

MD HELICOPTERS MD EXPLORER TWIN-ENGINEED LIGHT HELICOPTER, USA

The MD Explorer twin-engineed light helicopter entered service in 1994 and is in service with private and corporate customers, law enforcement agencies and emergency services around the world. It is manufactured by MD Helicopters Inc of Mesa, Arizona, a subsidiary of the Netherlands-based MD Helicopters of the RDM Group. The company acquired the business rights of the former McDonnell Douglas Helicopters from Boeing in February 1999, excluding that of the AH-64 Apache helicopter which remains within Boeing's business interest. As well as the Explorer, MD Helicopters' products include the MD 500, 520N, 530F and the 600N.

In August 2005, Patriarch Partners of New York bought a controlling interest in MD Helicopters from RDM.

Over 100 MD Explorers have been delivered. The Explorer is in service with law enforcement agencies, including the US Coast Guard, US Drug Enforcement Agency, Rijkswacht and the Gendarmerie in Belgium, German State Police, Dutch National Police, the Mexican Navy and UK Police Aviation Services. The helicopter can be fitted with a selection of federal or military systems, e.g. forward looking infrared (FLIR) observation system.

HELLFIRE GUIDED MISSILE AND GUN-MOUNTED DESIGN

The MD Combat Explorer can be armed with 70mm rocket pod, GAU-19/A 0.50 calibre Gatling gun, M-134 7.62mm miniguns, Hellfire laser-guided missiles and Rafael N-TD dual-operation missiles. For the US Coast Guard the helicopter carries the designation MH-90 Enforcer and is armed with an M240 7.62mm gun pintle mounted at the side door.

MD Helicopters is offering the Explorer for the US Army's Light Utility Helicopter (LUH) competition for 322 helicopters. The contract is to be awarded in April 2006.

MEDICAL EQUIPMENT AND SATELLITE COMMUNICATIONS ABILITIES

The cabin can accommodate long loads and is capable of carrying stretcher patients and accompanying medical attendants. The cabin can be fitted with medical equipment such as resuscitation units and life support systems to the operator's specifications and to conform to the maximum internal payload of 1,292kg.

Emergency services deploying the MD Explorer include Regional Emergency Medical Services authority in Reno, Nevada, Allengheny General Hospital in Pennsylvania, Life Flight in Idaho and Luxembourg Air Rescue.

For electronic newsgathering, the Explorer can be equipped with satellite communications and downlink for transmission of photographic images.

Other customers include Petroleum Helicopters Inc, Aero Asahi of Japan Idaho Helicopters, Japan Digital Laboratory, Televisa based in Mexico, Tomen in Japan and University of North Dakota Aerospace.

The Explorer has received both FAA (US Federal Aviation Administration) and JAA (European Joint Aviation Authorities) certification for single-pilot, Category A IFR (instrument flight rules) operations.

DESIGN

The helicopter consists of a composite shell and two deep composite keel beams. Above the beams is an aluminium A-frame which encloses the cabin compartment and to which the cockpit is attached. Within the composite outer shell, a fine aluminium mesh is embedded which gives protection against lightning strike. The helicopter has a five-bladed rotor, supplied by Kaman Aerospace in Bloomfield, Connecticut, 10.31m in diameter and with a maximum rotational speed of 392rpm. Vibration reduction is achieved through a tuned fixed rotor mast and mounting truss.

NOTAR ANTI-TORQUE SYSTEM

Instead of a tail rotor, the MD Explorer is equipped with a NOTAR system designed by Boeing and manufactured under licence by MD Helicopters. The NOTAR no tail rotor system provides the necessary anti-torque and steering control and also eliminates the danger of accidents resulting from tail rotor strikes.

The NOTAR system uses the rotor downwash over the tailboom. This current of air is deflected to the port side by an airflow from the variable pitch fan in the root of the tailboom. The fan feeds low-pressure air to two Coand-type slots, which run the length of the tailboom on the starboard side and also to variable aperture louvers in the tail. The pilot achieves steering control by varying the aperture louvers using foot pedals. The pilot also uses foot control to operate the movement of the port fin, giving fine directional control during rotational manoeuvres. A yaw damper operates the movement of the starboard fin.

INSTRUMENT FLIGHT RULE (IFR) CAPABILITY

The helicopter is built for single or two pilot operations with Instrument Flight Rule (IFR) capability. The pilot and co-pilot's seats are energy absorbing adjustable crew seats. The hinged doors at either side of the cockpit are jettisonable.

The instrument panels are fitted with a CMC Electronics (formerly BAE Systems Canada) IIDS integrated instrumentation display system with high-resolution liquid crystal displays showing engine and systems status. The helicopter has on-board health monitoring and exceedance recording. An RS232 port in the instrument panel provides a modem interface for a personal computer. The instruments include an EFIS 40 electronic flight and information system, airspeed and vertical speed and turn and slip indicators. The helicopter is fitted with a Honeywell RDR 2000 colour weather radar.

CABIN COMPARTMENT

The passenger section of the cabin has six club style seats and a sliding door on each side. The baggage compartment is at the rear of the cabin.

PERFORMANCE

The never exceed speed at SL, ISA conditions is 259km/h, reducing to a maximum sea level cruise speed in hot conditions (100°F) to 248km/h. The helicopter has a range of 476km and endurance of 2hrs 54mins at sea level.

The helicopter can carry a maximum slung weight of 1,361kg (3,000lb). The pilot's station on the left has an optional display system for long-line hook operations.

FULL AUTHORITY DIGITAL ENGINE CONTROL (FADEC)

The MD Explorer is powered by two Pratt & Whitney Canada PW206E turboshaft engines, providing 463kW take-off power and 410kW maximum continuous power. The engines are fitted with full authority digital engine control (FADEC).

LANDING GEAR

The helicopter's fixed 2.24m skids are fitted with replaceable abrasion pads. Emergency floats can be installed for over-the-water operations.

SPECIFICATIONS - MD HELICOPTERS MD EXPLORER TWIN-ENGINED LIGHT HELICOPTER, USA

DIMENSIONS

Length with rotors turning	11.38m
Fuselage length	9.85m
Height to top of rotor head	3.66m
Height to top of fins	2.79m
Width of tailplane	2.84m
Skids	2.24m
Main rotor diameter	10.31m
Disc area rotors	83.52m ²

CABIN DIMENSIONS

Cabin length	3.93m
Passenger compartment length	1.91m
Cabin maximum width	1.45m
Cabin height	1.24m

WEIGHTS

Operating empty weight	489kg
Internal payload	1,292kg
Maximum hook external load	1,361kg
Maximum take-off weight with external load	3,129kg

ENGINES

Type	2 x P&W Canada PW206E turboshaft engines
Take-off power	463kW
Maximum continuous power	410kW

PERFORMANCE

Never exceed speed (VME), Sea level, ISA	259km/h (140 knots)
Maximum cruise speed, sea level, 38°C	248km/h (134 knots)

Maximum rate of climb	579m/min (1,900ft/min)
Range	476km (257nm)
Service ceiling	5,335m
Maximum hovering altitude, IGE, ISA	3,353m
Endurance at sea level	2hrs 54mins

NOISE

Noise level, at take-off	84.1EPNdB
Noise level, approach	88.9EPNdB
Noise level, flyover	83.1EPNdB



The MD Explorer twin-engine light helicopter.



Instead of a tail rotor, the MD Explorer is equipped with the NOTAR anti-torque system.



The MD Explorer is in service with law enforcement agencies and emergency services around the world. Shown here with the Wiltshire Air Ambulance Service of the UK.



MD Explorers are used by the National Parks Service of the USA.



The MH-90 Enforcer in service with the US Coast Guard is armed with an M240 7.62mm gun.



Life Flight of Boise, Idaho uses the MD Explorer to provide rapid air transport of patients in life-threatening situations.



The Explorer has received both FAA and JAA certification for single-pilot, Category A IFR operations.



The Explorer has a cruise speed of 248km/h and a range of 476km.

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MD Explorer®: Fully Mission Capable, Experienced Contractor Logistics Support

THE RIGHT HELICOPTER AND BEST VALUE FOR THE ARMY'S LUH MISSION

The MD Explorer®, a proven twin-turbine commercial off-the-shelf helicopters, has set new standards of performance for superior maneuverability, safety, reliability, durability and survivability. Law enforcement, government agencies, and first responders around the world rely on the MD Explorer® to successfully execute critical missions. The MD Explorer®:

- Exceeds the Army's performance, safety and operating specifications
- Strengthens the Army's capabilities while remaining on mission and on budget.
- Has high percentage of U.S. made components.
- 20-year life cycle cost saves nearly \$350 million dollars over the nearest competitor.

PROVEN SAFETY, RELIABILITY AND PERFORMANCE

Engineered from the skids up with strong operator input, the MD Explorer® is the helicopter for the 21st century. Features include:

- Exclusive NOTAR® (no-tail rotor) system enhances safety, reduces noise, improves maneuverability and lowers lifetime maintenance costs. Provides exceptional safety in confined spaces.
- Unprecedented crashworthiness gives the crew and passengers the ability to survive an impact up to 30Gs at 30 feet per second.
- Twin engines increase survivability, and a high rotor allows faster, safer helicopter entry and exit.
- The largest cabin in it's class, easily reconfigurable for utility and MEDEVAC missions with the ability to carry two NATO litters with full-body access for the attendant. Utility configurations can carry six passengers or 1,500 pounds of cargo.
- First light-twin helicopter in the world with FAA and JAA certification for single-pilot Category A IFR operations.



RESPONSIVE CONTRACTOR LOGISTICS SUPPORT PROGRAM

Along with world-class partners DynCorp International, GENCO and Aviation Systems of Northwest Florida, the MD Helicopters LUH Team will provide unparalleled contractor logistics support to assure aircraft readiness levels to meet the Army requirements, including:

- Field-level maintenance at a wide range of locations.
- Flexible to meet unique customer needs.
- Cost effective system.
- High operational availability and fill rate.
- Power by the hour.



