

Up to 10 external store stations are provided to accommodate a wide assortment of weapons, tanks, and equipment pods. A total of 1814 kg (4000 lb) of stores can be carried in many different combinations, consistent with the mission requirements and weight limitations for each store station. The airplane is also equipped with landing lights, flares, and navigational equipment for round-the-clock operation.

The multiplicity and variety of stores which can be used with the Mohawk assure maximum mission effectiveness.

M-61 20 mm VULCAN GUN

In its role as a close support aircraft, the Mohawk is capable of carrying the 20 mm Vulcan. The gun is located on the bottom of the aircraft, 69.9 cm (27-1/2 in.) to the right of the fuselage center line. It is contained in a blister fairing fully accessible from the ground. Ammunition is fed to the weapon from number 2 equipment compartment. Eight hundred rounds of ammunition may be carried for each mission with a firing rate of 4000 shots per minute.

Incorporation of the M-61 Gun in the Mohawk provides a weapon with great fire power and the means of getting that fire power where it can most adequately be used—in close support of the combat troops.

PERFORMANCE

TYPICAL CONFIGURATIONS			NO EXTERNAL STORES	2-7.62 MM POD 4-LAU-10/A	2-7.62 MM POD 4-AERO 7D	2-7.62 MM POD 4-BULLPUPS	8-227 KG BOMBS					
GROSS WEIGHT												
Take Off	Kg	Lb	5432	11,978	6679	14,728	6487	14,304	6872	15,152	7398	16,314
Landing												
10% Fuel Remaining	Kg	Lb	4644	10,241								
With Expendables	Kg	Lb	—	—	5892	12,991	5699	12,567	6084	13,415	6611	14,577
Less Expendables	Kg	Lb	—	—	4857	10,709	4857	10,709	5001	11,025	4797	10,577
Max. Landing Sink Rate												
With Expendables	M/Sec	Ft/Sec	—	—	1.98	6.5	1.98	6.5	1.98	6.5	1.83	6.0
Take-Off Distance (Max. Effort)*												
Without JATO Units												
Ground Roll	M	Ft	159	520	216	710	203	665	232	760	320	1050
Over 15 m (50 ft) Obs.	M	Ft	296	970	393	1288	371	1217	405	1330	476	1560
With JATO Units												
Ground Roll	M	Ft	108	355	155	510	146	480	168	550	216	710
Over 15 m (50 ft) Obs.	M	Ft	212	695	294	965	280	920	311	1020	368	1205
Landing Distance												
With Expendables												
Over 15 m (50 ft) Obs.	M	Ft	213	700	454	1490	447	1465	465	1525	518	1700
Ground Roll	M	Ft	119	390	143	470	140	460	148	485	158	520
Less Expendables												
Over 15 m (50 ft) Obs.	M	Ft	—	—	223	730	223	730	227	745	219	720
Ground Roll	M	Ft	—	—	123	405	123	405	126	415	122	400
Rate of Climb at Sea Level	M/Min	Ft/Min	871.7	2860	576	1890	602	1975	555	1820	488	1600
Max. Level Flight Speed												
With Expendables Less 40% Fuel												
At Sea Level	Km/Hr	Kn	474	256	420	227	417	225	424	229	433	234
At 1524 m (5,000 ft)	Km/Hr	Kn	476	257	422	228	419	226	426	230	435	235
At 6096 m (20,000 ft)	Km/Hr	Kn	469	253	383	207	396	214	383	207	369	199
Less Expendables												
At Sea Level	Km/Hr	Kn	—	—	459	248	459	248	454	245	461	249
At 1524 m (5,000 ft)	Km/Hr	Kn	—	—	463	250	463	250	456	246	463	250
At 6096 m (20,000 ft)	Km/Hr	Kn	—	—	456	246	456	246	444	240	457	247

*To reduce the take-off distance on missions where maximum store delivery is required, two 452-kg (1000-lb) JATO units can be accommodated on the aft portion of the fuselage. Both JATO units may be jettisoned after burn-out.

PERFORMANCE (cont)

TYPICAL CONFIGURATIONS

NO EXTERNAL STORES 2-7.62 MM POD 4-LAU-10/A 2-7.62 MM POD 4-AERO 7D 2-7.62 MM POD 4-BULLPUPS 8-227 KG BOMBS

MACH = .65 OR EQUIVALENT AIRSPEED = 722 Km/Hr (390 Kn)

Max. Dive Speed

Stall Speed—Landing Wgts

With Expendables	Km/Hr	Kn	115	62	141	76	137	74	144	78	156	84
Less Expendables	Km/Hr	Kn	—	—	119	64	119	64	122	66	119	64

Minimum Turning Radius (Clean)*

With Expendables	M	Ft	197	645	288	945	271	890	305	1000	372	1220
Less Expendables	M	Ft	—	—	210	690	210	690	219	720	207	680

Minimum Turning Radius**

With Expendables	M	Ft	93	304	152	500	138	454	167	547	229	751
Without Expendables	M	Ft	—	—	100	329	100	329	105	345	98	320

Mission Radius

Sea Level Penetration

With Expendables	Km	N Mi	351	189.5	296	160	298	161	302	163	298	161
Round Trip												
Less Expendables	Km	N Mi	—	—	319	172	319	172	320	173	320	173
One Way												

Mission At Altitude***

With Expendables	Km	N Mi	511	276	359	194	363	196	357	193	348	188
Round Trip												
Less Expendables	Km	N Mi	—	—	402	217	406	219	398	215	398	215
One Way												

Mission Time

Sea Level Mission

With Expendables												
Round Trip	Hr	Hr	2.05	2.05	1.73	1.73	1.77	1.77	1.71	1.71	1.64	1.64
Less Expendables												
One Way	Hr	Hr	—	—	1.85	1.85	1.87	1.87	1.83	1.83	1.81	1.81

Mission At Altitude***

With Expendables												
Round Trip	Hr	Hr	2.61	2.61	2.02	2.02	2.06	2.06	1.99	1.99	1.92	1.92
Less Expendables												
One Way	Hr	Hr	—	—	2.19	2.19	2.22	2.22	2.20	2.16	2.20	2.20

*60% Internal Fuel, Clean Configuration, Constant Altitude and Airspeed, MRP.

**10% Internal Fuel, Wheels and Flaps Down, Constant Altitude and Airspeed, MRP.

***Mission flown out at 4572 m (15,000 ft) and flown back at 7,620 m (25,000 ft) after dropping expendables.

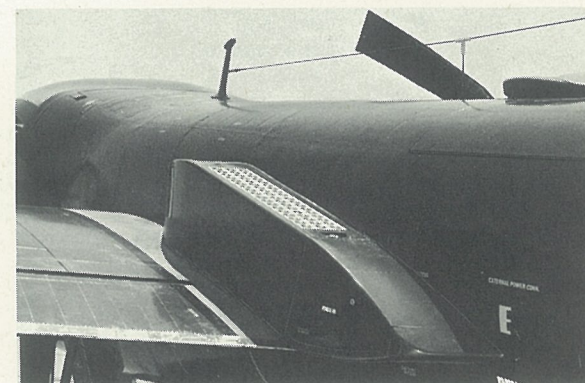
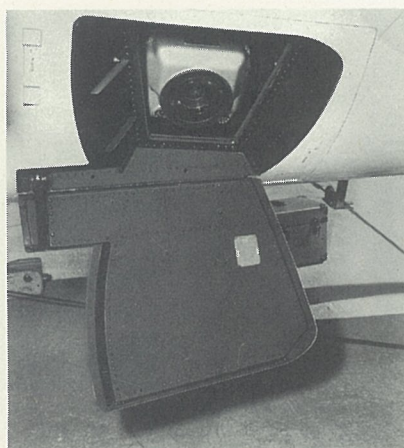
In peacetime, as well as for armed conflict, aerial photos are a source of valuable information—and the Mohawk is an ideal photographic platform for the task of supplying day or night picture coverage. A large compartment is designed into the fuselage mid-section for installation of photographic equipment. Any one of several cameras and various lens cones can be utilized, depending

upon the capabilities desired. Space is also designed into the nose section for installation of a forward firing camera.

For night photographic missions, 52 flares can be provided in each of two upward-firing flare pods mounted externally at the wing root.

Gun camera installations may be made in either the nose cap area or firing through the windshield.

CAMERA AND FLARE PROVISIONS FOR: • Day and night photographic reconnaissance. • Aerial mapping. • Gun camera capability.



TYPICAL PHOTO EQUIPMENT OPTIONS

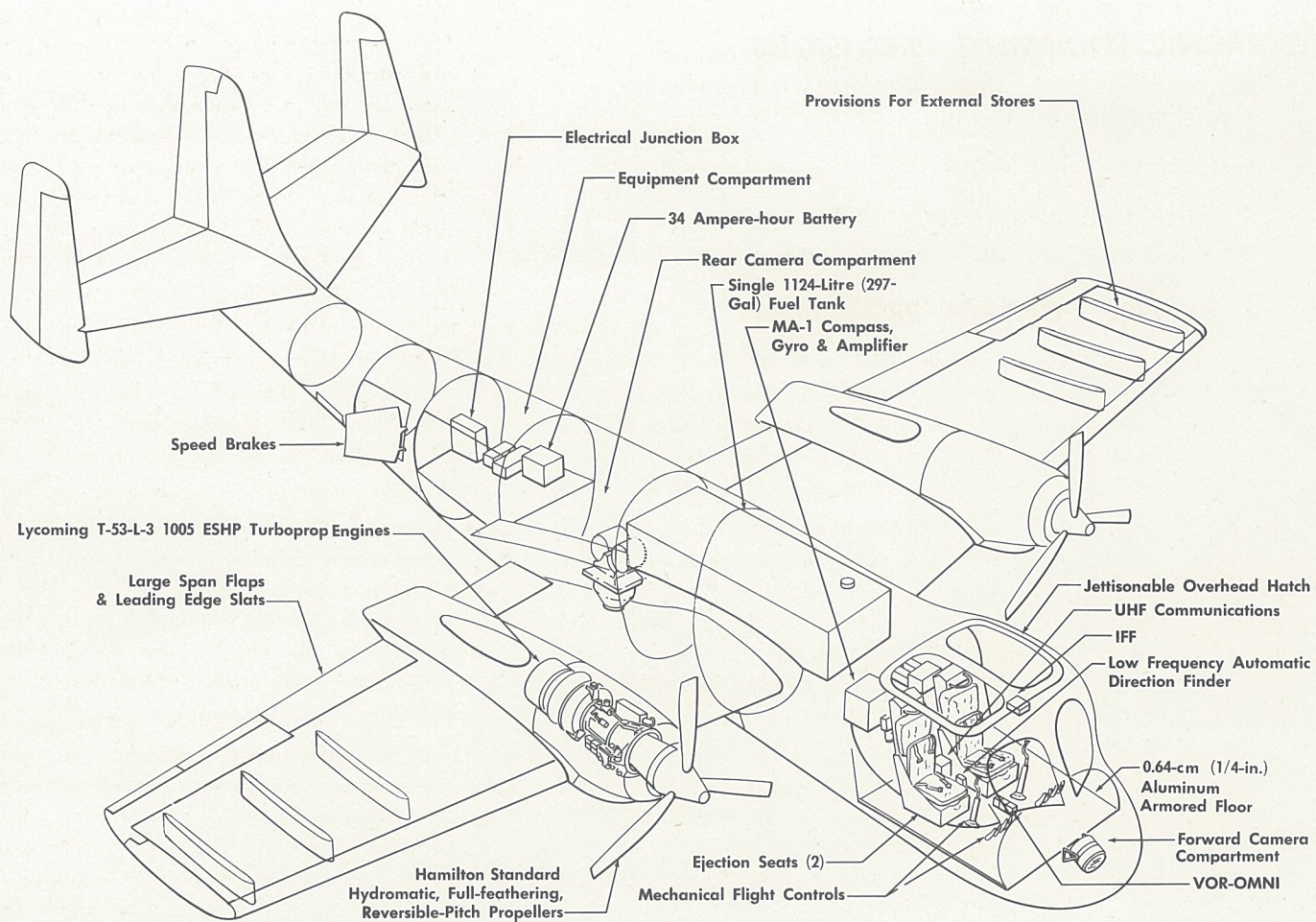
U.S. Air Force Designation	U.S. Navy Designation	Operation
—	KA-30	Day and Night
—	(Fairchild PTS)	Day and Night
F-56	CA-1c	Day
K-17c	CA-3-2	Day
K-17b	CA-3-1	Day
—	CA-3-2b	Day
P-2	KB-10a	Day
—	KB-14a	Day
K-37	CA-17	Night
K-47	CA-17a	Night
—	CAS-2a	Stereo Strip
T-11	CA-14	Cartographic
KC-1	—	Cartographic

FIRE CONTROL PROVISIONS

An optical sight unit can easily be installed on the Mohawk. Among the standard sights which may be accommodated are the Mk 17 Mod 0 sight unit and the Northrop Corporation's Norsight. These units are generally termed "fixed reticle sights" and contain manual adjustments (both elevation and azimuth) to offset the line of sight from the boresight datum line. This adjustment permits the pilot to set in lead and windage for gunnery, rocketry, and dive bombing operations.

More accurate dive-toss bombing capability is attainable through the use of a bomb director system in conjunction with the sight unit. The Mohawk aircraft is able to accommodate a variety of bomb director systems. Adequate space for "black box" installation is available in the low density fuselage area and the hinged fuselage nose cap permits easy installation of forward looking radars. Among the many systems which may be accommodated, with only minor aircraft modification, are the Norden Mk 10 or Mergenthaler M-1 bomb director systems with AN/APG-53 or AN/APG-53A ranging radar. Utilization of the AN/APG-53A will also provide limited ground mapping and terrain avoidance features.

Additional attack capability can be obtained through the installation of the Bullpup air-to-surface missile system. The Bullpup system can easily be added to the Mohawk as presently configured. The ready availability of the Bullpup enhances the desirability of this weapon capability.

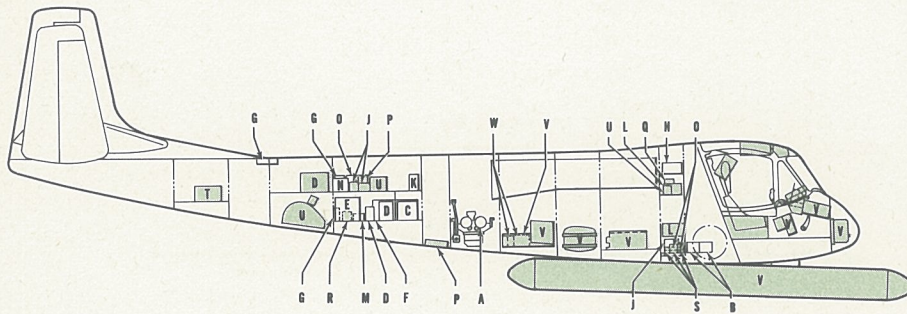


THE BASIC MOHAWK

Empty Weight:	4,232 kg	(9,332 lb)
Useful Load:	1,200 kg	(2,646 lb)
Take-off Gross Weight:	5,432 kg	(11,978 lb)

ELECTRONIC EQUIPMENT PROVISIONS

- All-weather navigation.
- Electronic surveillance.
- Weapons launch and guidance.
- Military liaison and communications.
- Nuclear radiation detection.



A Camera	G VHF Communications	N Photo System	T Ground Tracker Beacon
B Voltage Regulator	H ADF Navigation	O Integrated Flight System	U Doppler
C Battery	J Compass	P Radio Altimeter	V SLAR
D Inverter	K IFF	Q ILS	W Data Link
E Distribution Box	L VOR (2)	R Emergency VHF	
F UHF Communications	M Marker Beacon	S Auto Pilot	

While visual observation is adequate for performance of many search and attack missions, the extent of these operations can be greatly expanded by use of automatic target detection and weapons launching systems. In the Mohawk, considerable space has been allotted for the optional installation of electronic equipments to provide varying combinations of surveillance and weapon system capability. Mohawk airplanes produced for U.S. Army have incorporated such modern systems as doppler navigation, SLAR (side looking airborne radar), and infra-red detection. Sufficient internal space is also available for even more sophisticated surveillance, detection, and ECM (electronic countermeasures) equipment now under development, as well as for all-weather fire control systems. For the utmost in operational flexibility, radars, sensory equipments, and target detection gear can be carried in external pods.

The capabilities of the Mohawk can be increased further by addition of a data link system for liaison and communication. The airplane can then transmit its own sensor data, or serve as a relay station, receiving data from a land base or other aircraft and re-transmitting the information to a ground station. The relay capability can be invaluable when operating in mountainous areas where normal data line-of-sight reception is unreliable.

The space provisions in the Mohawk can also be utilized to carry radio and radiological equipment for assessment of damage and re-establishing communications in event of a nuclear attack. Because of its small size and STOL performance, the airplane can be widely dispersed from primary target locations. Should an attack occur the Mohawk can be flown to the site immediately for visual observation of damage, measurement of the level of radio activity, and restoration of order in the stricken area.

When equipped with the advanced electronic equipments, the tactical support capability of the Mohawk is greatly enhanced.

The SLAR system enables the aircraft to map terrestrial targets under all weather conditions.

WEIGHT BREAKDOWN

BASIC CONFIGURATION

	Kilograms	Pounds
Weight Empty	4,232	9,332
Structure (Wing, Tail, Fuselage, Landing Gear, Nacelles).		
Propulsion Group		
Electronics Group		
Passive Defense (Armor, Flak Curtains, & Bullet Resistant Glass).		
Fixed Equipment (Flight Controls, Instruments, Hydraulics, Electrical, Furnishings, Air Conditioning, and Photographic.)		
Useful Load	1,200	2,646
Crew (2)		
Fuel (Usable) 1124 Litres (297 Gal)		
Miscellaneous Useful Load (Oil, unusable Fuel, Etc.)		
T.O.G.W.	5,432	11,978
Total Store Station Capacity	1,814	4,000



EQUIPMENT

The choice of equipment for any particular aircraft is dictated primarily by operational requirements and economic considerations. The Mohawk, in its design for versatility, includes provisions for installation of a wide variety of equipments, depending upon the degree of refinement and specialization desired.

The following is a representative list of items which are installed in, or have been designed for, U.S. Army production airplanes.

BASIC EQUIPMENT — Visual/Photo Configuration

UHF Communication	ARC-55
ICS (Inter-Communication System)	AIC-12
LF/ADF (Automatic Direction Finder)	ARN-59
Compass	MA-1
IFF	APX-44
VOR	ARN-30
Photo System	KA-30
IFS (Integrated Flight System)	FD-105

Electrical system power is provided by
 28-Volt DC: 34 Ampere-hour Battery
 2-400 Amp Starter-Generators
 115/200 Volt, 400 Cycle: 750 VA, 3-Phase Inverter
 2500 VA, 3-Phase Inverter

An external power source connection in the aft equipment compartment as also provided.

OPTIONAL EQUIPMENT — Space and Power Prov.

VHF Communication	ARC-44, ARC-73*
TACAN (Tactical Air Nav.)	ARN-21
LF/ADF (Second Set)	ARN-59**
Radar Altimeter	APN-22
Inst. Landing System	R-746/AR
Auto Pilot	ASW-12
Ground Track Beacon	DPN-62
High Freq Comm	ARC ()
IFF Coder	MK-12 Additions
Doppler Nav	APN-118
Infra-red Mapper	—
Side Looking Airborne Radar	APS-94
Flare Pods	—

*Alternate with ARC-55.

**Alternate with ARN-30.

HIGH POWER AND HIGH LIFT FOR:

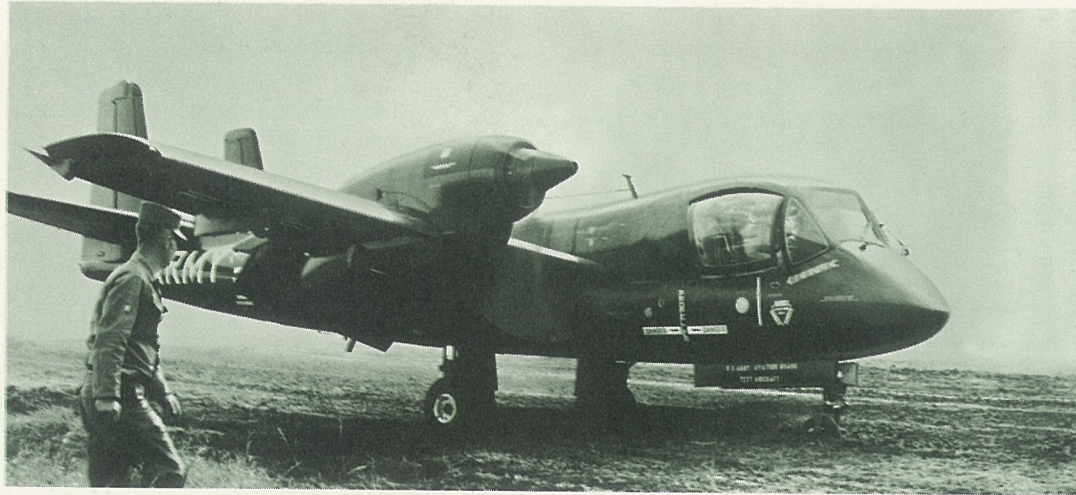


- **Extremely short take-off and landing distances.**
- **High load carrying ability.**
- **Small turning radius.**
- **High rate of climb, angle of climb, and level flight speed.**

The combination of turboprop engines, variable pitch propellers, and efficient aerodynamic design (including large-span flaps and leading edge slats) gives the Mohawk outstanding performance in all flight regimes—the shorter take-off and landing distances and higher angle of climb of the propeller-driven airplane plus the higher speed and altitude capabilities of the turbine-powered aircraft. These qualities mean adaptability to, and successful accomplishment of, a wide variety of missions.

The Mohawk is the ideal vehicle for low altitude work to support the ground troops or to harass an aggressor by destruction of his forces and front line supply system. Since the turboprop engine produces far less infra-red emission than a comparable thrust turbojet, the Mohawk can more easily avoid detection by the enemy. In addition, due to the free power turbine, propeller rpm can be varied independently of engine speed to decrease the engine-propeller noise level and thereby further reduce detectability.

The airplane does not require long, paved runways, but can operate from hastily-prepared strips, unimproved fields, or even from sections of roads or highways only a few hundred meters long. It can carry powerful and varied armament and can be loaded to suit any particular target during the few minutes required for refueling and servicing between missions. With a minimum turning radius of 93 m (304 ft), under normal landing conditions, it can be maneuvered within very small clearings, around mountainous terrain, or through extremely narrow valleys. It can virtually hover over a spot for close support or observation purposes. It can perform more diversified duties more efficiently, and under a wider variety of combat conditions, than any contemporary ground support aircraft.



REVERSIBLE PITCH PROPELLER FOR:

- **Minimum landing ground roll distance.**
- **Increased ground maneuverability.**

Unlike the turbojet airplane, which must rely on wheel brakes alone or the added complication of a drag chute, the Mohawk has the advantage of reversible-pitch propellers for braking action. The effectiveness of reversible-pitch propellers for braking, on wet surfaces and ice, as well as paved runways, has been proved in world-wide airline operations for many years. Smooth, positive stops are assured for all types of landing areas.

The propeller reversing feature offers the extra benefit of increased ground maneuverability by allowing the aircraft to be moved backwards under its own power. In this way it can be maneuvered within extremely small confines, thus permitting the concentration of a greater number of aircraft in any given area.

LARGE FUEL CAPACITY FOR:

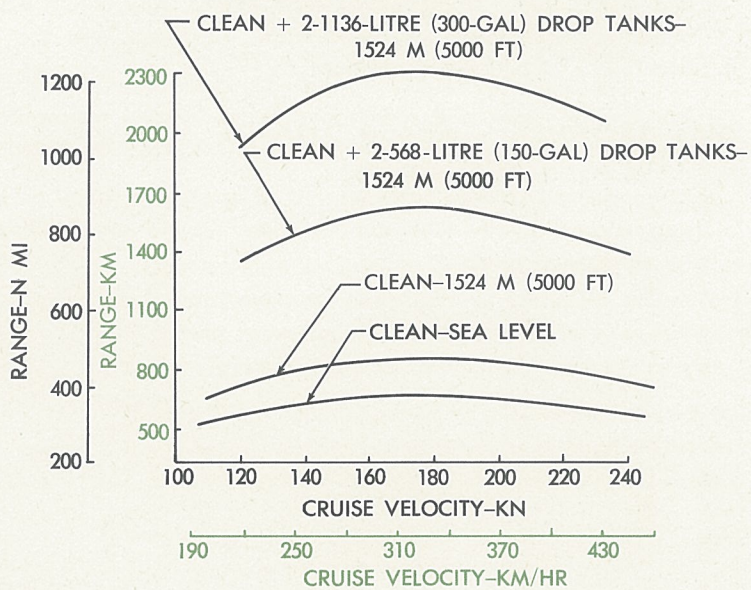
- World-wide deployment.
- Extended mission radius.
- Multi-mission performance without refueling.
- Diversion to alternate bases.



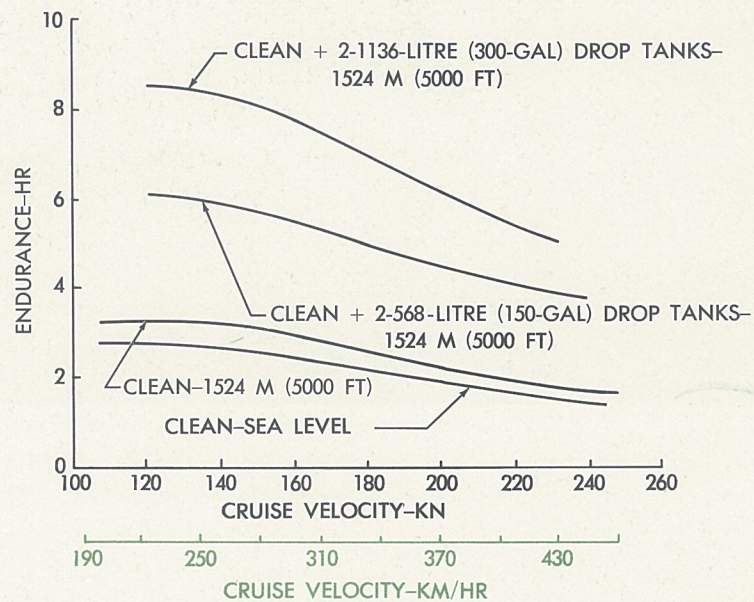
Fuel provisions consist of one 1124-litre (297-gal) internal tank and two 568-litre (150-gal) drop tanks, giving the Mohawk the range and endurance required for ground-support. With internal fuel alone, the airplane has a mission radius of over 370 km (200 n mi). The long range capability of the aircraft offers the alternatives of support and attack at distant points or the completion of several short-range missions without refueling.

For extended ferry operations, the range can be increased to 2847 km (1537 n mi) by using two 1136-litre (300-gal) external tanks in place of the 568-litre (150-gal) units. To carry the higher fuel load, it is necessary that the full-up level flight load factor be restricted to a maximum of 3.75 g.

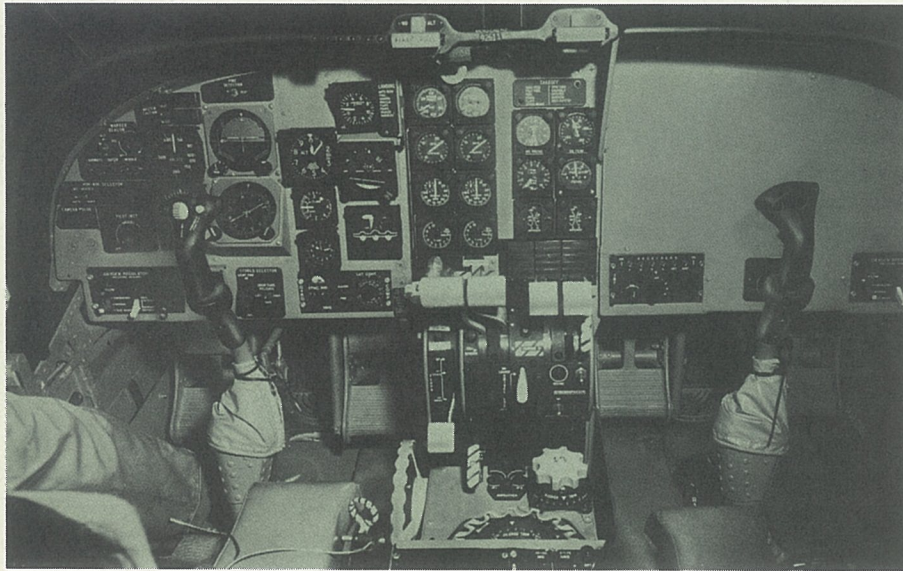
**AO-1 MOHAWK
RANGE VS VELOCITY**



**AO-1 MOHAWK
ENDURANCE VS VELOCITY**



TWO-PLACE COCKPIT AND DUAL CONTROL FOR:



- A second crew member to assist in observation, navigation, communications, and other flight duties as required for a specific mission.
- Pilot training.
- Crew proficiency training.

The presence of a second crew member broadens the scope of the operations which can be performed and enhances the likelihood of successful mission accomplishment.

Cockpit accommodations feature side-by-side seating for optimum crew efficiency. This arrangement allows greater latitude in assignment of tasks, permits sharing of controls and instruments for combined duties, enables the crew members to work as a more closely coordinated team, provides more space per man for greater comfort, and mitigates the feeling of isolation or boredom during extended missions. The sharing of controls and instruments has the added benefit of cost and weight savings.

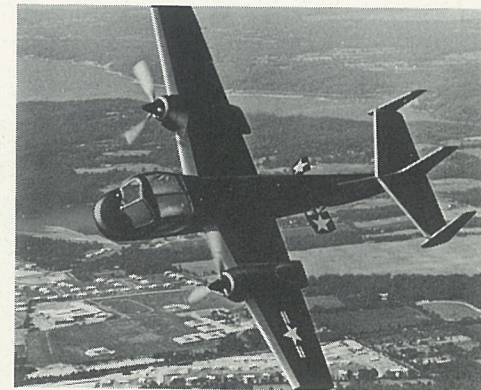
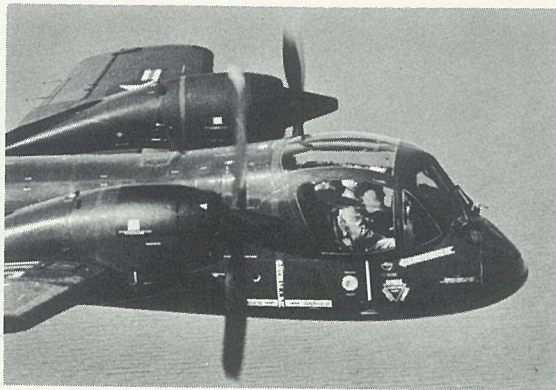
The co-pilot's stick and rudder pedals are readily removable, permitting a variety of other installations to be made at that position.

Arrangements for crew safety consist of armor protection, as well as side hatches, a jettisonable top hatch, and ground level ejection seats for emergency egress.

FORWARD COCKPIT LOCATION AND BUBBLE-TYPE CANOPY FOR:

- **Unobstructed view for tactical observation and ground attack missions.**

Mission effectiveness is augmented by the exceptional visibility afforded both crew members. From the center line of the seats, vision is unobstructed 20° down over the nose of the aircraft. Moving the line of vision outboard into the bubbled side hatches increases the downward visibility to the extent that the lines of sight of the pilot and pilot-observer converge at a point 11 m (36 ft) below the aircraft. A transparent hatch allows complete vision directly overhead.



MECHANICAL FLIGHT CONTROL SYSTEMS AND SPEED BRAKES FOR:

- **Superior flying qualities.**
- **Ease of handling.**
- **Outstanding maneuverability.**
- **Precise controllability.**

The Mohawk exhibits the high degree of maneuverability, extremely small turning radius, and precise controllability so necessary for successful ground attack weapons delivery. Appropriate control forces, prompt response, and gentle stall characteristics contribute to the excellent flying qualities and generate the high level of pilot confidence required for safe and effective operation at extremely low altitudes.

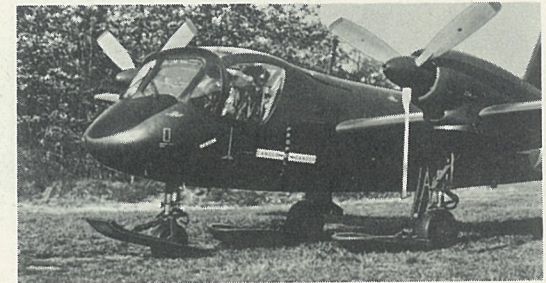
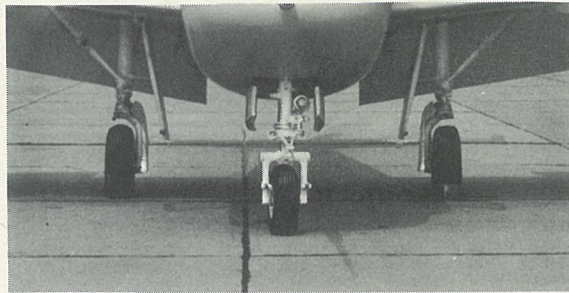
Basic flight controls consist of a conventional stick and rudder pedals which actuate the primary surfaces—ailerons, elevators, and rudders—through simple mechanical systems. Additional flight path control is supplied by two hydraulically-operated speed brakes, one on each side of the aft fuselage.

FUSELAGE CARGO/EQUIPMENT COMPARTMENT FOR:

- Transport of supplies and equipment.
- Electrical and electronic equipment for communications and surveillance missions.

A 1.4-cu m (50-cu ft) compartment in the fuselage supplements the cargo space provided by the aerial resupply containers carried at the wing store stations. When the right-hand cockpit seat is not occupied by an observer, this space can also be used for cargo. Eight standard-size ammunition boxes, or 545 kg (1200 lb) of equipment, can be carried in each of the fuselage compartments and the cockpit area. A total of 24,000 rounds of 7.62 mm ammunition can be transported in this manner.

The fuselage cargo space can also be utilized to carry electrical and electronic equipment for increased capabilities in the surveillance and liaison roles.



LOW PRESSURE TIRES AND SKI PROVISIONS FOR:

- Multi-base operation

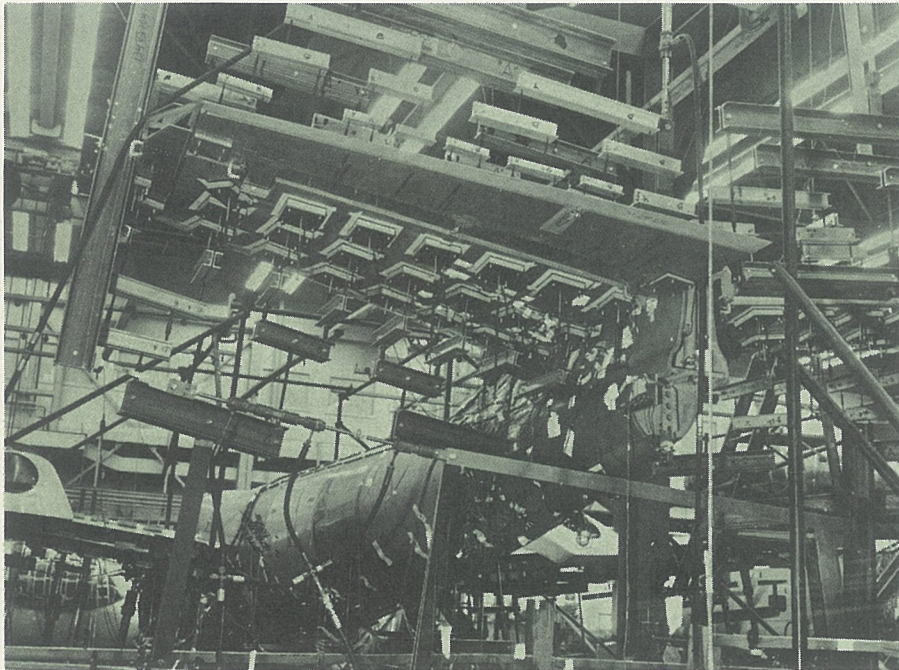
The absence of paved runways presents no problem for the small, high-performance Mohawk. Equipped with low pressure tires and skis, the airplane can operate from all types of unprepared surfaces—rough terrain, grass areas, snow, and ice. The practicability of such operations is further enhanced by the reversible pitch propellers which supply positive braking action when landing on wet grass, ice, or other surfaces where normal wheel brakes are ineffective. Skis, when installed, retract with the landing gear.

Its multi-base capability greatly increases the Mohawk's usefulness and provides far more flexibility than is possible with other contemporary tactical aircraft. It is not necessary that ground forces be denied the benefits of air support because of lack of long runways, elaborate equipment and/or fixed-base installations. With the self-sufficient Mohawk, aid and protection can be provided even in the most forward areas.

The Mohawk is designed to "live" in the field. Its low silhouette and rugged construction are a guarantee of minimum turn-around time, maximum utilization, and successful mission performance.

STRUCTURAL INTEGRITY

- Aircraft designed for a minimum fatigue life of 10 years, or 8000 flight hours, in the close support role. The fatigue test article has been cycled to the equivalent of 16,000 flight hours without structural failure.
- Design load factor of +5 g for symmetrical maneuvers, +4 g for unsymmetrical maneuvers, up to the design limit speed of 722 km/hr (390 kn).
- Landing gear strength for 5.2 m/sec, (17 ft/sec) sink speed, for rough terrain, short field landings.
- Cockpit area structure stressed for 20-g vertical loads and 40-g fore and aft loads.



SIMPLICITY OF FLIGHT OPERATION

The Mohawk's design for simplicity of operation leaves the pilot free and alert for combat or other mission duties.

Turboprop Engines

Turboprop engines offer the advantages of quick starting, fewer controls to be monitored in flight, low noise and vibration levels, reduced pilot fatigue.

Single Fuel Tank

All internal fuel is contained in a single self-sealing fuel tank with selected fuel feed from the external tanks; thus, fuel management problems are minimized.

Convenient Cockpit Lay-out

Engine controls and instruments are grouped and centrally located for ready accessibility to both crew members.

RELIABILITY AND CREW PROTECTION

The Mohawk is designed to operate and survive in front-line combat areas. The reliability and protective features of the airplane inspire crew confidence and contribute immeasurably to over-all mission effectiveness.

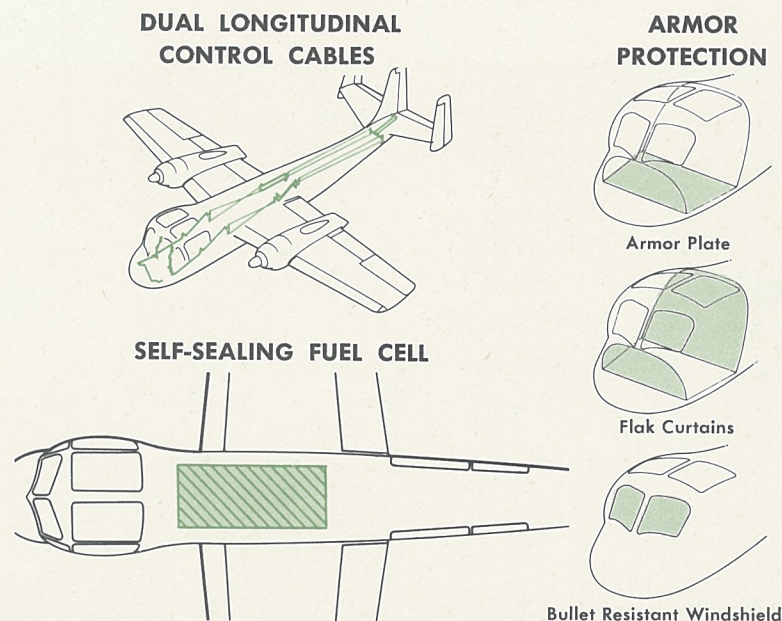
- Two-place, twin-engine reliability.
- 2.54-cm (1-in.) thick bullet—and flak-resistant windshield for both crewmen.
- 0.64-cm (1/4-in.) thick dural bullet—and flak-resistant cockpit floor.
- Provisions for removable flak curtains.
- Location of engines, self-sealing fuel tank, and oil tank above the wing structure for added protection against ground fire.

Inherent Stability

The airplane is highly stable about all three axes. Good positive control gives the pilot a feeling of ease and confidence under any flight condition.

Mechanical Flight Controls

The primary control surfaces are operated by conventional stick and rudder pedals, through mechanical linkage, without the complication of switches, "black boxes," and artificial feel systems.



- Dual, widely-separated, elevator control cables run throughout the fuselage.
- Ample power margin and safe flying qualities for single-engine operation.
- Stored-air system for emergency landing gear extension.
- Fire extinguishing system for engine fire protection.
- Oxygen system, gaseous type, two 8424-cu cm (514-cu in.) bottles.

DESIGN FOR ECONOMY

For over 30 years Grumman has been producing aircraft for the military services. These airplanes, many of which were designed to the rigid specifications for carrier operation, have always been widely acclaimed for their combat availability and ease of maintenance. During the Korean conflict, 48 Grumman Panther jet interceptor-attack aircraft had 100% availability for 77 consecutive days while operating as fighter-bombers from front-line, steel-mat runways. The supersonic Tiger, a carrier-based day fighter, currently in squadron use with the U.S. Navy, has demonstrated the lowest maintenance man hours per flight hour of any comparable jet fighter.

The STOL Mohawk displays the same versatility, reliability, and durability which have long distinguished Grumman's military—and civil—aircraft in every theatre of operation. The airplane was first flown in April 1959, and operational quantities of these small, light-weight, multi-purpose aircraft have since been ordered by the U.S. Army. Manufacturing costs, operational expenses, and maintenance and logistics problems are kept to a minimum through the following considerations: simple and efficient basic design; engineering for airframe and systems reliability; use of standard materials; conventional methods of construction; and tooling for quantity production.

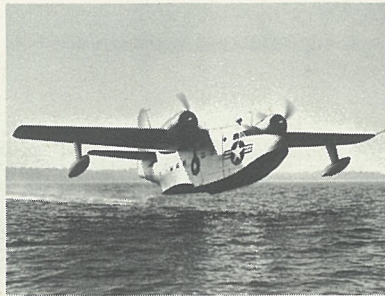
The Mohawk can be relied upon to perform its assignments efficiently and economically—and without the need for back-up aircraft. It has a place in any defense system.



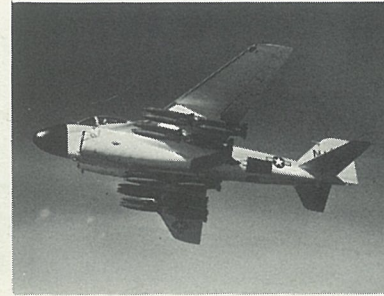
F9F-5 PANTHER



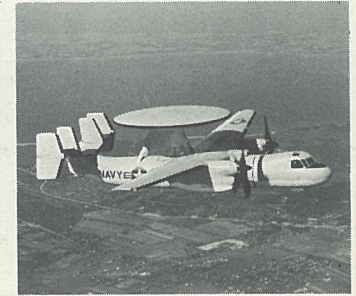
F11F-1 TIGER



SA-16 ALBATROSS



A2F-1 INTRUDER



W2F HAWKEYE

GROUND SERVICE AND MAINTENANCE

The Mohawk is especially well-suited for operation in remote or forward areas where fixed-base facilities are not available. The airplane's small size and standard construction permit rapid servicing and maintenance with a minimum of special tools, work-stands, and ground support equipment.

The aircraft can be fueled from drums or other storage units—a fuel truck is not required. Small weapons can be loaded by hand from the ground—dollies and hoists are not a necessity. The airplane has a self-contained engine starting system—there is no need for a ground power unit. Proper tire pressures can be maintained by use of a hand pump—an auxiliary air supply is not required. Equipments are accessible from the ground—ladders and workstands are unnecessary.

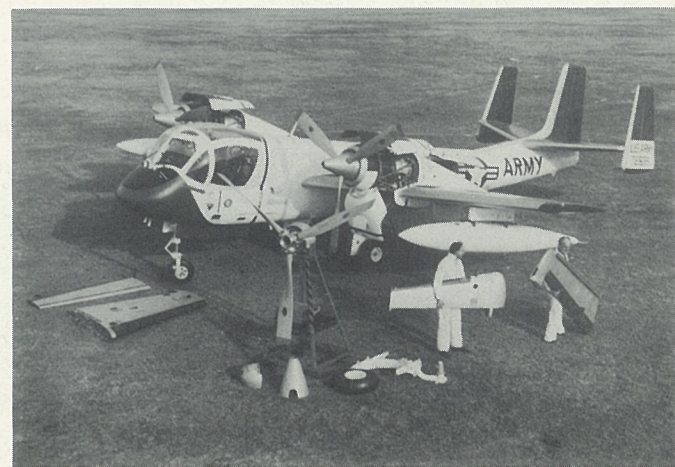
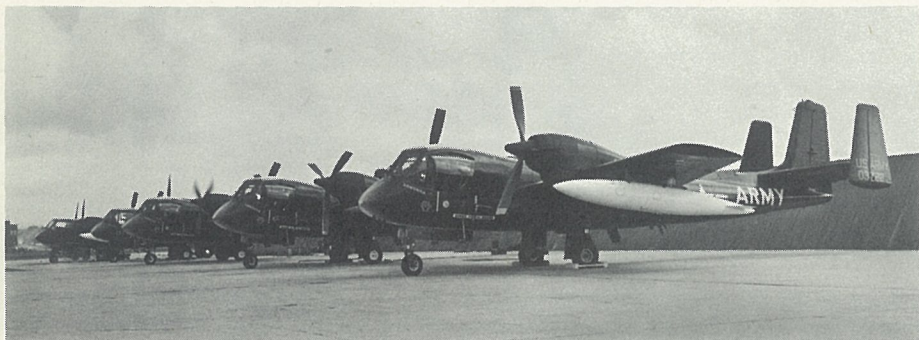
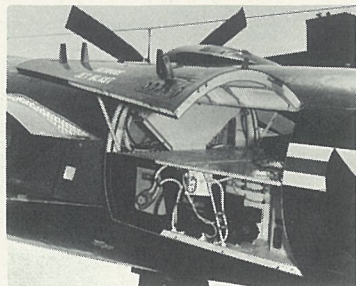
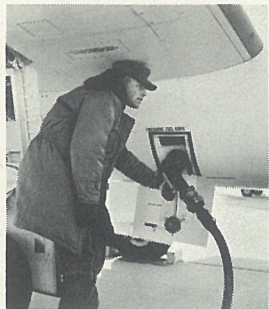
The Mohawk is a simple, self-sufficient weapon system.

- Engine starts can be made using aircraft battery power—an external ground power source is not required.
- The airplane is fueled through a 7.6-cm (3-in.) gravity-type filler unit. Drop tanks, when used, are similarly fueled. The filler unit will accept all standard-size fuel nozzles. All tanks can also be filled by single point pressure fueling.
- Due to the low airplane height, arming can be accomplished by hand. For loading of very heavy stores, a portable bomb hoist or small truck may be used.

The T53-equipped Mohawk can be operated on any of several different fuels. While JP-4 is recommended, other usable fuels in order of suitability include unleaded gasoline, commercial automotive gasoline and AvGas (lowest octane preferred).

Conveniently located doors and removable panels provide ready access to all equipment items. A complete engine change requires only 4 man-hours. The portable hoist employed for this operation can be the same as that used for loading heavy stores.

The complete wing panel, including nacelle, is quickly replaceable. The main landing gear and horizontal and outboard vertical tails are interchangeable, left and right.



GROWTH AND DEVELOPMENT

The full value of the Mohawk is realized in its long service life and potential for further growth and development. These features enable it to keep pace with ever-increasing defense requirements and assure that it will continue to serve with unsurpassed effectiveness for many years.

Detailed studies have already been completed to show that the Mohawk can accommodate various other engines, weapons, and surveillance systems now under development. Installation of these new and more advanced equipments will give the Mohawk even greater capabilities in the ground support role. The large internal compartments can also be easily adapted to carry equipment of many different types, sizes and shapes for maximum mission versatility and effectiveness.

The basic design of the Mohawk permits utilization of future growth versions of the Lycoming T53-L-3 engine. By 1962 a T53-L-7 engine rated at 1100 SHP should be available for installation, giving the Mohawk increased performance parameters.

Preliminary studies indicate that the DeHavilland Gnome P1200 version of the General Electric T-58 engine can be installed on the Mohawk with modifications to the upper nacelle and engine mounting structure only. This engine is rated at 1150 SHP and would provide a considerable increase in Mohawk performance.

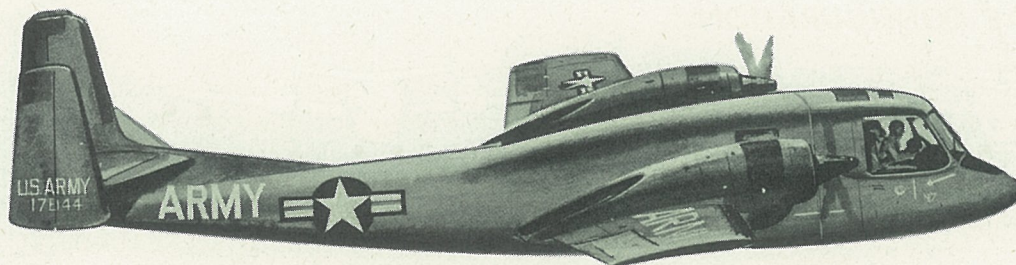
ALTERNATE CONFIGURATION

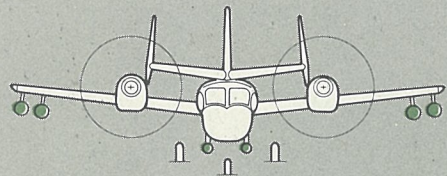
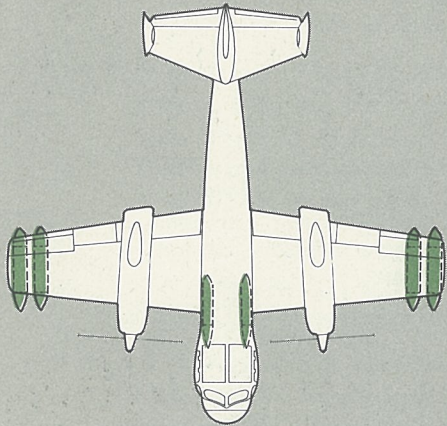
Detailed studies of the Mohawk have confirmed the feasibility of incorporating a cabin immediately aft of the pilot's compartment and integral with it. This arrangement permits the carrying of cargo as well as a variety of electronic equipments which can be monitored and serviced in flight. The cabin version of the Mohawk retains all of the capabilities and flight characteristics of the basic airplane design while adding provision for more advanced electronics surveillance functions, crew proficiency training, and cargo handling. The increased cabin area allows for arrangement of equipment such that changes in operational configuration can be readily accomplished in the field by service personnel.

The greater versatility and utility are achieved by a relatively simple modification of the forward fuselage portion of the basic Mohawk. The fuselage length is increased 71 cm (28 in.)—30 cm (12 in.) in the new cabin between the wing and cockpit and 41 cm (16 in.) in the nose. A 61 x 132-cm (24 x 52-in.) two-piece combination entrance door and boarding ladder is provided on the left side of the cabin for entrance and egress. The Martin-Baker ejection seats are replaced by adjustable, non-ejection type seats. The wings, aft fuselage, empennage, and landing gear remain unchanged.

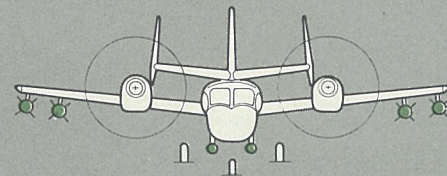
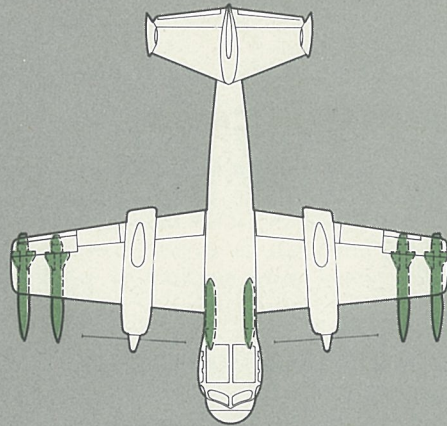
ALTERNATE CONFIGURATION/CARGO

Space and strength are available for up to 1.27 cu m (45 cu ft) and 545 kg (1200 lb) of cargo. The cabin floor is of honeycomb construction and is stressed for a cargo loading of 488 kg/ sq m (100 lb/ sq ft). Seat, cargo tie-down, and stanchion fittings are incorporated in the aircraft structure. If desired, a 51 x 71-cm (20 x 28-in.) hatch can be provided in the bottom of the cabin area without any change in primary structure. This would allow air drop of supplies and high priority items.

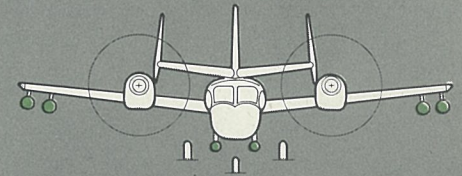
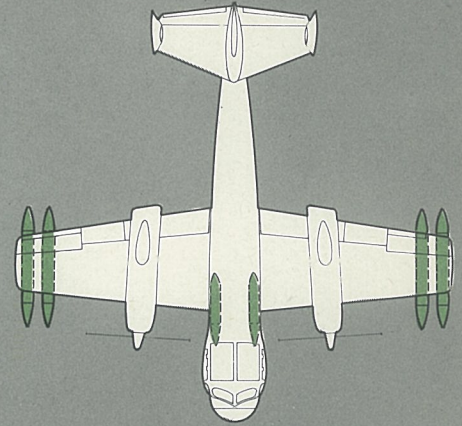




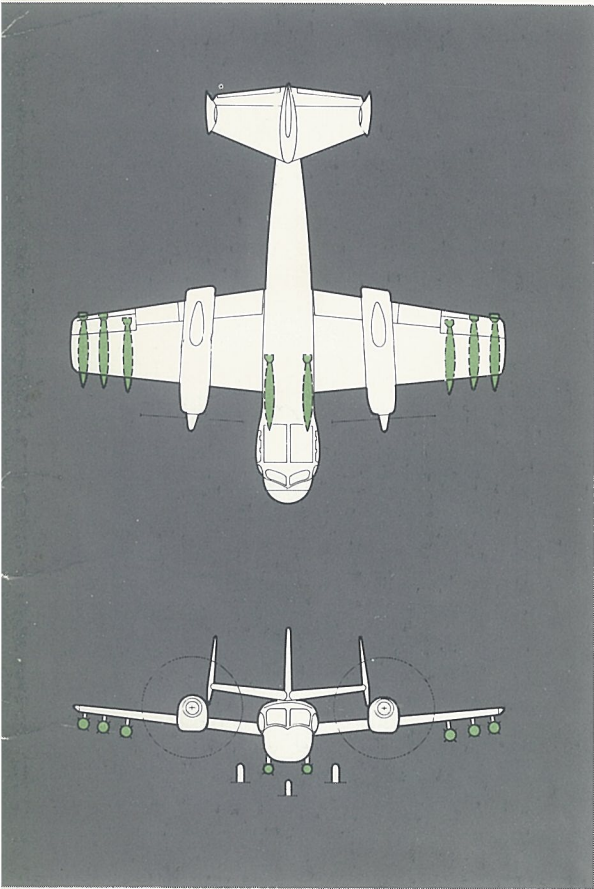
2-7.62 MM GUN PODS
4-AERO 7D ROCKET PODS



2-7.62 MM GUN PODS
4-BULLPUP MISSILES

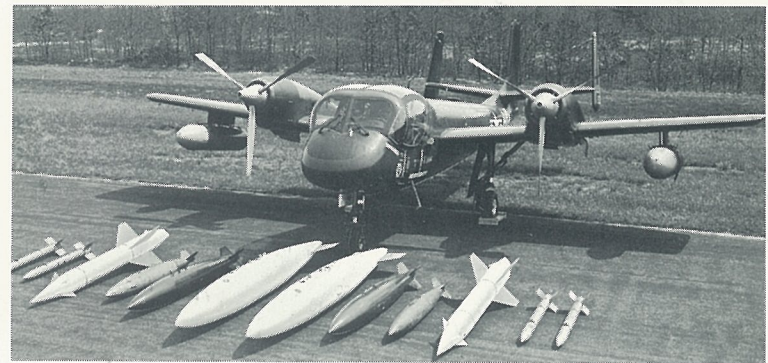


2-7.62 MM GUN PODS
4-LAU 10/A ROCKET PODS



8—227-KG (500-LB) BOMBS

Recently completed U.S. Navy evaluations of the Mohawk's ability to deliver stores proved that the airplane is a satisfactory bombing and rocketry platform. It was also determined that rocket exhaust gases had no detrimental effect on the engines. Both 226- and 452-kg (500- and 1000-lb) bombs, as well as a 339-kg (750-lb) container, were dropped to make certain of clean separation; satisfactory separation has also been demonstrated with both full and empty, 568-litre (150-gal) drop tanks.



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