

Kaman HOK

The **Kaman HOK-1** was a four place, single piston engine [helicopter](#) using two intermeshing rotors. The helicopter was built for the U.S. Navy by Kaman Aircraft in Bloomfield, Connecticut during the early 1950s. It was powered by a Pratt and Whitney [R-1340-8A](#), 600 hp engine. A total of 81 aircraft were produced.

Specifications (HOK-1)

General characteristics

- **Crew:** two
- **Capacity:** two
- **Length:** 7.62 m (25 ft)
- **Wingspan (rotor):** 14.33 m (47 ft)
- **Height:** m (ft)
- **Empty:** kg (lb)
- **Loaded:** kg (lb)
- **Maximum takeoff:** 3091 kg (6,800 lb)
- **Powerplant:** one, Pratt and Whitney R-1340-8A piston engine, kW (600 hp)

Performance

- **Maximum speed:** 177 km/h (110 mi/h)
- **Range:** 354 km (220 statute miles)
- **Service ceiling:** m (ft)
- **Rate of climb:** m/min (ft/min)
- **Power/mass:**

Armament

None

Kaman HUK

The **Kaman HUK-1** was a four place, single piston engine [helicopter](#) using two intermeshing rotors. It was very similar to the [HOK-1](#), which preceded it. The HUK-1 was built for the U.S. Navy by Kaman Aircraft in Bloomfield, Connecticut. The HUK-1 was powered by a Pratt and Whitney [R-1340-52](#), 600 hp engine.

It was produced during 1957 and 1958.

A total of 24 aircraft were produced. An US Air Force version of this helicopter was designated the H-43A.

Specifications (HUK-1)

General characteristics

- **Crew:** two

- **Capacity:** two
- **Length:** 7.62 m (25 ft)
- **Wingspan (rotor):** 14.33 m (47 ft)
- **Height:** m (ft)
- **Empty:** kg (lb)
- **Loaded:** kg (lb)
- **Maximum takeoff:** 3091 kg (6,800 lb)
- **Powerplant:** one, Pratt and Whitney R-1340-52 piston engine, kW, (600 hp)

Performance

- **Maximum speed:** 177 km/h (110 mi/h)
- **Range:** 354 km (220 statute miles)
- **Service ceiling:** m (ft)
- **Rate of climb:** m/min (ft/min)
- **Power/mass:**

Kamov Ka-18

The **Kamov Ka-18** ([NATO reporting name Hog](#)) was a Soviet four-seat utility helicopter, development of the [Kamov Ka-15](#) with a lengthened fuselage and more powerful engine. About 200 built. One Ivchenko AI-14V radial, 255 hp. Apart from forward fuselage, generally similar to Ka-15. [1955](#).

Specifications (Ka-18)

General characteristics

- **Crew:** one, pilot
- **Capacity:** 3 passengers
- **Length:** 10.00 m (32 ft 10 in)
- **Main rotor diameter:** 2x 10.00 m (32 ft 10 in)
- **Height:** 3.40 m (11 ft 2 in)
- **Main rotor area:** 157.1 m² (1,690 ft²)
- **Empty:** kg (lb)
- **Loaded:** kg (lb)
- **Maximum takeoff:** 1,502 kg (lb)
- **Powerplant:** 1x [Ivchenko AI-14](#)VF radial engines, 200 kW (268 hp)

Performance

- **Maximum speed:** 160 km/h (100 mph)
- **Range:** 450 km (281 miles)
- **Service ceiling:** 3,500 m (11,480 ft)
- **Rate of climb:** m/min (ft/min)
- **Main rotor loading:** kg/m² (lb/ft²)
- **Power/Mass:** kW/kg (hp/lb)

Related content

Related development: [Ka-15](#)

Comparable aircraft:

Designation sequence: [Ka-8](#) - [Ka-10](#) - [Ka-15](#) - **Ka-18** - [Ka-19](#) - [Ka-20](#) - [Ka-22](#)

Kamov Ka-20

The **Kamov Ka-20** ([NATO reporting name Harp](#)) was a Soviet twin-engine antisubmarine helicopter prototype. It first became known to the West from the [1961](#) Aviation Day display.

Precursor of the [Kamov Ka-25](#).

Kamov Ka-226

The **Kamov Ka-226** ([NATO reporting name Hoodlum](#)) is a Russian utility helicopter aircraft that first flew in [2000](#).



Ka-226

Ka-226 is a twin-engined version of [Ka-126](#). One experimental and 5 pre-serial helicopters will be built at Industrial Alliance "Strela", Orenburg, in 2000 for Ministry of Emergency of Russian Federation. Plus, 8 helicopters will be built in [2001](#) (3 for Moscow Rescue Service, 5 for GasProm corporation). 3 "moscow" helos are planned to be built at Kumertau Aviation Industrial Alliance.

Max speed 214km/h. Normal range 600km (873km with extra fuel tanks). Max takeoff weight 3400kg. 9 passengers.



Ka-226A in 1997. Mockup?

First flown 28-Mar-2001 (or 21-Mar-2001?, or even 06-Mar-2000?) near "Chernaya" railway station, Moscow. Serial production is now also planned at Kumertau APO, Bashkiria.

Entered production at "Motor Sich", Zaporozhye, Ukraine. 250 450hp [Rolls-Royce C20R](#) engines ordered for Ka-226 production.

Kamov Ka-22



Description

Role	transport helicopter
Crew	3 - 4
First Flight	
Entered Service	N/A
Manufacturer	Kamov

Dimensions

Length	23 m	75 ft 6 in
Wingspan	20.5 m	67 ft 3 in
Height	8.25 m	27 ft
Wing area		

Weights

Empty		
Loaded	29,500 kg	65,036 lb
Maximum takeoff		

Powerplant

Engines	2 x Soloviev TB-2 shaft turbines
Power	2 x 5,622 eshp

Performance

Maximum speed	233 mph	375 km/h
Combat range		
Ferry range	miles	km
Service ceiling		
Rate of climb		
Wing loading		
Power/Mass		

The [Kamov Ka-22 Vintokryl](#) ([Cyrillic:Камов Ка-22 Винтокрыл](#)) ([Russian:"screw-wing"](#)) ([NATO reporting name](#): "Hoop") was a rotorcraft developed by [Kamov](#) for the [Soviet Air Force](#).

Influenced by [Fairey's Rotodyne](#), the part-[autogyro](#), part-[helicopter](#) was only seen once by western observers during the [Cold War](#) during an Aviation Day display in [Moscow](#) on [July 9, 1961](#). The Ka-22 utilized the fuselage from the [Antonov An-10](#) which would have given the Ka-22 a theoretical capacity of 80 to 100 people or, with the rear loading ramp, could have been used to transport vehicles or freight.

Because of Cold War secrecy, very little was known about the testing program of the Ka-22, but following two crashes of unknown causes, development was cancelled on the program in [1964](#).

Kamov Ka-25



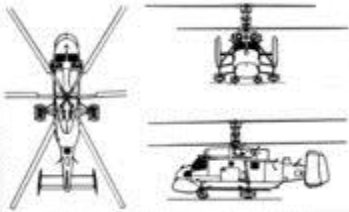
Kamov Ka-25 with Yugoslav Air Force insignia



The [Kamov Ka-25](#) ([NATO reporting name](#) 'Hormone') is a [Russian naval helicopter](#). Designed by [Nikolai Il'yich Kamov](#) or V.A.Glushenkov. First flew in [1961](#). It was produced by the [Kamov](#) company. Featured the characteristic [coaxial rotor](#) design of Russian military helicopters. The [Ka-25PL](#) and [Ka-25BSh](#) ('Hormone-A') variants are used in the [anti-submarine warfare](#) role, equipped with [radar](#), dipping [sonar](#) and a towed [MAD](#), armed with [torpedoes](#), nuclear or conventional [depth-charges](#). The [Ka-25T](#) ('Hormone-B') variant is used in the Over-The-Horizon (OTH) missile guidance role, in other words the Ka-25T targets enemy ships with its radar. The [Ka-25PS](#) ('Hormone-C') is a search and rescue version, and the [Ka-25BShZ](#) is a mine-sweeping version.

Operators

- India, Russia, Syria, Ukraine, Vietnam, Yugoslavia



Kamov Ka-25

Kamov Ka-25

A Kamov Ka-25 landing.

The **Kamov Ka-25** ([NATO reporting name 'Hormone'](#)) is a [Russian naval helicopter](#). Designed by [Nikolai Il'yich Kamov](#) or V.A.Glushenkov. First flew in [1961](#). It was produced by the [Kamov](#) company. The design of the Ka-25 featured the characteristic [coaxial rotor](#) design of Kamov-designed military helicopters. Western equivalents to the "A" model include the [SH-2 Seasprite](#), the [Westland Wasp](#), and the [Westland Lynx](#) in the light weight anti-submarine role. In this role, it was replaced by the [Kamov Ka-27 Helix](#).

Variants

- **Ka-25PL** and **Ka-25BSh** (Hormone-A) variants are used in the [anti-submarine warfare](#) role, equipped with [radar](#), dipping [sonar](#) and a towed [MAD](#), armed with [torpedoes](#), nuclear or conventional [depth-charges](#).
- The **Ka-25T (Hormone-B)** variants are used in the Over-The-Horizon (OTH) missile guidance role, in other words the Ka-25T targets enemy ships with its radar.
- **Ka-25PS (Hormone-C)** : Search and rescue version.
- **Ka-25BShZ** : Mine-sweeping version.
- **Ka-25B (Hormone-A): Anti-submarine version.**
- **Ka-25F** : Proposed attack version.
- **Ka-25V** : Civilian flying crane helicopter. Prototype only.
- **Ka-25TL** : Missile tracking version. Also known as the **Ka-25TI** and **Ka-25IV**.

Kamov Ka-26

The [Kamov Ka-26](#) ([NATO reporting name Hoodlum](#)) is a Soviet light utility helicopter with co-axial rotors.



Kamov Ka-26

The fuselage of the Ka-26 consists of a fixed, bubble-shaped cockpit containing the pilot and co-pilot, plus a removable, variable box available in [medevac](#), passenger-carrying and [cropduster](#) versions. The helicopter can fly with or without the box attached, giving it much flexibility in use. The Ka-26 is small enough and handles well enough to land on a large truck bed.

The Ka-26 was used by some [WARPAC](#) armies in light [dessant](#) role, but its slow speed (travelling speed 150 km/h) and vulnerability limits its military use. It is, however, eminently useful for cropdusting. The coaxial main rotor configuration, which makes the Ka-26 small and agile, also results in a delicate airflow pattern under the helicopter, providing a thorough yet mild distribution of chemicals onto the plants. The Ka-26 is often used to spray grape farms in [Hungary](#), where conventional "main rotor and tail rotor" layout helicopters would damage or up-root the vine-stocks with their powerful airflow.

The main weakness of the Ka-26 is its [powerplant](#). It is powered by two 325 hp (242 kW) Vedeneev M-14V-26 [radial engines](#) mounted in off-board [gondolas](#). The [reciprocating engines](#), although more responsive than modern free-shaft [gas turbines](#), are relatively maintenance intensive. The Ka-26 is underpowered with its two radial engines, especially when used in cropdusting role, where excess [payload](#) is common. No other helicopter exists in the world that runs at constant 95% engine power for most of its flight regime. This leaves the pilot with little [power reserve](#) for emergencies. Due to frequent overloads, the interconnect shaft which joins the two engines is prone to breakage and requires frequent inspection.

The standard instrumentation of the Ka-26 resembles that of larger naval Kamovs and is considered excessive for civilian or cropdusting use. The large cockpit panel with its 18 main dials obscures a significant part of the right-downwards view direction from the cabin, which is crucial to avoid telephone and power lines in agricultural and other low-altitude roles. It is common practice to replace the instrument panel with a simplified layout, retaining only the six generally useful dials for better vision.

The low height of the lower rotor requires passengers and crew to approach from the rear when the rotors are turning, as it is low enough to contact a person's head at the front of the aircraft.

The Ka-26 entered production in [1966](#). 850 have been built. A variant with a single engine was the **Ka-126**. A gas-turbine powered version, built under license in Romania, was the **Ka-226**. (All the Ka-26/126/128/226 variants are codenamed "Hoodlum").

Variants

- **Ka-26 Hoodlum-A** : The Ka-26 was designed as a multi-role utility helicopter. The Ka-26 can be used for agricultural work, like crop dusting and spraying, also for search and rescue, aero medical evacuation, aerial survey, and as a utility transport helicopter.
- **Ka-126 Hoodlum-B** : Turbine-powered multi-role utility helicopter.
- Ka-128
- Ka-226-50 - 28-Dec-2001 passed ground tests at Kumertau production facility

Specifications (Ka-26)

General characteristics

- **Crew:** two
- **Capacity:** 6 passengers or 900 kg (1,980 lb) of cargo
- **Length:** 7.75 m (25 ft 5 in)
- **Main rotor diameter:** 2x 13.00 m (42 ft 8 in)
- **Height:** 4.05 m (13 ft 3 in)
- **Main rotor area:** 265.5 m² (2,856 ft²)
- **Empty:** 1,950 kg (4,300 lb)
- **Loaded:** 3,250 kg (7,170 lb)
- **Maximum takeoff:** kg (lb)
- **Powerplant:** 2x [Vedeneyev M-14](#)V-26 radial piston engines, 239 kW (320 hp) each

Performance

- **Maximum speed:** 160 km/h (100 mph)
- **Range:** 465 km (290 miles)
- **Service ceiling:** 3,000 m (9,800 ft)
- **Rate of climb:** m/min (ft/min)
- **Main rotor loading:** 12 kg/m² (2.5 lb/ft²)
- **Power/mass:** 150 W/kg (0.09 hp/lb)

Operators

- Benin, Bulgaria, Hungary, Sri Lanka, Lithuania (police) .

External links

- <http://www.kamov.ru/>
- <http://www.aviation.ru/Ka/#26>

Related content

Related development:

Comparable aircraft:

Kamov Ka-27 Helix A



Kamov Ka-27

Description

Role	ASW helicopter
Crew	1-3 crew plus 2-3 specialists
First Flight	December, 1974
Entered Service	
Manufacturer	Kamov

Dimensions

Length	11.30 m (fuselage)	ft
Rotor Diameter	15.80 m	ft
Height	5.50 m	ft

Weights

Empty	6,500 kg	lb
Loaded	11,000 kg	lb
Maximum Takeoff	12,000 kg	lb
Capacity	4000 kg (Ka-32)	

Powerplant

Engines	2 Isotov turboshaft engines	
Power	1660 kW each	2,225 shp

Performance		
Maximum Speed	270 km/h	205 km/h (cruise)
Combat Range	miles	km
Ferry Range	980 km	nm
Service Ceiling	5,000 m	ft
Rate of Climb	ft/min	m/min
Thrust/Weight		
Power/Mass	hp/lb	kW/kg
Armament		
2000 kg. 2 torpedoes (Ka-27)		
55mm rocket pods or 4 ATGMs, 7.62 mm MG, 30 mm cannon (Ka-29)		
Sensors		
Radar, MAD or dipping sonar, sonobuoys (Ka-27)		
RWR , ESM, EW systems (Ka-29)		

The **Kamov Ka-27** ([NATO reporting name 'Helix'](#)) is a military [helicopter](#) developed for the [Soviet Navy](#) and currently in service in [Russia](#), [Ukraine](#), [Vietnam](#), [South Korea](#), [China](#) and [India](#). Variants include the Ka-28 for export, the Ka-29 military transport (16 troops), the Ka-31 reconnaissance, and the civilian Ka-32 transport.

The helicopter was developed for ferrying and [anti-submarine warfare](#). Design work began in 1970 and the first prototype flew in 1974. It was intended to replace the decade-old [Kamov Ka-25 Hormone](#) and is similar in appearance to its predecessor—due to the requirements of fitting in the same hangar space. Like other Kamov military helicopters it has a [co-axial rotor](#), removing the need for a tail rotor.

Helix in Games

The Helix features as a heavy lift Chinese helicopter in the popular Real Time Strategy game [Command & Conquer: Generals](#) and it's expansion pack [Command & Conquer: Generals Zero Hour](#)

Kamov Ka-52

The [Kamov Ka-52](#) (also known as **Ka-50-2**, [NATO reporting name Hokum](#)), nicknamed the **Alligator** is a Russian attack helicopter.



Ka-52 "061", Zhukovski, 2001

It is a side-by-side two-seat combat helicopter designed as air-to-air combat helicopter, intended to eliminate enemy frontline helicopters.

Later aircraft were designated **Ka-136**.

Specifications (Ka-52)

General characteristics

- **Crew:** two
- **Length:** 13.50 m (44 ft 3 in)
- **Main rotor diameter:** 2x 14.50 m (47 ft 7 in)
- **Height:** 4.90 m (16 ft 1 in)
- **Main rotor area:** 330.3 m² (3,555 ft²)
- **Empty:** 7,800 kg (17,200 lb)
- **Loaded:** 9,800 kg (21,610 lb)
- **Maximum takeoff:** 10,400 kg (22,930 lb)
- **Powerplant:** 2x [Klimov TV3-117VMA](#) turboshafts, 1,638 kW (2,195 hp) each

Performance

- **Maximum speed:** 300 km/h (187 mph)
- **Range:** 1,160 km (723 miles)
- **Service ceiling:** 5,500 m (18,000 ft)
- **Rate of climb:** 600 m/min (1,970 ft/min)
- **Main rotor loading:** 30 kg/m² (6 lb/ft²)
- **Power/Mass:** 0.33 kW/kg (0.20 hp/lb)

Armament

- 1x [30 mm Shipunov 2A42](#) cannon
- 2,000 kg (4,400 lb) of disposable stores on four pylons, including bombs and rockets

External links

- [Ka-52 Alligator](#) Attack Helicopter
- <http://www.aviation.ru/Ka/#136>

Related development: [Kamov Ka-50](#)

Comparable aircraft:

Designation sequence: [Ka-35](#) - [Ka-37](#) - [Ka-50](#) - [Ka-52](#) - [Ka-56](#) - [Ka-58](#) - [Ka-60](#)

Kamov Ka-60

The [Kamov Ka-60](#) "Касатка" is a Russian army helicopter that first flew [24 December 1998](#).



Ka-60-1 at Moscow Air Show, 2001

The Russian name "Kasatka" means "[killer whale](#)" or "orca". It superficially resembles the [Eurocopter Dauphin](#).

Specifications

- Two [Rybinsk RD-600V](#) engines: 2x1300 hp (2x970 kW)
- Takeoff mass: 6500 kg
- Maximum speed: 300 km/h
- Cruise speed: 245 km/h
- Range: 600 km
- Internal load: 2000 kg
- External load: 2750 kg
- Estimated local military market 200 units.

Kamov Ka-8



Kamov Ka-8

The [Kamov Ka-8 "Иркутянин"](#) was a tiny Soviet helicopter that first flew in [1947](#).

It was a precursor of the Ka-10. The Ka-8 was a single-seat helicopter with a 27hp M-76 engine, boosted to 45hp by using alcohol for fuel.

Kawasaki OH-1



Kawasaki OH-1

The [Kawasaki OH-1](#) is a [reconnaissance aircraft](#) used by the [Japan Ground Self-Defense Force](#). First flight was in 1996. Features "frenestron-type" rotor-in-tail fan and E-Q sensor mounted forward of rotor head. Has 2 pylons under stub wings and can load 291 lb (132 kg) of type 91 guided AAM's. Two Mitsubishi TS1 turboshafts.

Specifications (OH-1)

General characteristics

- **Crew:** two, pilot and observer
- **Length:** 12.00 m (39 ft 4 in)
- **Main rotor diameter:** 11.60 m (38 ft 1 in)
- **Height:** 3.80 m (12 ft 6 in)
- **Main rotor area:** 105.6 m² (1,136 ft²)
- **Empty:** 2,450 kg (5,400 lb)
- **Loaded:** kg (lb)
- **Maximum takeoff:** 4,000 kg (8,820 lb)
- **Powerplant:** 2x [Mitsubishi TS1](#)-10 turboshafts, 1,185 kW (884 shp) each

Performance

- **Maximum speed:** 270 km/h (168 mph)
- **Range:** 550 km (343 miles)
- **Service ceiling:** 3,480 m (11,400 ft)
- **Rate of climb:** m/min (ft/min)
- **Main rotor loading:** kg/m² (lb/ft²)
- **Power/mass:** kW/kg (hp/lb)

Armament

- 4x pylons for disposable stores

MBB/Kawasaki BK117



BK 117

The **MBB/Kawasaki BK117** is a twin-engined medium utility/transport [helicopter](#). It is a joint development between [MBB](#) of [Germany](#) (now part of [Eurocopter](#)) and [Kawasaki](#) of [Japan](#).

The BK117 first flew in [1977](#) and since then almost 400 helicopters of this type have been built.

Many variants of this type have been manufactured, both for the civilian and military markets. It is also commonly used as a rescue and [EMS](#) helicopter. The most modern version of this aircraft is the version called BK 117 C-2 which is better known as EC 145. This is the successor of the BK 117. Many construction characteristics from the EC 135 helicopter have been used again in the EC 145.

MH-53 Pave Low



A MH-53J Pave Low IIIIE of the [551st Special Operations Squadron](#), [58th Special Operations Wing](#), flying a training mission.

The **MH-53 Pave Low** is a [USAF](#) version of the [CH-53 Sea Stallion](#) [helicopter](#).

Mission

The Pave Low's mission is low-level, long-range, undetected penetration into denied areas, day or night, in adverse weather, for [infiltration](#), [exfiltration](#) and resupply of [special operations forces](#).

Features

The MH-53J Pave Low III heavy-lift helicopter is the largest, most powerful and technologically advanced helicopter in the [US Air Force](#) inventory. The [terrain-following](#) and terrain-avoidance [radar](#), [forward looking infrared](#) sensor, [inertial navigation](#) system with [global positioning system](#), along with a projected map display enable the crew to follow terrain contours and avoid obstacles, making low-level penetration possible.

The MH-53M Pave Low IV is a J-model that has been modified with the Interactive Defensive Avionics System/Multi-Mission Advanced Tactical Terminal or IDAS/MATT. The system enhances present defensive capabilities of the Pave Low. It provides instant access to the total battlefield situation, through near real-time Electronic Order of Battle updates. It also provides a new level of detection avoidance with [near real-time](#) threat broadcasts [over-the-horizon](#), so crews can avoid and defeat threats, and replan en route if needed.

Under the Pave Low III program, the Air Force modified nine MH-53H's and 32 HH-53s for night and adverse weather operations. Modifications included forward-looking infrared, inertial global positioning system, [Doppler](#) navigation systems, terrain-following and terrain-avoidance radar, an on-board computer, and integrated avionics to enable [precise navigation](#) to and from target areas. The Air Force designated these modified versions as MH-53J's.

General Characteristics

- Primary Function: Long-range infiltration, exfiltration and resupply of special operations forces in day, night or marginal weather conditions
- Builder: Sikorsky
- Power Plant: Two General Electric T64-GE/-100 engines
- Thrust: 4,330 shaft horsepower (3.2 MW) per engine
- Length: 88 ft (28 m)
- Height: 25 ft (7.6 m)
- Rotary Diameter: 72 ft (21.9 m)
- Speed: 165 mph (265 km/h) at sea level
- Ceiling: 16,000 ft (4,900 m)
- Maximum Takeoff Weight: 46,000 pounds (21,000 kg), Emergency War Plan allows for 50,000 pounds (23,000 kg)
- Range: 600 nautical miles (1,100 km), unlimited with aerial refueling
- Armament: Combination of three 7.62 mini guns or three .50 caliber (12.7 mm) machine guns
- Crew: Officers, two pilots; enlisted, two flight engineers and two aerial gunners, and 38 troops
- Date Deployed: 1981
- Unit Flyaway Costs: \$40 million (fiscal 2001 constant dollars)
- Air Force Inventory: Active force, 11 MH-53J's, 21 MH-53M's; Reserve, 0; ANG, 0

References

This article contains information that originally came from a US Government website, in the public domain. [USAF Website](#)

External links

- [The Un-Official Pave Low Website](#)

Modern USAF Series	Miscellaneous
Attack-- OA/A-10 , AC-130H/U	RC-135V/RC-135W Rivet Joint
Bomber-- B-52,-2,-1B , F-117A	OC-135B Open Skies
Fighter-- F-15/E , F-16	KC-10 Extender
Electronic-- E-3,-4B,-8C EC-130E/J,H	KC-135 Stratotanker
Transport-- C-5,-17,-141B , -20,-21	MC-130E/H HC-130P/N
C-22B , -32 , -130 , -37A , -40B/C	MC-130P Combat Shadow
Trainers-- T-1 , -37 , -38 , -43 , -6	MH-53 Pave Low
Weather-- WC-130 , -135	HH-60G Pave Hawk
UAV-- RQ-1/MQ-1 UAV , Global Hawk	UH-1N Huey
	U-2S/TU-2S
	VC-25 - Air Force One

MH-6 Little Bird



An AH-6 Little Bird

In the [United States military](#), the **MH-6 Little Bird** is a cargo variant of the [Hughes H-6](#), most notably used by the [160th Special Operations Aviation Regiment](#). This agile, unarmed helicopter, a relative of the OH-6 observation helicopter used in [Vietnam](#), is specially outfitted with outboard "benches" designed to ferry up to three commandos on each side. There is also an attack variant, the [AH-6](#). Painted black to facilitate nighttime operations, this small aircraft can conduct rapid insertions and extractions of [special operations forces](#) into areas its larger brother, the [MH-60 Black Hawk](#), can not.

Armed variants of this helicopter were used by American Ranger and Delta forces during the [Battle of Mogadishu](#), as chronicled by [Mark Bowden](#) in the book [Black Hawk Down: A Story of Modern War](#).

Mil Mi-1



Mil Mi-1

Mil Mi-2

The **Mil Mi-2** ([NATO reporting name](#) is "Hoplite") was a small, lightly armored transport helicopter that could also provide [close air support](#) when armed with 57 mm rockets and a 23 mm cannon. It was first introduced into the [Soviet Air Force](#) in [1965](#). The Mi-2 was produced exclusively in [Poland](#), in the WSK factory in [Swidnik](#). Production ended in [1985](#) after about 7,200 were made.



Polish Mi-2



Polish Mil Mi-2

The Mi-2 is used by mainly former [Soviet](#) countries, although it is used by [Germany](#) and [Myanmar](#) as well.

Specifications (Mil 2-T)

General characteristics

- **Crew:** one, pilot
- **Capacity:** 8 troops or 700 kg (1,540 lb) internal, 800 kg (1,760 lb) external cargo
- **Length:** 11.9 m (39 ft 4 in)
- **Main rotor diameter:** 14.6 m (47 ft 11 in)
- **Height:** 3.7 m (12 ft 2 in)
- **Main rotor area:** 167 m² (1,797 ft²)
- **Empty:** 2,372 kg (5,218 lb)
- **Loaded:** 3,550 kg (7,810 lb)
- **Maximum takeoff:** 3,700 kg (8,140 lb)
- **Powerplant:** 2x [PZL GTD-350](#) turboshaft engines, 298 kW (400 shp) each

Performance

- **Maximum speed:** 220 km/h (138 mph)
- **Range:** 340 km (212 miles)
- **Service ceiling:** 4,000 m (13,120 ft)
- **Rate of climb:** 270 m/min (886 ft/min)
- **Main rotor loading:** 21 kg/m² (4.3 lb/ft²)
- **Power/mass:** 170 W/kg (0.10 hp/lb)

Operators

- Algeria, Armenia, Azerbaijan, Bulgaria, Cuba, Czech Republic, Djibouti, Estonia, Ethiopia, Germany, Georgia, Ghana, Hungary, Iraq, Latvia, Lesotho, Libya, Lithuania, Mexico, Myanmar, Nicaragua, North Korea, Poland, Romania, Russia, Slovakia, Syria, Ukraine,

Related content

Related development: [PZL Kania](#)

Comparable aircraft:

Designation sequence: [Mi-1](#) - **Mi-2** - [Mi-3](#) - [Mi-4](#) - [Mi-6](#)

Mil Mi-4



Mil Mi-4

The **Mil Mi-4** (originally known to US intelligence as the **Type-36** and later by the [NATO reporting name Hound](#)) was a [Soviet transport helicopter](#) that served in both military and civilian roles.

The Mi-4 was designed in response to the American [Sikorsky S-55](#) and the deployment of U.S. helicopters during the [Korean War](#). The first model entered service in [1952](#) and replaced the [Mi-1](#). The helicopter was first displayed to the outside world in [1953](#) at the Soviet Aviation Day in [Tushino](#).

One Mi-4 was built with a jettisonable [rotor](#).

The Mi-4 went out of service with the development of the [Mi-8](#). It is not used by the Russian Air Force today, though it remains in service in some countries as a utility helicopter or a military transport.

Variants

- **Mi-4 Hound-A** - Basic production version.
- **Mi-4A** - Armed assault transport version.
- **Mi-4L** - Six-seat VIP transport version.
- **Mi-4M Hound-C** - Armed close-support version.
- **Mi-4P** - Civil transport version.
- **Mi-4PL Hound-B** - Anti-submarine warfare version.
- **Mi-4S Salon** - VIP transport version.
- **Mi-4Skh** - Multi-role agricultural version.
- **Z-5** - Chinese production version.

Specifications (Mi-4A)

General characteristics

- **Crew:** one or two pilots
- **Capacity:** 16 troops or up to 1,600 kg (3,520 lb) of cargo
- **Length:** 26.80 m (87 ft 11 in)
- **Main rotor diameter:** 21.00 m (68 ft 11 in)
- **Height:** 4.40 m (14 ft 5 in)
- **Main rotor area:** 346.4 m² (3,727 ft²)
- **Empty:** 5,100 kg (11,220 lb)
- **Loaded:** 7,150 kg (15,730 lb)
- **Maximum takeoff:** 7,550 kg (16,610 lb)
- **Powerplant:** 1x [Shvetsov ASh-82V](#) radial, 1,250 kW (1,675 hp)

Performance

- **Maximum speed:** 185 km/h (116 mph)
- **Range:** 500 km (313 miles)
- **Service ceiling:** 5,500 m (18,040 ft)
- **Rate of climb:** m/min (ft/min)
- **Main rotor loading:** 41 kg/m² (8 lb/ft²)
- **Power/Mass:** 0.21 kW/kg (0.13 hp/lb)

Operators

- Afghanistan, Albania, Algeria, Angola, Bulgaria, Cambodia, China, Cuba, Czechoslovakia, East Germany, Egypt, Finland, Guinea Bissau, Hungary, India, Indonesia, Iraq, Mali, Mongolia, North Korea, Poland, Romania, Somalia, Soviet Union, South Yeman, Syria, Sudan, Vietnam, Yeman, Yugoslavia,

Related development:

Comparable aircraft: [H-34 Chocktaw](#)

Designation sequence: [Mi-1](#) - [Mi-2](#) - [Mi-3](#) - **Mi-4** - [Mi-6](#) - [Mi-8](#) - [Mi-10](#)

Mil Mi-6

The [Mil Mi-6](#) ([NATO reporting name](#) Hook) was a Soviet heavy transport helicopter first flown in [July 1957](#) and built in large numbers for both military and civil roles.



Mil Mi-6

Getting this large vehicle in the air is no easy task; the Mi-6 has an enormous gearbox, heavier than its engines, and often uses short wings to relieve the load on the rotor in cruise. It was not only for a long time the largest helicopter, it was also the fastest with a speed of 300 km/h. Load 12,000 kg. Test pilot N.B. Leshin has set the world record of speed. This event was awarded by the American Helicopter Society.

Small numbers are still in service, most in [Siberia](#) plus a couple with the [People's Republic of China](#).

Specifications (Mi-6)

General characteristics

- **Crew:** five
- **Capacity:** 61 troops or up to 12,000 kg (26,400 lb) of cargo
- **Length:** 33.18 m (108 ft 10 in)
- **Main rotor diameter:** 35.00 m (114 ft 10 in)
- **Height:** 9.86 m (32 ft 4 in)
- **Main rotor area:** 962 m² (10,350 ft²)
- **Empty:** 26,500 kg (58,400 lb)
- **Loaded:** 39,700 kg (87,500 lb)
- **Maximum takeoff:** 41,700 kg (91,900 lb)
- **Powerplant:** 2x [Soloviev D-25V](#) turboshafts, 4,100 kW (5,500 shp) each

Performance

- **Maximum speed:** 250 km/h (155 mph)
- **Range:** 500 km (310 miles)
- **Service ceiling:** 4,500 m (14,800 ft)
- **Rate of climb:** m/min (ft/min)
- **Main rotor loading:** 41 kg/m² (8 lb/ft²)
- **Power/Mass:** 0.21 kW/kg (0.13 hp/lb)

Operators

- [Algeria](#), [Belarus](#), [Bulgaria](#), [China](#), [Egypt](#), [Ethiopia](#), [Indonesia](#), [Iraq](#), [Kazakhstan](#), [Peru](#), [Russia](#), [Syria](#), [Ukraine](#), [Uzbekistan](#), [Vietnam](#)

Related development: [Mi-10](#) - [Mi-22](#) - [Mi-26](#)

Comparable aircraft:

Designation sequence: [Mi-2](#) - [Mi-3](#) - [Mi-4](#) - **Mi-6** - [Mi-8](#) - [Mi-9](#) - [Mi-10](#)

Mil Mi-8



Russian Mi-8 Hip



Polish Mi-8T in Iraq, 2005

The **Mil Mi-8** ([NATO reporting name "Hip"](#)) is a large twin-turbine transport [helicopter](#) that can also act as a [gunship](#). The first single-engine (AI-24W) prototype, W-8, flew in 9 July [1961](#). Second one with two AI-24W engines made its first flight on [17 September 1962](#). After few changes it was introduced into the [Soviet Air Force](#) by [1967](#) as Mi-8. There are numerous variants, including the **Mi-8T** which in addition to carrying twenty four soldiers is also armed with rockets and [anti-tank guided missiles](#). The navalized [Mil Mi-14](#), and attack [Mi-24](#) are derived from the Mi-8.

The Mi-8 is used by over 50 countries, including [China](#) and [Iran](#); the latest variant, known as the Mi-8MT/[Mi-17](#) is more heavily armed and was introduced in [1981](#). The Mi-17 is less widely used, employed by around 20 countries.

Variants

- **V-8 Hip-A** - The original single-engined prototype.
- **Mi-8 Hip-B** - Twin-engined prototype.
- **Mi-8AMT**
- **Mi-8AMTSh Terminator** - attack version with armored cabin, remote-controlled machine gun turret in the rear, six weapon hardpoints, capability for carrying guided air-to-air and air-to-ground missiles
- **Mi-8AT** - Civilian transport version, with upgraded engines.
- **Mi-8ATS** - Agricultural version.
- **Mi-8M** -
- **Mi-8MT Hip-H** - Mi-8T with larger engines, different transmission, rotor system, and upgraded fuselage. See [Mi-17](#).
- **Mi-8MTV** - Mi-8MT with high altitude version engines.
- **Mi-8P Hip-C** - Civilian passenger transport version.
- **Mi-8PPA Hip-K** - active jamming version
- **Mi-8PS Hip-D** : Radio relay and command post version.
- **Mi-8S Salon** - Civilian VIP transport version.
- **Mi-8SMV Hip-J** - Jamming version for protection of ground attack aircraft against enemy air defenses. Nato code-name **Hip-J**.
- **Mi-8T Hip-C** - Civil and military utility transport version.
- **Mi-8TB Hip-E** - Armed assault transport version.
- **Mi-8TBK Hip-F** - Export version of the Mi-8TB.
- **Mi-8TG Hip-C** - Conversion to operate on LPG gas.
- **Mi-8TM** - Upgraded passenger transport version.
- **Mi-8TV** - Mi-8T with external hardpoints for bombs or unguided rockets
- **Mi-8 VIP** - VIP transport version.
- **Mi-8VKP (Mi-8VzPU)** - Mi-8T field-converted into an airborne command post. Nato code-name **Hip-D**.
- **Mi-9 (Mi-8IV)** - Airborne command post with additional antennae and [doppler radar](#). Nato code-name **Hip-G**.
- **Mi-19** - airborne command post for tank and [motorized infantry](#) commanders based on Mi-8MT
- **Mi-19R** - airborne command post based on Mi-19 for commanders of [rocket artillery](#)

Specifications (Mil 8-T)

General characteristics

- **Crew:** three, two pilots one engineer
- **Capacity:** 24 passengers or 3,000 kg (6,600 lb) on internal/external hardpoints.
- **Length:** 18.2 m (59 ft 8 in)
- **Main rotor area:** 356 m² (3,830 ft²)
- **Empty:** 6,990 kg (15,410 lb)
- **Loaded:** 11,100 kg (24,500 lb)
- **Maximum takeoff:** 12,000 kg (26,500 lb)
- **Powerplant:** 2x [Klimov TV2-117](#), 1,105 kW (1,482 hp) each

Performance

- **Maximum speed:** 250 km/h (156 mph)
- **Range:** 450 km (281 miles)
- **Service ceiling:** 4,500 m (14,760 ft)
- **Rate of climb:** 9 m/s (1,770 ft/min)
- **Fuel Consumption:** 600 kg/Hr Jet A1

Armament

- 57 mm rockets, bombs, or AT-2C/ SWATTER [ATGMs](#).

Related content

- Related development: [Mi-9](#) - [Mi-14](#) - [Mi-17](#) - [Mi-18](#) - [Mi-19](#) - [Mi-24](#) - [Mi-171](#) - [Mi-172](#)
- Comparable aircraft: [Aérospatiale Puma](#)
- Designation sequence: [Mi-3](#) - [Mi-4](#) - [Mi-6](#) - **Mi-8** - [Mi-9](#) - [Mi-10](#) - [Mi-12](#)

Photos



Closeup of nose

Mil Mi-10



Mi-10

The **Mil Mi-10** ([NATO reporting name Harke](#)) was a [Soviet](#) military transport [helicopter](#) of flying crane configuration, developed in [1962](#) from the [Mi-6](#). It entered service in [1963](#).

Also known as "Product 60" by Rostov-upon-Don helicopter facility.

It was built as the short-legged ("Mi-10K") version, and the long-legged ("Mi-10R") version. It is powered by two 5500 shp Soloviev D-25 turboshafts.

Variants

- **V-10** - Prototype of the Mil Mi-10 helicopter.
- **Mi-10K** - Short-legged flying crane helicopter.
- **Mi-10R** - Standard production model, long-legged flying-crane helicopter. Record setting.
- **Mi-10PP** - ECM (Postanovschik Pomekh)

Specifications (Mil-10)

General characteristics

- **Crew:** Three
- **Capacity:** Up to 15,000 kg (33,000 lb) of cargo
- **Length:** 32.86 m (107 ft 9 in)
- **Rotor diameter:** 35.00 m (114 ft 10 in)
- **Height:** 7.80 m (25 ft 7 in)
- **Disc area:** 962 m² (10,350 ft²)
- **Empty weight:** 24,680 kg (54,296 lb)
- **Loaded weight:** 43,550 kg (95,810 lb)
- **Maximum Take-Off Weight:** 43,700 kg (96,140 lb)
- **Powerplant:** 2x [Soloviev D-25V turboshafts](#), 4,045 kW (5,422 shp) each

Performance

- **Maximum speed:** 204 km/h (128 mph)
- **Range:** 650 km (406 mi)
- **Service ceiling:** 3,000 m (9,840 ft)

- **Rate of climb:** m/s (ft/min)
- **Disc loading:** 45 kg/m² (9 lb/ft²)
- **Power/mass:** 0.18 kW/kg (0.11 hp/lb)

Mil Mi-12



Mil V-12 (behind a T-10, prototype of Su-27)



Mil V-12 in flight

The **Mil Mi-12** (Also known as the **V-12**, [NATO reporting name Homer](#)) was a [Soviet](#) heavy transport [helicopter](#). It was the largest helicopter ever built.

Production began on the Mi-12 [prototype](#) in [1965](#), and it first flew in [1968](#). In [August 1969](#), the Mi-12 lifted 88,636 lb (44 tons) to a height of 7,398 feet, a [world record](#). Another Mi-12 was built and shown at the [Paris air show](#) in [1971](#).

The Mi-12 was innovative in several areas, notably the side-by-side rotor scheme and the ability to lift many tons. However, the helicopter did not meet its design specifications and the program was cancelled with only two aircraft built.

One Mi-12 is on display at the [Monino](#) Air Force Museum in [Russia](#). The other is reportedly at the Mil plant near [Moscow](#).

Specifications (Mil-12)

General characteristics

- **Crew:** six
- **Capacity:** up to 25,000 kg (55,000 lb) of cargo
- **Length:** 37.00 m (121 ft 4 in)
- **Main rotor diameter:** 2x 35.00 m (114 ft 10 in)
- **Height:** 12.50 m (41 ft 0 in)
- **Main rotor area:** 1,924 m² (20,700 ft²)
- **Empty:** 69,100 kg (152,020 lb)
- **Loaded:** 97,000 kg (213,400 lb)
- **Maximum takeoff:** 105,000 kg (231,000 lb)
- **Powerplant:** 4x [Aviadvigatel D-25VF](#) turboshafts, 4,847 kW (6,497 shp) each

Performance

- **Maximum speed:** 260 km/h (163 mph)
- **Range:** 1,000 km (625 miles)
- **Service ceiling:** 3,500 m (11,480 ft)
- **Rate of climb:** m/min (ft/min)
- **Main rotor loading:** 50 kg/m² (10 lb/ft²)
- **Power/Mass:** 0.20 kW/kg (0.12 hp/lb)

Mil Mi-14



Mil Mi-14P



[Polish Navy's](#) Mi-14 on display at [Radom Air Show](#)

The [Mil Mi-14](#) ([NATO reporting name Haze](#)) was a [Soviet](#) military transport helicopter, derived from the earlier [Mi-8](#).

Built in antisubmarine, mine countermeasures, and search and rescue versions. Two 1950 shp Isotov TV-3-117M turboshaft engines. Entered service in [1975](#).

Variants

- **V-14** - Prototype.
- **Mi-14BT Haze-B** - Mine sweeping version.
- **Mi-14GP** - Civilian version.
- **Mi-14P** - 24-seat civilian transport helicopter.
- **Mi-14PL Haze-A** - Anti submarine warfare helicopter.
- **Mi-14PLM** - Improved anti-submarine warfare version.
- **Mi-14PZ** - Polish designation of the Mi-14PL.
- **Mi-14PZh** - amphibious firebuster version of Mi-14BT. Conversion price about USD1M.
- **Mi-14PS Haze-C** - Search and rescue version.
- **Mi-14X** - Rescue training helicopter for the Polish navy.
- **Mi-14 Eliminator** - Mi-14BT helicopters converted into fire fighting aircraft.

Specifications (Mil-14BT)

General characteristics

- **Crew:** two
- **Capacity:** 32 troops or 12 stretchers or 4,000 kg (8,800 lb) of cargo
- **Length:** 18.38 m (60 ft 3 in)
- **Main rotor diameter:** 21.29 m (69 ft 10 in)
- **Height:** 6.93 m (22 ft 9 in)
- **Main rotor area:** 356.0 m² (3,830 ft²)
- **Empty:** 8,900 kg (19,580 lb)
- **Loaded:** kg (lb)
- **Maximum takeoff:** 13,400 kg (29,480 lb)
- **Powerplant:** 2x [Klimov TV3-117M](#) turboshafts, 1,454 kW (1,950 shp) each

Performance

- **Maximum speed:** 230 km/h (144 mph)
- **Range:** 800 km (500 miles)
- **Service ceiling:** 4,000 m (13,120 ft)
- **Rate of climb:** m/min (ft/min)
- **Main rotor loading:** kg/m² (lb/ft²)
- **Power/Mass:** kW/kg (hp/lb)
- **Fuel Consumption:** 600 kg/Hr Jet A1

Operators

- [Bulgaria](#), [Cuba](#), [East Germany](#), [Ethiopia](#), [Libya](#), [North Korea](#), [Poland](#), [Russia](#), [Syria](#), [Ukraine](#)

Mil Mi-17



Mil Mi-17

The **Mil Mi-17** (Also known as the **Mi-8MT**, [NATO reporting name Hip-H](#)) is a Russian [helicopter](#) currently in production at two factories in [Kazan](#) and [Ulan-Ude](#).

Developed from the basic MI-8 airframe it was fitted with the larger TV3-117MT engines, rotors, and transmission developed for the [Mi-14](#), along with fuselage improvements for heavier loads. Optional engines for 'hot and high' conditions are the 1545kW (2070shp) Isotov TV3-117VM. Recent exports to China and Venezuela for use in high mountains have the new VK-2500 version of the engine with [FADEC](#) control.

The designation Mi-17 is for export; the USSR armed forces called it Mi-8MT. The Mi-17 can be recognized because it has the tail rotor on the port side instead of the starboard side, and dust shields in front of the engine intakes.

Actual model numbers vary by builder, engine type, and other options. As an example, the sixteen new Ulan Ude built machines delivered to the Czech air force in 2005 with –VM model engines were designated as Mi-171Sh, a development of the Mi-8AMTSh. Modifications include a new large door on the right side, improved Czech-built APU, Kevlar plates around the cockpit area and engines. Eight have a loading ramp in place of the usual clamshell doors, and will load a vehicle up to the size of an SUV.

The Mi-17 is also used for search and rescue team like [Malaysian Fire and Rescue Department](#) in [Malaysia](#).

Specifications (Mil-17)

General characteristics

- **Crew:** Three[pilot/co-pilot/flight engineer]
- **Capacity:** 32 troops or 12 stretchers or 4,000 kg (8,800 lb) of cargo.
- **Length:** 18.42 m (60 ft 5 in)
- **Main rotor diameter:** 21.352 m (69 ft 10 in)
- **Height:** 4.76 m (15 ft 7 in)

- **Main rotor area:** 356 m² (3,830 ft²)
- **Empty:** 7,100 kg (15,700 lb)
- **Loaded:** 11,100 kg (24,470 lb)
- **Maximum takeoff:** 13,000 kg (28,700 lb)
- **Powerplant:** 2x [Klimov TV3-117VM](#) turboshafts, 1,450 kW (2225 shp) each at max .take off rating.

Performance

- **Maximum speed:** 250 km/h (156 mph)
- **Range:** 950 km (594 miles)
- **Service ceiling:** 6,000 m (19,690 ft)
- **Rate of climb:** 8m/sec at lim t/o & 11m/sec at max take off rating.
- **Main rotor loading:** 31 kg/m² (6 lb/ft²)
- **Power/Mass:** 0.26 kW/kg (0.16 hp/lb)

Armament

- up to 1,500 kg (3,300 lb) of disposable stores on six hardpoints, including bombs, rockets, and gunpods

Operators

- [Afghanistan](#), [Albania](#), [Algeria](#), [Angola](#), [Armenia](#), [Bangladesh](#), [Bosnia-Herzegovina](#), [Bulgaria](#), [Burkina Faso](#), [Cambodia](#), [China](#), [Colombia](#), [Costa Rica](#), [Mexico](#), [Croatia](#), [Cuba](#), [Czech Republic](#), [Eritrea](#), [Ethiopia](#), [Georgia](#), [Hungary](#), [India](#), [Kenya](#), [Kyrgyzstan](#), [Laos](#), [Macedonia](#), [Malaysia](#) (Fire and Rescue version) [Mexico](#), [Myanmar](#), [Nicaragua](#), [Pakistan](#), [Palestine](#), [Peru](#), [Poland](#), [Romania](#), [Russia](#), [Rwanda](#) (Mi-17MD), [Slovakia](#), [Sri Lanka](#), [Syria](#), [Turkey](#), [Uganda](#), [Uzbekistan](#), [Venezuela](#), [Vietnam](#), [Yugoslavia](#)

Mil Mi-18

The **Mil Mi-18** was a prototype [helicopter](#) design, a modification of the existing [Mil Mi-8](#) in service with the [Soviet Army](#) and [Air Force](#).

To build the Mi-18 prototypes, two Mi-8s used were extended by 0.9 metres (3 ft), the landing gear made retractable, and a sliding door added to the starboard side of the fuselage.

The Mi-18s were trialed in the [Soviet invasion of Afghanistan](#), and later used as static training airframes for pilots of the Mi-8/17.

Mil Mi-24



Mi-24D Hind-D of the [Polish Army](#).

The [Mil Mi-24](#) is a large combat [helicopter gunship](#) and low-capacity troop transport operated from [1976](#) by the Soviet Air Force, its successors, and over thirty other nations.

Its [NATO reporting name](#) is *Hind* and variants are identified with an additional letter. The export versions, **Mi-25** and **Mi-35**, are denoted as *Hind D* and *Hind E* respectively. Soviet pilots called the aircraft 'letayushiy tank' or *flying tank*. Another common nickname is 'Krokodil' (*Crocodile*) - due to the helicopter's camouflage and hull shape.

Characteristics

The core of the aircraft was taken from the [Mil Mi-8](#) (NATO reporting name "Hip H"), two top mounted [turboshaft](#) engines driving a mid-mounted 17.3 m five-blade main [rotor](#) and a three blade tail rotor. The engine positions give the aircraft its distinctive double air intake. Versions D and above include a characteristic tandem [cockpit](#) with a "double bubble" canopy. Other components of the airframe came from the [Mi-14](#). Weapon [hardpoints](#) are provided by two short mid-mounted [wings](#) (which also provide [lift](#)), each offering three stations. The load-out mix is mission dependent; the *Hind* can be tasked with close air support, anti-tank operations, or aerial combat. The body is heavily armoured and the [titanium](#) rotor blades can resist impacts from 12.7 mm rounds. The cockpit is [overpressurized](#) to protect the crew in [NBC conditions](#). The craft uses a retractable [tricycle undercarriage](#).

Problems

The comparatively high size and weight of the *Hind* limit its endurance and maneuverability. In tight banking turns it can roll alarmingly as the wings lose lift - this was noted during test-flights in [1969](#) but has still not been entirely eliminated. To counter this vulnerability, the Russians operate the aircraft in pairs or larger groups, with attacks carefully coordinated to strike from multiple directions simultaneously.

Another weakness was the possibility of the main rotor striking the tail-boom during violent maneuvers. Its high loaded weight can also limit its effectiveness as a helicopter; some reports state that with a full load the *Hind* needs a rolling take-off and also cannot hover. The problems with the dual-role *Hind* have prompted the development of the [Mil Mi-28](#) and also the [Kamov Ka-50](#) to replace it in the gunship role.

Also, the wings interfere with the aircraft's ability to [hover](#) and take off vertically. In fact, the Hind is certified to hover for only about 200 hours during its entire lifetime, a consequence of its emphasis on forward speed.

Combat experience

Please [improve](#) and expand this section. There may be comments on what is required on the [requests for expansion](#) page or on this article's [talk](#) page.

- [The Ogaden War \(1977-1978\)](#)

The first use of the [Mi-24](#) in combat was with the Ethiopian forces during the [Ogaden War](#) against the Somalis. The helicopters formed part of a massive airlift of military equipment from the Soviet Union, after the Soviets switched sides towards the end of 1977.

- [Invasion of Cambodia \(1978\)](#) saw extensive use of Mi-24A by the Vietnamese People's Air Force. The gunships were in combat until 1986 when the Khmer Rouge was chased back to Thailand's border.
- [Soviet war in Afghanistan \(1979-1989\)](#)

The aircraft was operated extensively during the Soviet invasion of [Afghanistan](#), mainly for bombing [Mujahideen](#) fighters. The US supplied heat-seeking [Stinger missiles](#) to the [Mujahideen](#), and the Soviet [Mi-8](#) and [Mi-24](#) helicopters proved to be favorite targets of the rebels.

The *Hind* gunships constituted a part of the [333 helicopters lost during combat operations in Afghanistan](#), an unknown number to ground fire. The cockpit was heavily armoured and could withstand even .50 cal rounds, but the *Hinds* tail is extremely vulnerable due to the lack of armour in that section.

The heat-seeking nature of the anti-aircraft weapons employed by the Mujahideen combined with the *Hinds* exhaust being directly under the main rotor caused the aircraft to disintegrate if hit. This was remedied later by countermeasure flares and a missile warning system being installed into all Soviet [Mi-4](#), [Mi-8](#), and [Mi-24](#) helicopters giving the pilot a chance to evade the missile or crash-land.

During this conflict, the *Hind* proved effective and very reliable, earning the respect of both Soviet pilots and the Mujahideen, who scattered as quickly as possible when Soviet target designation flares were lit nearby. The Mujahideen nicknamed the Mi-24 as the "Devil's Chariot" due to its notorious reputation. One Afghan rebel said "We do not fear the Soviets. We fear their helicopters."

- [Iran-Iraq War \(1980-1988\)](#)

The *Hind* saw considerable use by the [Iraqi Army](#) during the long war with their neighbour, [Iran](#). Its heavy armament was a key factor in causing severe damage to [Iranian](#) ground forces. This war saw the only confirmed air-to-air helicopter battles in history with the Iraqi *Hinds* flying against Iranian [AH-1J SeaCobras](#) (supplied by the US military) on several separate occasions. These rare battles saw Iraq emerge with a slight edge with ten AH-1Js downed by *Hinds* compared to six *Hinds* downed by AH-1Js.

- [Nicaraguan civil war \(1980-1988\)](#)

Hinds were also used by the [Sandinista](#) Army during the civil war of the [1980s](#).

- [Sri Lanka 1980s](#)

Sri Lanka's air force used *Hinds* when an [Indian Air Force](#) detachment was deployed there in support of the Indian and Sri Lankan armed forces in their fight against various [Tamil groups](#). It is believed that Indian losses were considerably reduced due to the heavy fire support provided by their *Hind* gunships.

- [Gulf War \(1991\)](#)

The *Hind* was again employed heavily by Iraqis during their invasion of [Kuwait](#), although most were withdrawn by [Saddam Hussein](#) when it became apparent that he would need them to retain his grip on power in the aftermath of the war.

- [Croatia \(1990s-1995s\)](#)

First shown in 1993, they were used in operation Storm in 1995

- [Chechnya \(1990s-2000s\)](#)

During both wars in the Russian republic of [Chechnya](#), beginning in [1994](#) and [1999](#) respectively, Mi-24s were employed by the Russian armed forces. As with Afghanistan, however, the Mi-24s were vulnerable to rebel tactics. Dozens are believed to have been shot down or crashed during military operations. A contributing cause to these crashes is the poor [maintenance](#) given to these aging helicopters.

- [Sudan \(1995-till date\)](#)

The Sudanese air force acquired six Mi-24's in [1995](#) which were used in [Southern Sudan](#) and the [Nuba mountains](#) to engage the [SPLA](#). At least two aircraft were lost within the first year of operation while not in combat, but may have been replaced.

A further twelve were bought in [2001 \[1\]](#) and used extensively in the oilfields of [Southern Sudan](#). Mi-24's were also deployed to [Darfur](#) in [2004](#)

- [Congo \(2003-till date\)](#)

This UN peace keeping mission employed the MI-25/35 helicopters from the Indian Air Force to give support to the mission. The IAF has been operating the region since 2003.

- [Macedonia \(February 2001-August 2001\)](#)

The Macedonian armed forces used the Mi-24V effectively against Albanian rebels. The Mi-24V was the most effective weapon against the terrorists, with enemy casualties mounting in their hundreds in the Aracinovo and Radusa offensives.

- [Iraq War \(March 2003-till date\)](#)

Polish contingent in Iraq is using 6 Mi-24D since [November 2004](#).

Variants

Initially modelled on the Bell [AH-1 Cobra](#) and borrowing extensively from existing models the *Hind* went from drawing board in [1968](#) to first test-flights in less than eighteen months. First models were delivered to the armed forces for evaluation in [1970](#). The **Mi-24A** (*Hind-B*) did have a number of problems - lateral roll, weapon sighting problems, and limited field of view for the pilot. A heavy redesign of the aircraft front section solved some of these problems.

- The first version of this helicopter, were twelve **V-24** (*Hind*) prototypes and development aircraft. One such prototype was modified in 1975 as **A-10** for successful speed record attempts (having reached 368km/h) with wings removed and faired over and with inertia-type dampers on the main rotor head.
- Other early versions were the **Mi-24** (*Hind-A*) armed assault helicopter, which could carry eight combat troops and three crew members. It could also carry four 57-mm rocket pods on four underwing pylons, four 9M17 Falanga (AT-2 Swatter) anti-tank missiles on two underwing rails, free-fall bombs, plus one 12.7-mm machine-gun in the nose. The **Mi-24** (*Hind-A*) was the first production model.
- It was followed up by the second production model the **Mi-24A** (*Hind-B*). Both the Mi-24 and Mi-24A entered Soviet Air Force service in 1973 or 1974.
- The **Mi-24U** (*Hind-C*) was a training version without any armament.
- The most common variant is the **Mi-24D** (*Hind-D*), a purer gunship than the earlier variants, the first to include the electronics for [Anti-tank guided missiles](#) 9M17 Falanga ([AT-2 Swatter](#)). The Mi-24D has a redesigned forward fuselage, with two separate cockpits for the pilot and gunner. It is armed with a single 12.7-mm four-barrel machine-gun under the nose. It can carry four 57-mm rocket pods, four 9M17 Falanga (AT-2 Swatter) anti-tank missiles, plus bombs and other weapons.
- Small numbers of Mi-24Ds were built as **Mi-24DU** training helicopters.
- The **Mi-25** is the export version of the Mi-24D.
- Later development led to the **Mi-24V** (*Hind-E*) which was first seen in the early 1980s. It armed with newer [ATGMs](#), like the (9M114 Kokon, [AT-6 Spiral](#)) with tube launchers. Twelve of those missile are mounted on six wing pylons.
- The **Mi-35** is the export version of the Mi-24V (*Hind-E*).
- The **Mi-24P** (*Hind-F*) gunship version, which replaced the 12.7mm machine-gun with a fixed 30-mm cannon.
- The **Mi-35P** is the export version of the Mi-24P (*Hind-F*).
- Other versions of Mi-24 are the **Mi-24RKR** (*Hind-G1*) NBC reconnaissance model, which is designed to collect radiation, biological and chemical samples. It was first seen during the 1986 Chernobyl nuclear disaster. Also known as the **Mi-24R**, **Mi-24RR** and **Mi-24RKh** (**Rch**).

- **Mi-24K (Hind-G2)** : Army reconnaissance, artillery observation helicopter.
- **Mi-24PS** : Civil police or para-military version.
- **Mi-24E** : Environmental research version.
- **Mi-35U** : Unarmed training version of the Mi-35.
- **Mi-24M** : Night attack version.
- **Mi-24VP** : Mi-24V armed with twin 30-mm cannon in the nose turret.
- **Mi-24W** : Polish designation for the Mi-24V Hind-E.

The newest variant is the [1995 Mi-24VM](#), with light-weight fibre main and tail rotors to improve all-round performance, updated avionics to improve night-time operation, new communications gear, shorter and lighter wings, and updated weapon systems to include support for the Ataka, Shturm and Iglav missiles and a 23 mm main gun. Other internal changes have been made to increase the aircraft life-cycle and ease maintenance. The Mi24VM is expected to operate until [2015](#).

The Russian military has selected the Mi-24PN upgrade to be their primary attack helicopter. The PN version has a TV and a FLIR camera located in a dome on the front of the aircraft. Other modifications include using the rotor blades and wings from the [Mi-28](#) and fixed rather than retractable landing gear. The Russians received 14 Mi-24PNs in 2004 and plan on eventually upgrading all of their Mi-24s. [\[2\]](#) [\[3\]](#)

Since [1978](#) around 2,000 *Hinds* have been manufactured, 600 for export. The [U.S. Army](#) operates a number of Hinds in [Louisiana](#) for [adversary training](#).

Operators

- [Afghanistan](#), [Algeria](#), [Angola](#), [Armenia](#), [Azerbaijan](#), [Belarus](#), [Bulgaria](#), [Chad](#), [Cyprus](#), [Croatia](#), [Cuba](#), [Czech Republic](#), [East Germany](#), [Equatorial Guinea](#), [Eritrea](#), [Ethiopia](#), [Georgia](#), [Guinea](#), [Hungary](#), [India](#), [Indonesia](#), [Iraq](#), [Kazakhstan](#), [Kyrgyzia](#), [Libya](#), [Macedonia](#), [Mexico](#), [Mozambique](#), [Nicaragua](#), [Nigeria](#), [North Korea](#), [Pakistan](#), [Peru](#), [Poland](#), [Russia](#), [Rwanda](#), [Serbia and Montenegro](#), [Sierra Leone](#), [Slovakia](#), [Sri Lanka](#), [Sudan](#), [Syria](#), [Tajikistan](#), [Ukraine](#), [USA](#), [Uzbekistan](#), [Vietnam](#), [Yemen](#), [Zimbabwe](#).

Specifications (Mi-24)



General characteristics

- **Crew:** 2 (pilot, co-pilot)
- **Capacity:** 8 troops or 4 stretchers
- **Length:** 57 ft 4 in (17.5 m)
- **Rotor diameter:** 56 ft 7 in (17.3 m)

- **Wingspan:** 21 ft 3 in (6.5 m)

- **Height:** 21 ft 3 in (6.5 m)
- **Disc area:** ft² (m²)
- **Empty weight:** 18,740 lb (8,500 kg)
- **Maximum Take-Off Weight:** 26 455 lb (12,000 kg)
- **Powerplant:** 2x [Isotov TV-3](#) turbines, 2,200hp (1,600 kW) each

Performance

- **Maximum speed:** 208 mph (335 km/h)
- **Range:** 280 miles (450 km)
- **Service ceiling:** 14,750 ft (4,500 m)
- **Rate of climb:** ft/min (m/s)

Armament

- 12.7 mm YaKB-12.7 Yakushev-Borzov multi-barrel machinegun
- 1,500 kg of bombs
- 4x [Anti-tank guided missiles](#) ([AT-2 Swatter](#) or [AT-6 Spiral](#))
- 4x 57 mm [S-5 rocket](#) pods or 4x 80 mm [S-8 rocket](#) pods

Mil Mi-26



Mi-26T at Zhukovskiy, 1997

The [Mil Mi-26](#) ([NATO reporting name Halo](#)) is a [Russian/Soviet](#) heavy [transport helicopter](#) in service in civilian and military roles. It is the heaviest and most powerful helicopter in production.

History

The Mi-26 was designed for military and civil use and intended to be able to lift more than any previous helicopter. The first Mi-26 flew on [December 14, 1977](#) and the first entered service in the Soviet military in [1983](#).

The Mi-26 was the first helicopter to operate with an eight-blade [rotor](#). While it is only slightly heavier than the [Mil Mi-6](#), it can lift more: 20 tonnes (44,000 lbs).

Chechen crash and controversy

On [August 19, 2002](#), [Chechen](#) rebels hit an Mi-26 with a [surface to air missile](#), causing it to crash in a [minefield](#). A total of 127 Russians were killed in the crash. An investigation determined that the helicopter was grossly overloaded—the helicopter was only meant to carry about 80 troops, while this one was carrying around 150. A [1997](#) order prohibited the overloading of such flights, but in this case it was apparently not heeded.

In response to this crash, Russian president [Vladimir Putin](#) ordered an inquiry into the military's negligence. The commander in charge of the helicopter, [Lieutenant-Colonel Alexander Kudyakov](#), was convicted of negligence and violating flight regulations. The Chechen who shot down the helicopter sentenced to life in prison in [April 2004](#) [\[1\]](#).

Variants

- **V-29** - Prototype.
- **Mi-26A Halo-A** - Military cargo/freight transport version.
- **Mi-26M** – Designed for better performance.
- **Mi-26MS** - Aeromedical evacuation version.
- **Mi-26NEF-M** - Anti-submarine warfare version.
- **Mi-26P** - 63 passenger civil transport version.
- **Mi-26PK** - Flying crane helicopter.

- **Mi-26T** - Civil cargo/freight transport version.
 - **Mi-26TC** - Cargo transport version.
 - **Mi-26TM** - Flying crane helicopter.
 - **Mi-26TP** - Firefighting version.
 - **Mi-26TS** - Export version of the Mi-26T.
 - **Mi-26TZ** - Fuel tanker version.

Specifications

General Characteristics

- **Role:** Heavy-cargo transport
- **Crew:** Five—2 pilots, 1 navigator, 1 flight engineer, 1 loadmaster
- **Passengers:** Can carry up to 80 troops
- **Length:** 40.025 m / 131 ft 3.75 in
- **Width:** 8.2 m
- **Height:** 8.145 m / 26 ft 8.75 in
- **Empty weight:** 28,200 kg / 62,170 lb
- **Maximum takeoff weight:** 56,000 kg / 123,459 lb
- **Powerplant:** two 8380-kW (11,240-shp) Lotarev D-136 turboshafts

Performance

- **Maximum speed:** 295km/h (160kt)
- **Service ceiling:** 15,100ft.
- **Rate of climb:**

Operators

[Greece](#), [India](#), [Laos](#), [Mexico](#), [Peru](#), [Russia](#), [South Korea](#)

Civil Operators

[Aeroflot](#)

Mil Mi-28

The **Mil Mi-28** ([NATO reporting name Havoc](#)) is a [Russian](#) tandem two-seat anti-armour and attack helicopter.

It is a dedicated attack helicopter with no intended secondary transport capability, better optimized than the [Mi-24](#) for the anti-tank role. Roughly comparable to [AH-64 Apache](#). Carries a single gun in an undernose barbette, plus external loads carried on pylons beneath stub wings. Current status is uncertain.



Mil Mi-28

Development history

After designing the [Mi-24](#), which was a unique design of an attack helicopter with transport capability, in [1972](#) there started works in the [USSR](#) on a new helicopter. Due to lack of transport cabin, it should have better performance, especially higher speed. Its main role should be fighting against tanks and enemy helicopters and covering helicopter landing operations. Among inspirations were US [AH-56](#) and [AH-64](#) projects. Initially, many different designs were considered, including an unconventional project with two main rotors, placed with engines on tips of wings (in perpendicular layout), and with additional pusher propeller on the tail. Most projects were conventional ones, resembling "slimmer" variants of the Mi-24, especially by bubble [canopies](#), with engines on both sides of a fuselage. In [1977](#), a preliminary design was chosen, in a classic single-rotor layout. It lost similarity to the Mi-24, even the canopies were smaller, with flat surfaces.

In [1981](#), a design and a mock-up were accepted. The prototype (no. 012) was first flown on November 10, [1982](#), followed by the second prototype (no. 022), built in [1983](#). In [1984](#) it completed the first stage of state trials, but in October 1984 the [Soviet Air Force](#) chose the more advanced [Kamov Ka-50](#) as the new anti-tank helicopter. The Mi-28 development was continued, but with less priority. In December [1987](#) it was decided to start Mi-28 production in [Rosvertol](#) in [Rostov on Don](#).

In January [1988](#) the first **Mi-28A** was flown (no. 032), as a pattern for a serial production. It was fitted with stronger engines and "X" type tail rotor instead of three-blade one. In June [1989](#) it was first presented abroad, on the [Paris Air Show](#) in [Le Bourget](#). In [1991](#) second Mi-28A was built (no. 042). In [1993](#) it was decided to cancel Mi-28A day-helicopter development, because it could not compete in this field against Ka-50, and to develop all-weather variant instead (due to common problems with funding, the Ka-50 was not built in any significant number, anyway). In [1990](#) there was an agreement to export a party of Mi-28A to [Iraq](#) and produce it there as Mi-28L, but it was not proceeded due to [Gulf War](#).

In August [1995](#) there was presented a new variant **Mi-28N** Its designation means a "night" helicopter. The prototype (no. 014) was first flown on November 14, [1996](#). The most significant feature is a [radar](#) in a round cover above the main rotor. It also has improved Tor vision and aiming device under a nose, including a TV camera and [FLIR](#). Due to funding problems, its development was slow. In March [2004](#) there was built (in Rosvertol) the second Mi-28N prototype (no.02), with improved and strengthened rotor.



Mil Mi-28

A changed military situation after the [Cold War](#) made specialized anti-tank helicopters, like Ka-50, less useful. On the other hand, its all-weather two-seater variant [Ka-52](#) had worse performance due to increased weight. That is why advantages of the Mi-28N, like all-weather action ability, lower cost, similarity to the Mi-24, became important. In 2003, a chief of Russian Air Forces stated, that Mi-28N will become standard Russian attack helicopter.

There is offered an export variant **Mi-28NE** and simpler day-helicopter variant **Mi-28D**, basing on the Mi-28N construction, but lacking radar and FLIR.

Description

The Mi-28 has two heavily armoured cockpits, a remarkable nose full with electronic equipment, and a narrow-X tail rotor.

Two 2200hp Isotov TV-3-117VM. (t/n 014) X-type tail rotor (55 deg) to reduce noise.

While the Mi-28 is not intended for use as a transport, it does have a small passenger compartment capable of carrying three persons. The planned purpose of this is to enable the rescue of downed helicopter crews.

Variants

- **Mi-28A** - tank killer. original development. lost competition to [Ka-50](#). 1998 - development. 2004 - first flights.
- **Mi-28N/MMW Havoc** - All weather day-and-night combat helicopter. It is equipped with an top-mounted millimeter wave radar station, IR-TV, and laser ranger. Serial Mi-28N will have two TV3-117V MA-SB3 engines (2500hp each), max take off mass of 11500kg, max payload mass of 2350kg, max horizontal speed 324km/h, cruise speed of 280km/h, static ceiling of 3700m,

range of 500km superseding AH-64 in all these parameters. Mi-28N carry 9M120 and 9A2200 missiles, 30 mm turret mounted cannon with 250 rounds, 80 mm [S-8](#) and 130 mm rockets, bombs, and napalm tanks. First a/c costs USD15M, next serial a/c will cost about USD12M (export price).

- **Mi-28D** - simplified daylight operation version. Similar to Mi-28N, but without top-mounted radar and TV-channel in sight. Unit price USD 15M..17M.
- **Mi-28NAe** - export version? offered to Korea.
- **Mi-40** - fighter/transport version (?)



Mil Mi-28

Specifications (Mi-28N)

General characteristics

- **Crew:** two, pilot and weapons operator
- **Length:** 17.01 m (56 ft in)
- **Main rotor diameter:** 17.20 m (56 ft 5 in)
- **Height:** 3.82 m (12 ft 6 in) (without radar)
- **Main rotor area:** 232.4 m² (2,500 ft²)
- **Empty:** 7,890 kg (17,358 lb)
- **Loaded:** 10,400 kg (22,880 lb)
- **Maximum takeoff:** 12,100 kg (lb)
- **Powerplant:** 2x [Klimov TV3-117VM](#) turboshafts, 1,640 kW (2,198 shp) each

Performance

- **Maximum speed:** 305 km/h (190 mph)
- **Range:** 460 km (288 miles)
- **Service ceiling:** 5,750 m (18,860 ft)
- **Rate of climb:** 816 m/min (2,676 ft/min)
- **Main rotor loading:** 45 kg/m² (9 lb/ft²)
- **Power/Mass:** 0.31 kW/kg (0.19 hp/lb)

Armament

- 1x chin-mounted [30 mm Shipunov 2A42](#) cannon with 300 rounds (220° horizontal fire)
- up to 2,400 kg (4,400 lb) of disposable stores on four hardpoints, including bombs, rockets, and gunpods

External links

- <http://www.aviation.ru/Mi/#28>

Related content

Related development:

Comparable aircraft: [AH-64 Apache](#) - [Eurocopter Tiger](#) - [Kamov Ka-50](#)

Designation sequence: [Mi-25](#) - [Mi-26](#) - [Mi-27](#) - **Mi-28** - [Mi-30](#) - [Mi-32](#) - [Mi-34](#)

Mil Mi-34



Mil Mi-34

The **Mil Mi-34** ([NATO reporting name](#): **Hermit**) is a two/four seat light instructional and competition helicopter. It was first flown in [1986](#) and entered production in [1989](#). It is capable of performing aerobatic maneuvers, including rolls and loops.

Variants

- **Mi-34** "Flying geep" - This aircraft burns 40 kg of fuel per hour. It's filled with the modern avionics. It's safe to fly with 3 of 9 cylinders being off and is capable of flying with 5 cylinders being off. It can fly in any direction, even upside down. Test-pilots have landed the aircraft on the cement barrier to demonstrate its maneuverability. Entered production in [1994](#). Few aircraft were purchased by Moscow road police. The declared price is \$350,000.
- **Mi-34A** - one Allison gas-turbine engine.
- **Mi-34C** - four seat production model.
- **Mi-34M** - two rotary-piston engines.
- **Mi-34P** - police patrol version for Moscow Major Office.
- **Mi-34V** or **Mi-34VAZ** - version of Mi-34 with two VAZ-4265 engines. Estimated price about USD400,000 (USD20,000 for each engine). Also known as Mi-234.
- **Mi-34S** ('S' from "sertified") - one M-14V26V 325 hp (or 370 hp enforced version) engine. take-off mass 1450 kg, cruise speed 170–190 km/h, range 360 km with 145 kg of load, technical range 700 km, maneuverable overload 3 unit ("G").
- **Mi-34UT** - trainer with dual control.

Specifications (Mil-34)

General characteristics

- **Crew:** one pilot
- **Capacity:** 3 passengers
- **Length:** 11.42 m (37 ft 6 in)
- **Main rotor diameter:** 10.01 m (32 ft 10 in)
- **Height:** 2.75 m (9 ft 0 in)
- **Main rotor area:** 78.5 m² (845 ft²)
- **Empty:** 800 kg (1,760 lb)
- **Loaded:** kg (lb)
- **Maximum takeoff:** 1,350 kg (2,790 lb)
- **Powerplant:** 1x [Vedeneyev M-14](#)V-26 9-cylinder radial, 240 kW (320 hp)

Performance

- **Maximum speed:** 210 km/h (131 mph)
- **Range:** 450 km (281 miles)
- **Service ceiling:** 4,500 m (14,760 ft)
- **Rate of climb:** 550 m/min (1,804 ft/min)
- **Main rotor loading:** kg/m² (lb/ft²)
- **Power/Mass:** kW/kg (hp/lb)