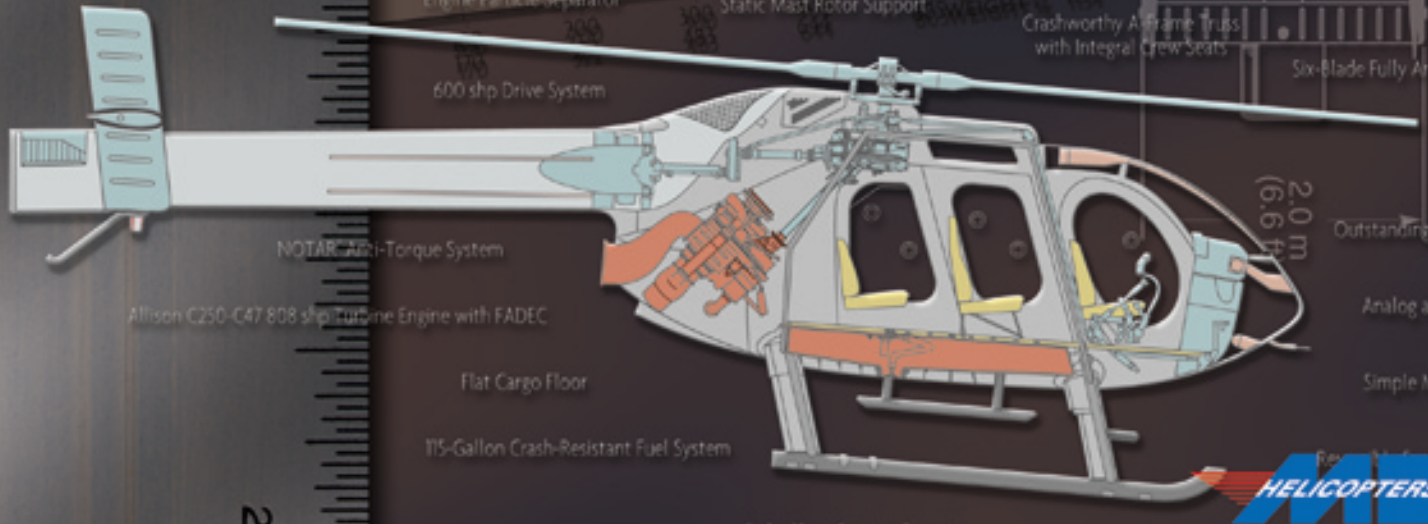
MD 600N

Technical Description



HELICOPTERS MD™

MD600N

Technical Description

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Revised January 2001

This Technical Description is not subject to a revision service. It is the manufacturer's practice to continuously improve its products and therefore the right is reserved to make changes without notice in the design or manufacture of the MD 600N® helicopter which may be considered necessary.

MD600N

CONTENTS

1.0 **Advanced design for superior performance and value.**

The MD 600N® is a light, single-turbine engine helicopter that provides high performance and increased capacity to give the customer greater versatility. All with dramatically low operating costs. It flies faster, hovers higher, and provides the agility and exceptional handling for which the MD 500® Series is known. With its advanced NOTAR® anti-torque system, the MD 600N® is a member of an exclusive class of the safest, quietest helicopters in the world.

Greater room and versatility.

A versatile performer, the MD 600N® may be configured for a wide variety of uses. With its wide, double, center-opening doors measuring 157 cm (62 in), both passengers and cargo may be loaded with ease. The aft cabin features 1.83 m (6 ft) of flat floor for carrying cargo, an advantage no other helicopter in its class provides.

A workhorse that can carry 2000 lb of useful load, this six-bladed helicopter features room for up to seven passengers, in a variety of seating configurations. It also offers other advantages for both pilots and passengers, including new flight instruments that are internally lit, and new seating for versatility and an extra measure of comfort.

Enhanced safety and power.

The airframe structure features very clean, aerodynamic lines. A rigid, three-dimensional truss-type structure increases crew safety by means of its “A-frame” design and reduces the potential for airframe collapse into the crew and passenger compartments.

A Rolls-Royce Allison 250-C47M engine with FADEC powers the MD 600N®, which has a thermodynamic rating of 808 shp. In the MD 600N®, the engine is derated to 600 shp for takeoff and 530 shp for maximum continuous operation. Derating provides substantial horsepower at sea level, and reserve power for hot day and high altitude operations.

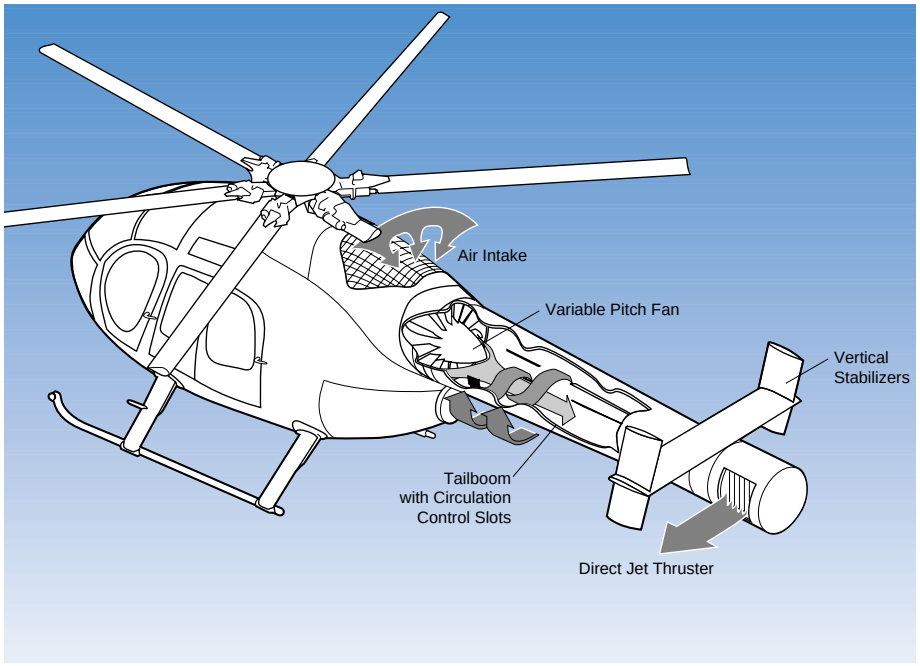
A revolution in directional control.

The patented NOTAR® (No-TAil-Rotor) anti-torque system has revolutionized helicopter design by eliminating the tail rotor. The system consists of an enclosed variable-pitch fan driven by the main transmission, a circulation control tailboom, direct jet thruster and vertical stabilizers.

In hover flight, the circulation control tailboom provides a significant amount of the required main rotor anti-torque. The direct-jet thruster provides the remaining anti-torque and maneuverability for yaw control and directional changes.

In translation flight the direct-jet thruster provides most of the anti-torque and directional control.

In forward flight, the vertical stabilizers, in conjunction with the direct-jet thruster, provide the required anti-torque and directional control.



NOTAR® anti-torque system.

Revolutionary in thinking and design, the NOTAR® system is a patented innovation for helicopter anti-torque control. The NOTAR® system eliminates the tail rotor, and along with it, the negative characteristics associated with the tail rotor. Specifically, the NOTAR® system eliminates the hazards associated with tail rotor strikes, both in flight and on the ground; the objectionable noise found in conventional tail rotor systems; and the vibrations generated by tail rotors which reduce component life, increase maintenance costs and add to pilot fatigue.

Since the NOTAR® system uses low pressure air in the tailboom, this air has less sensitivity to air leaks, pressure loss and low temperatures. With few high speed moving parts and low pressures, field experience has shown the NOTAR® system to be virtually un-affected by rain, snow or erosion.

Studies have shown that the NOTAR® system is less vulnerable to foreign object damage than the tail rotors of conventional helicopters.

Best-performing in its class.

With the elimination of the exposed tail rotor, the MD 600N® is easier and more pleasurable to fly. It provides superior speed and hovering performance, exceptional handling and payload capability.

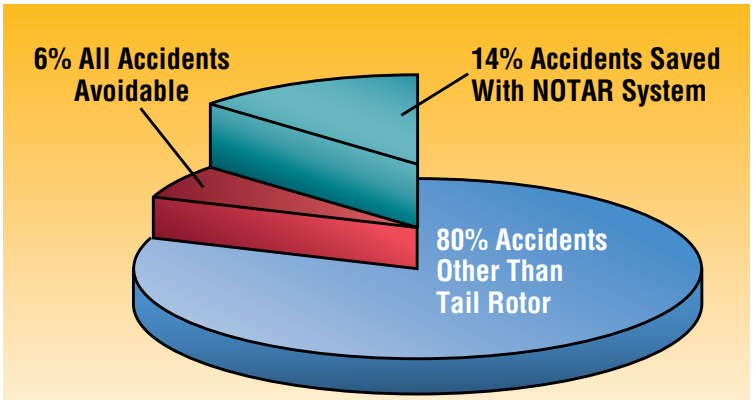
A smoother ride.

The NOTAR® system also reduces overall helicopter vibrations, which helps to lessen pilot fatigue and increase passenger comfort. In addition, the six-bladed main rotor adds to the smooth performance of the MD 600N®.

NOTAR® system means safety.

U.S. FAA, NTSB data and U.S. Army studies have shown as much as 21% of all accidents are due to tail rotor strikes and loss of tail rotor effectiveness. The NOTAR® system eliminates accidents caused by the exposed tail rotor striking objects in flight and significantly reduces ground incidents with people or equipment.

The MD 600N's power and stability in varying wind conditions enhance its operational safety and benign control responses when control limits are exceeded.



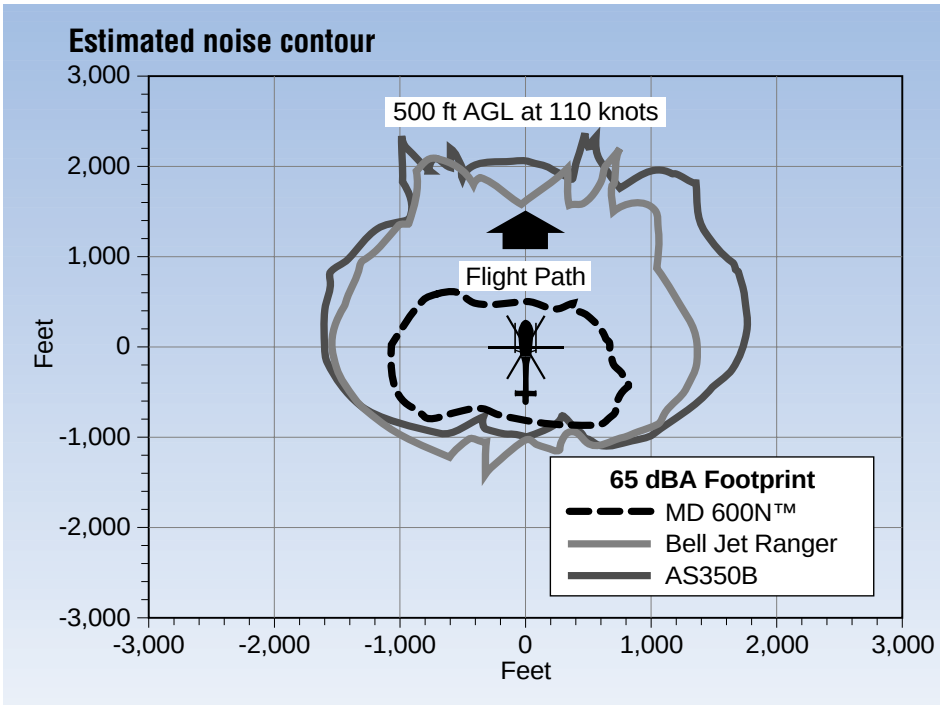
Sixty-nine of 481 single-engine helicopter accidents in the U.S. from 1988-1994 could have been avoided with the NOTAR® system.

The quietest helicopters in the world.

NOTAR® system-equipped helicopters are not only the safest in the world, they're also the quietest – up to 50 percent quieter than the competition. This lower noise signature makes the MD 600N® a "good neighbor" when used in areas where noise is objectionable. The MD 600N® exhibits a measured 79.0 dbA (SEL) noise signature during a 500-foot AGL fly-over, with a maximum level of 71.5 dbA, per FAA Appendix J.

Ease of maintenance.

The kind of forward thinking that resulted in The NOTAR® system is behind the MD 600N's mechanical design simplicity. The MD 600N® incorporates many new improvements and refinements, and retains the state-of-the-art features that are unsurpassed for design simplicity, safety, reliability and ease of maintenance. The MD 600N® retains the mechanical control system of the MD 500® Series. By eliminating hydraulic boost systems, maintenance and daily inspections are reduced.



The same design approach applies to the NOTAR® anti-torque system. The fan is located inside the fuselage, away from potential strike hazards and sources of foreign object damage. The demonstrated reliability of the system has been so high as to allow MDHI to offer a two-year/2,000-hour warranty on the NOTAR® system.

The mechanical simplicity of the six-bladed main rotor system provides high reliability at low cost. Main rotor blades are retained by an exclusive strap pack system that accommodates main rotor blade flapping and feathering. Fewer parts result in higher reliability. The simple blade retention system has no grease fittings. Individual blades are easily replaced without the need for tools.

The new 600-shp-rated main transmission has only four gears and two gear meshes. It is light but rugged for maximum reliability. One mechanic can easily change the transmission without removing any other component on the rotor head.

All this adds up to the MD 600N® having the lowest direct operating cost of any helicopter in its class.

2.0 **Multi-mission versatility.**

The MD 600N® is designed for a variety of uses, and can be rapidly converted from a personnel carrier to a utility transport or a combination of the two. Typical uses include: utility operations, electronic news gathering, executive transport, air medical transport, aerial tours, and law enforcement air support.

2.1 **For utility operators: A capable workhorse.**

This light, single-turbine helicopter is a workhorse that is certified to lift 907 kg (2,000 lb) of internal payload or 1179 kg (2,600 lb) for external payload operations. For outsized, bulky loads, the cargo hook is currently certified to carry up to 970 kg (2,134 lb).

It's also easy to load both passengers and cargo. The large, double, center-opening doors open to a full 157 cm across (62 in). The aft cabin is exceptionally spacious, offering more room for cargo. With its 1.83 m (6 ft) of flat floor space, the MD 600N® gives you an advantage the competition can't match.

The superior hovering performance of the MD 600N® provides one of the best HIGE and HOGE statistics in the industry: 3383 m (11,100 ft) HIGE and 1829 m (6,000 ft) HOGE. What's more, the MD 600N® has a maximum operating altitude of 6097 m (20,000 ft).

This helicopter's direct operating costs, the lowest in its class, is another important benefit to utility operators. As you'll find, it performs just as beautifully on a balance sheet as it does in the air.

2.2 For electronic news gathering: Versatility and speed.

The MD 600N® is the fastest helicopter in its class with a cruising speed of 134 knots (248 kph, 154 mph). This gives electronic news gathering operations an edge in responding to late-breaking news. The MD 600N® will get you to the scene faster, with a smoother ride for the pilot and camera crews.

With its larger cabin, this helicopter may be reconfigured in a number of ways to handle special equipment, monitors and televisions. No other helicopter in its class offers so much room and versatility.

For news gathering operations working in urban areas or flying over state parks or tourist sites, the MD 600N's NOTAR® anti-torque system offers a significantly reduced noise signature, reducing the problems associated with noise violations.

2.3 For corporate owners: The safer, quieter helicopter.

The MD 600N® is a smart business investment, from its low operating costs to its superior safety and quiet. Its advanced NOTAR® system makes it a member of an exclusive family of the safest, quietest helicopters in the world. The reduced noise signature qualifies it as a "good neighbor," something that's important to business owners who operate in urban areas.

With the elimination of the conventional tail rotor, the NOTAR® system provides a smoother, more comfortable ride. The six-bladed design of the MD 600N® also reduces vibrations for a smoother trip.

The spacious aft cabin provides plenty of room for executive seating with a choice of forward-facing coach or club configurations, while the large windows provide greater visibility for passengers.

The ease of maintenance, low direct operating costs and superior performance add up to an exceptional form of business transportation. Busy executives will appreciate its ability to fly faster than the competition, allowing them to spend more time on the job and less time in the air.

2.4 **Air medical services: Greater safety, lower operating costs.**

The MD600N helicopter provides versatile configurations for air medical services. The configuration is a single litter kit for one patient, and is capable of advanced cardiac life support (ACLS) level of medical care.

With its NOTAR® system and small main rotor diameter, the MD 600N® has the ability to land in confined areas. For air medical services, this is an important advantage when picking up patients in tight places or on residential streets.

2.5 **For law enforcement: A quiet, versatile tool with exceptional handling.**

In the field of airborne law enforcement, the MD 600N® soars ahead of its competition. Improved handling, greater speed and enhanced payload are just a few of its benefits. As a member of the NOTAR® system-equipped family of helicopters, it's also quieter by far than conventional helicopters. For law enforcement officials, this is a powerful advantage when pursuing suspects. The MD 600N® is so quiet suspects aren't usually aware of this craft until it's virtually on top of them. What's more, its quiet performance makes it a "good neighbor" to other residents of the city.

With its enhanced maneuverability and small rotor diameter, the MD 600N® can negotiate landings in confined areas. Its tail rotorless system also helps when police are performing rescues on crowded city streets or difficult terrain.

The MD 600N's new 115-gallon (435 l) standard fuel tank gives police the ability to conduct longer-range missions, while the spacious aft cabin provides room for more seating and special equipment. A versatile ally, the MD 600N® gives police departments the option to expand their mission capabilities to include rescue, surveillance, firefighting and SWAT operations.

The MD 600N® is authorized to fly with its doors off in several configurations. In addition, it offers an expanded center of gravity envelope for almost any combination of loading, both fore and aft and laterally. The helicopter has exceptional control power enabling the helicopter to remain stable during rescue missions. With its larger windows, the MD 600N® also provides greater visibility for rescuing victims, pursuing suspects or locating accident scenes.

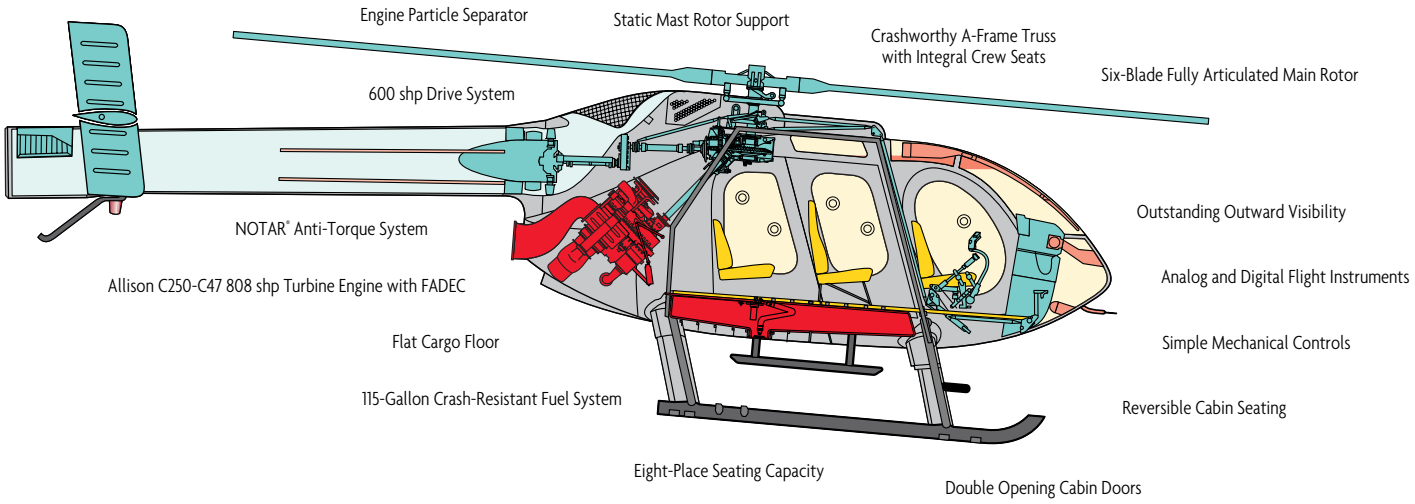
Vulnerability analyses have shown that the NOTAR® system is 60 percent less vulnerable to ballistic damage from small arms, an increasingly important advantage for airborne law enforcers.

3.1 **Overview.**

The MD Helicopters MD 600N® is a single turbine-engine, rotary-wing aircraft. The fuselage is constructed primarily of aluminum alloy while the NOTAR® anti-torque system components are primarily carbon epoxy composite structure.

Simplicity, low operating cost and maximum commonality with MD 500® Series helicopters were the primary design criteria for the MD 600N® development.

The main rotor is a fully articulated six-blade system with excellent control and maneuverability characteristics. It shares many rotor system components with other MD 500® Series helicopters. The small diameter of the main rotor also gives the MD 600N® the ability to land safely in tight or confined areas.



Power from the 808 shp Rolls-Royce Allison 250-C47M turboshaft engine is transmitted through the engine drive shaft to the main rotor transmission. The main rotor transmission, through a second drive shaft, drives a gearbox for the NOTAR® system fan. An overrunning clutch between the engine and the main rotor transmission permits freewheeling of the rotor system during autorotation. All drive shafts are fitted with fail-safe couplings at both ends.

The airframe consists of faired sections which provide extremely clean aerodynamic lines. This contributes to excellent handling qualities, low vibration levels and high-speed capability. The airframe structure is designed to be energy-absorbing while maintaining rotor hub integrity. A rigid, three-dimensional truss-type structure increases crew and passenger safety by means of its rollover structure design and reduces the potential for airframe collapse into the crew and passenger compartments.

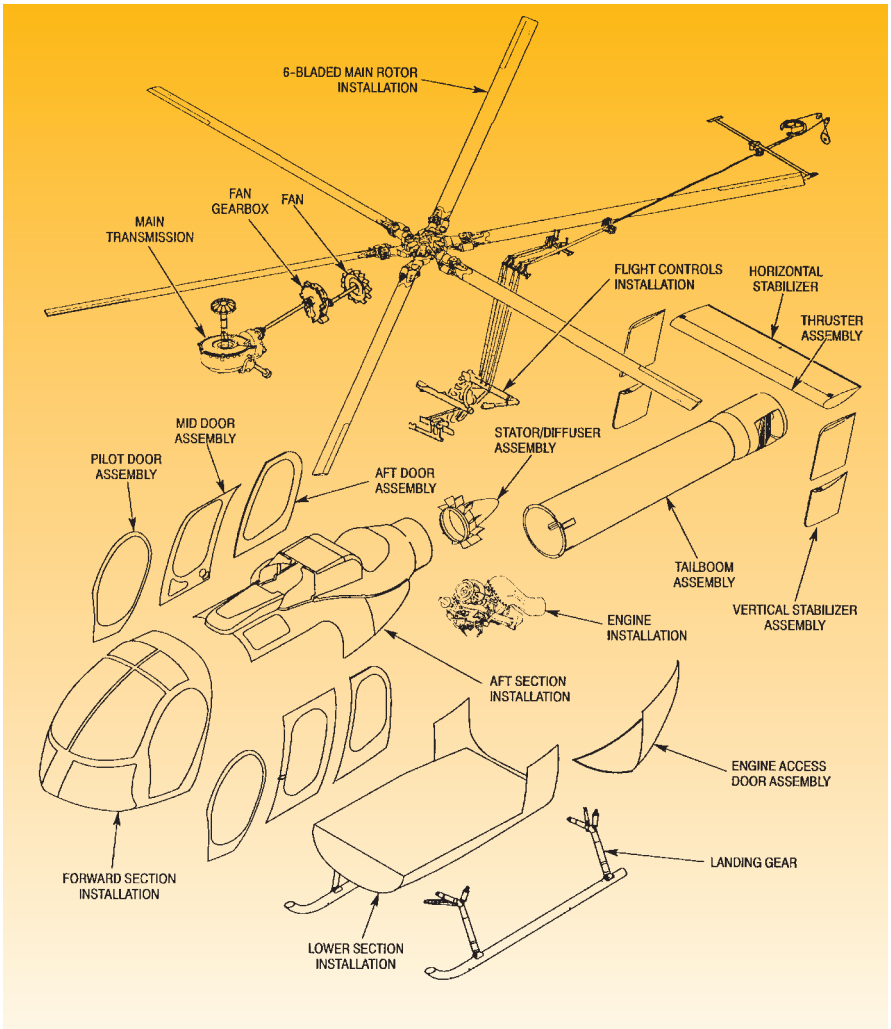
3.2 **Performance statistics.**

The MD 600N® has a cruising speed of 134 knots (248 kph/154 mph). Useful internal load, at maximum gross weight, is 907 kg (2,000 lb) or a mix of internal and external useful loads up to 1179 kg (2,600 lb). Hover Out of Ground Effect (HOGE) at ISA is 1829 m (6,000 ft) and Hover In Ground Effect (HIGE) at ISA is 3383 m (11,100 ft). The rate of climb, at maximum gross weight, is 6.9 m/sec (1,350 feet per minute).

The helicopter has a maximum operating altitude of 6097 m (20,000 ft) and a temperature operating range of -40 degrees C to +52 degrees C. Slope landings of up to 10 degrees are possible, due largely to the articulated rotor system.

3.3 **Airframe.**

The MD 600N® fuselage is a semi-monocoque aluminum structure. The crew and passenger compartments are protected by an "A-frame" truss that also acts as an integral seat structure. The aircraft forward belly is a double-walled keel beam that supports the front landing gear struts and provides energy absorption in the event of a hard landing.



The aft cabin belly is also a double-wall design, providing space for a newly-designed, two-cell, crash-resistant fuel system.

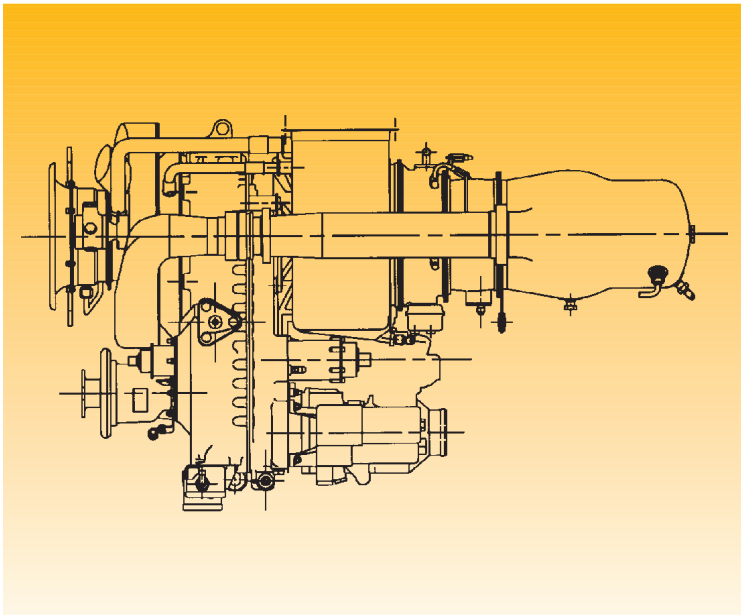
The MD 600N® floor is rated at 1350 pounds (not to exceed 115 pounds per square foot) and offers cargo tiedown points for virtually any shape of cargo.

The NOTAR® tailboom is carbon composite structure with a horizontal stabilizer constructed of carbon composite and Kevlar. The vertical stabilizers are made of fiberglass.

The forward canopy transparencies are secured with screws, easing removal for maintenance and access to the aft side of the instrument panel.

3.4 **Engine.**

The engine used in the MD 600N® is the Rolls-Royce Allison 250-C47M gas turbine engine. The 250-C47M produces 808 shaft horsepower, derated in the MD 600N® to 600 shaft horsepower for takeoff and 530 horsepower at maximum continuous operation. Derating the engine extends its service life and reduces maintenance while offering increased performance at higher-density altitudes.



The 250-C47M engine is equipped with a full authority digital engine control (FADEC) unit. This system greatly enhances engine control and provides several features and benefits that reduce pilot workload, improve flight safety and decrease maintenance requirements. A separate hydro-pneumatic fuel control system is provided for manual backup in case of emergencies.

The engine control unit records all important engine parameters and provides maintenance information to the customer through a system of maintenance lights. Also available is an optional maintenance package that includes software and hardware to allow downloading of the recorded parameters from the ECU onto a standard personal computer.

Pilot workload is simplified with automatic starting and turbine temperature limiting. Provisions for main rotor and NOTAR® fan load anticipation provides stable rotor speed throughout the flight envelope.

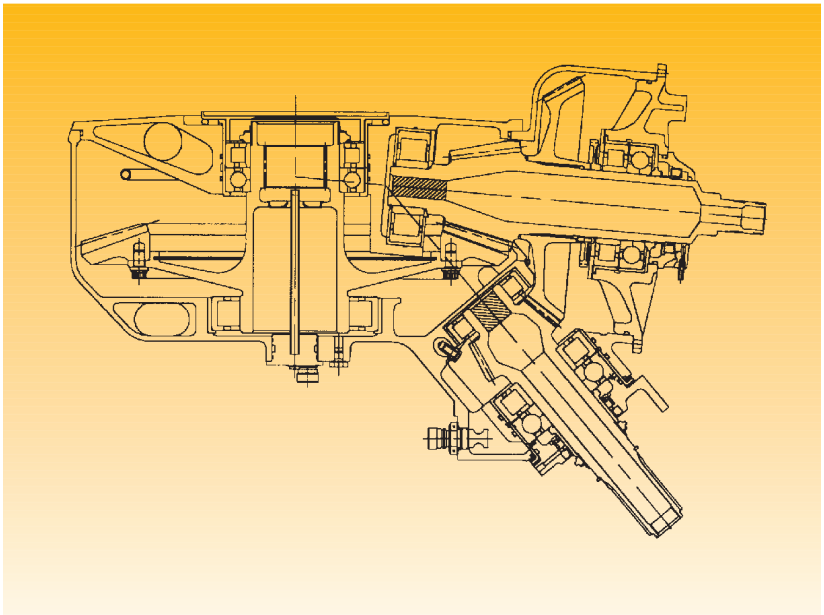
Maintainability is enhanced by removing the requirement for PTG rigging, and by eliminating pneumatic control lines, accumulators and connections. No field authorized adjustments are required. Control system features allow temperature limiting, further reducing the potential for engine damage. The standard analog/digital TOT gauge records one-time exceedances.

The engine compartment is located aft of the mid-compartment, separated by a firewall. Access to the engine compartment is through two doors contoured to the aerodynamic lines of the fuselage. The engine arrangement provides access for inspection and maintenance without the need for ladders or work platforms. An engine compartment fire detection system is standard on the MD 600N®.

3.5 **Drive System.**

The main transmission in the MD 600N® is a new design based on the proven concepts of the MD 500® Series transmissions. The transmission power limit is 600 shaft horsepower for takeoff and 530 shaft horsepower continuous. It has been designed to achieve a life of 3,000 hours before overhaul, and can be removed from the aircraft without removing any of the main rotor components.

An overrunning clutch transmits power from the engine to the engine drive shaft. The clutch has no external controls and disengages automatically during autorotation and engine shutdown. The engine oil cooler blower is belt-driven off the main drive shaft and draws its cooling air from the air inlet fairing to supply ambient air to the engine and transmission oil coolers and to the engine compartment.

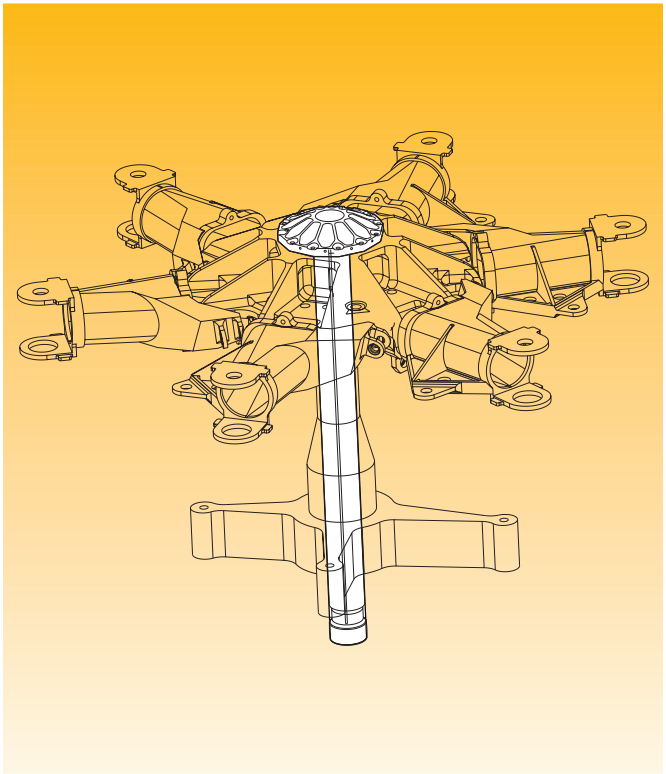


This transmission is common with the MD 600N® and all other new MD 500® Series helicopters.

3.6 **Main Rotor System.**

Unique to MD Helicopters products is the static mast-hub support system. This hub support system uses a static mast, rigidly attached to the fuselage. All dynamic loads are transmitted through this mast, rather than through the transmission. A separate, inner drive shaft transmits engine torque to the main rotor hub.

This feature offers improved flight control integrity and helps retain rotor system components in the event of a main rotor blade strike. Additionally, this approach allows for the design of a main transmission that is lighter in weight, and can be removed without disturbing the hub or control systems.



The MD 600N® features a six-blade, fully articulated main rotor assembly. The blade retention system is a unique “strap pack” design which provides restraint and allows all three degrees of freedom for rotor blade travel. The system has redundant load paths for an added measure of safety.

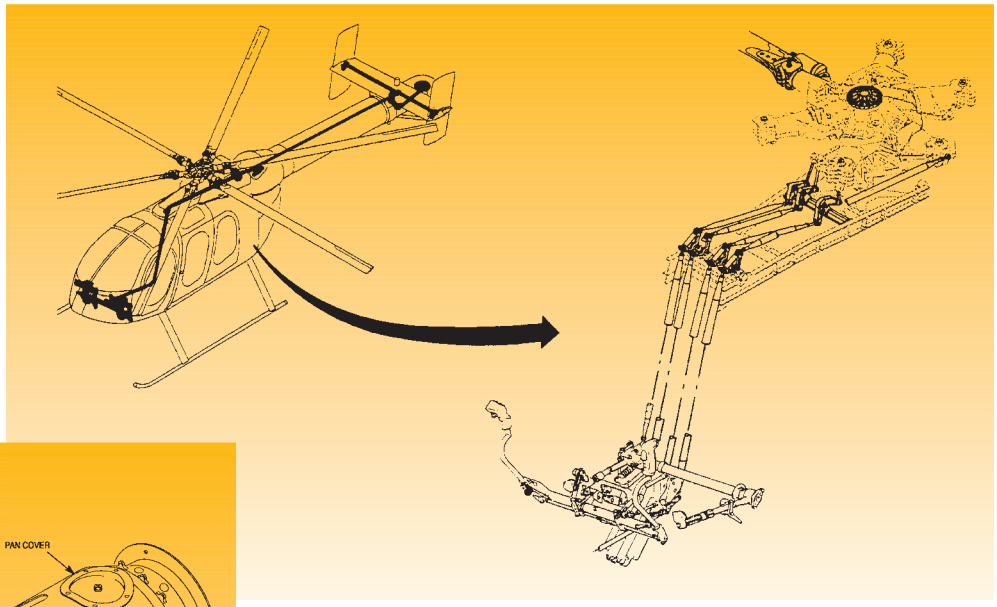
Elastomeric lead/lag dampers are standard in the MD 600N® main rotor system. The blades are of all-metal construction and utilize nickel abrasion strips to minimize the effects of erosion from airborne particulate matter. The blades are secured to the hub with quick-release lever-type pins that facilitate rapid blade removal without the need for tools.

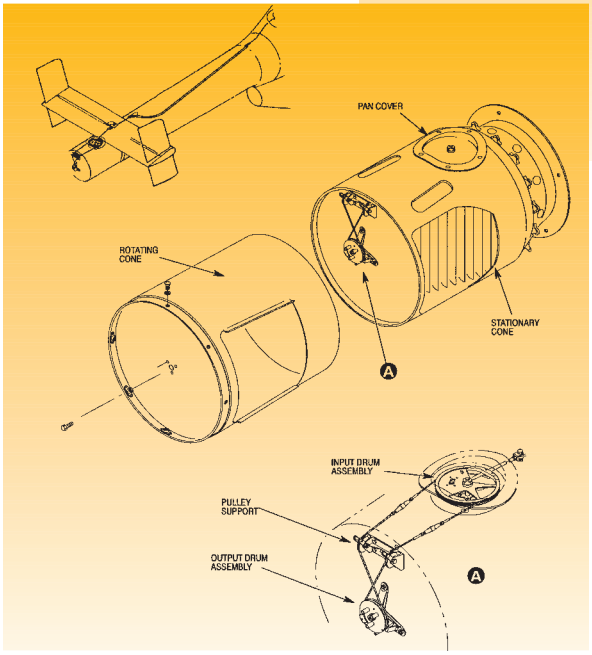
The main rotor system of the MD 600N® provides excellent handling qualities with crisp control responses. In addition, the six-blade design reduces vibrations, providing an exceptionally smooth ride. Transient positive load factors of 3.5 g’s and negative load factors of 0.0 g’s are attainable in the MD 600N®.

3.7 **Flight Controls.**

Primary flight controls in the MD 600N® are designed to be lightweight, simple to use and easy to maintain. Equally important, they are designed to eliminate the need for hydraulic controls common in competitor helicopters. Instead, all main rotor controls in the MD 600N® are of the push tube type. There are no grease fittings in the controls and required maintenance is at an absolute minimum. The anti-torque pedals control vertical stabilizer and rotating thruster motion using a combination of push rods and push-pull cables. The anti-torque pedals are adjustable, fore and aft, through approximately 4 inches of travel to accommodate the fifth through 95th percentile aviator.

Adjustable friction devices are incorporated in the cyclic, collective and throttle controls. In addition, electrical cyclic trim actuators allow flight loads to be trimmed out.

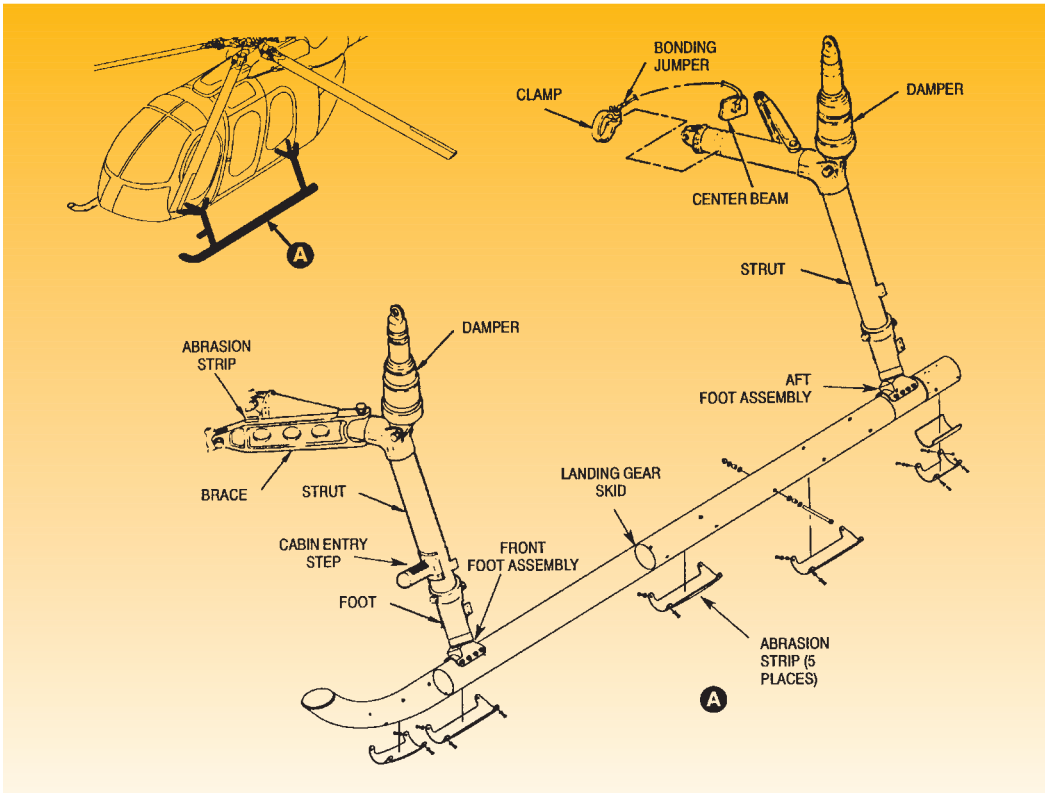




NOTAR® control system consists of a direct jet thruster located at the end of the tailboom.

3.8 **Landing Gear System.**

The landing gear on the MD 600N® is of the skid type with replaceable shoes. The gear is fixed to the fuselage and is not retractable. Aerodynamic fairings cover the struts. New, heavy duty, nitrogen-charged landing gear dampers, with a larger piston diameter, are embedded in the fuselage belly section. These act as shock absorbers and provide ground resonance stability. Provisions for ground handling wheels are incorporated on the skid tubes.

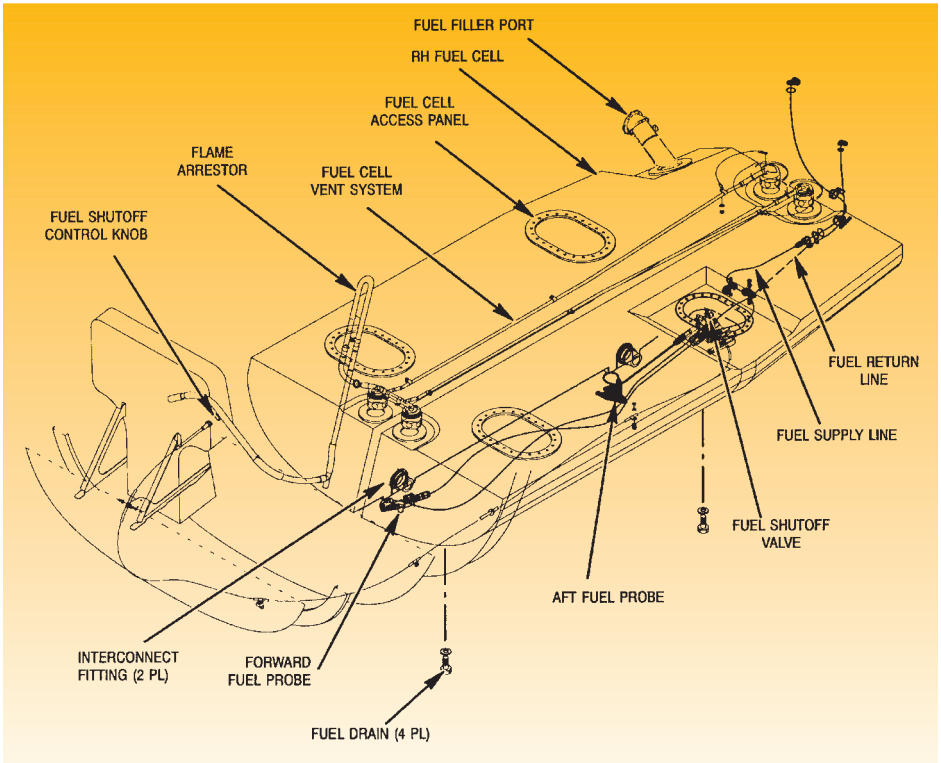


3.9 **Electrical System.**

The standard system consists of a 28 volt DC system powered by the aircraft's 200 amp. heavy duty starter generator. The system is rated for 150 amps at maximum continuous power, thus providing the capability to power virtually any kind of configuration. A 28 volt, 17 amp., NICAD heavy duty battery is standard equipment. An auxiliary power receptacle inside the right crew door, is also provided for ground APU operations.

3.10 **Fuel System.**

The fuel system for the MD 600N® includes 115 US gallons (435 l) of fuel in two baffled fuel bladders, located in compartments in the belly section. The fuel system does not require boost fuel pumps, and is designed to FAR part 27 criteria for crash-resistance. Puncture-resistant bladders and frangible, breakaway connections are incorporated to prevent fuel spillage in the event of a crash. In contrast to the industry standard of about 300 nautical miles, the MD 600N® fuel system gives this helicopter 380 nautical-mile range without the need for auxiliary fuel tanks.



An engine suction-type fuel pump is used for fuel transfer to the engine. The suction pump increases system safety by eliminating pressurized fuel lines. In the forward tank area is an ejector-type scavenge pump that transfers fuel to the aft fuel pick-up area. All common turbine fuels are approved for use in the 250-C47M engine.

3.11 **NOTAR® anti-torque system description.**

The NOTAR® system used in the MD 600N® is derived from an already-proven system used in the MD 520N® helicopter. Total NOTAR® fleet time for all MD Helicopters exceeds 200,000 hours. The concepts, hardware and system operation for the MD 600N® utilize these proven concepts and components.

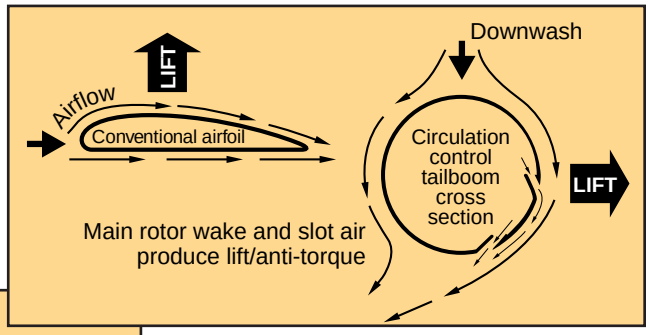
The function of the NOTAR® system is simpler than it appears. It consists of an enclosed fan driven by the main rotor transmission; a circulation control tailboom; a direct jet thruster and horizontal stabilizer with two vertical stabilizers.

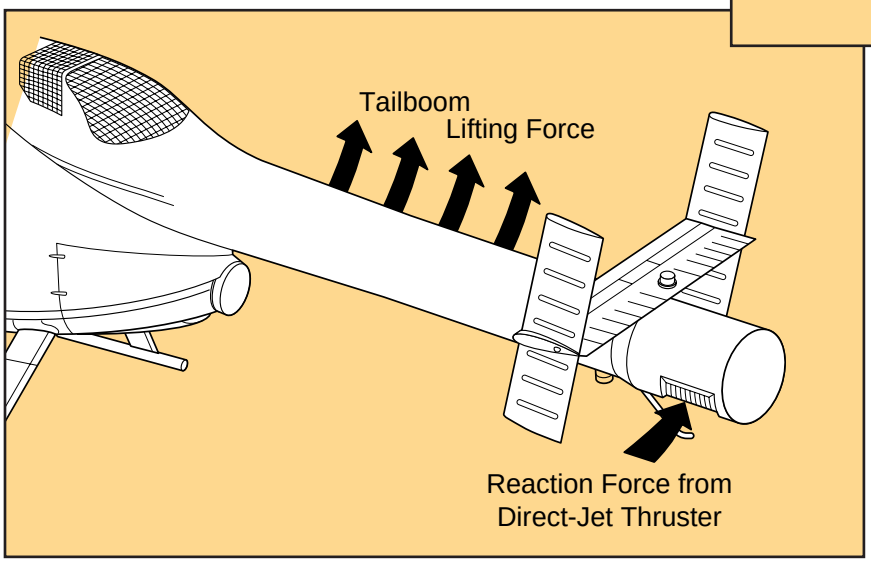
The NOTAR® system fan, shown here is a 13-blade variable pitch, ducted fan driven by the main rotor transmission through a step-up gear box. Pitch on the fan blades is controlled by the pilot's anti-torque pedals. The NOTAR® system fan pressurizes the circulation control tailboom with low pressure air, part of which is ducted out the slots and part of which exits through the direct jet thruster to provide differential anti-torque control as well as directional control.

The circulation control boom, though round in cross section, acts as a vertical airfoil. Lift on the right (anti-torque) side of the boom is created by main rotor downwash which adheres to the boom through the use of two cirtulation control slots.

This system is self-compensating: When the rotor system is producing higher torque it is also producing higher downwash with resultant lift (anti-torque). At low torque, less downwash is present and the tailboom produces less lift at a time when less anti-torque is required.

The horizontal stabilizer on the MD 600N® is set at a fixed angle of incidence and attaches atop the tailboom just forward of the thruster. At each end of the horizontal stabilizer is a vertical stabilizer.





The left and right vertical stabilizers are connected to the pilot's anti-torque pedals (rudder pedals). These stabilizers move through approximately 29 degrees of motion and provide sufficient control power for autorotation. They serve the additional purpose of unloading the direct jet thruster during forward flight which permits optimum cruise performance.

In hover flight, the circulation control tailboom provides the majority of the required main rotor anti-torque. During forward flight, the vertical stabilizer, in conjunction with the direct jet thruster, provides the required anti-torque and directional control.

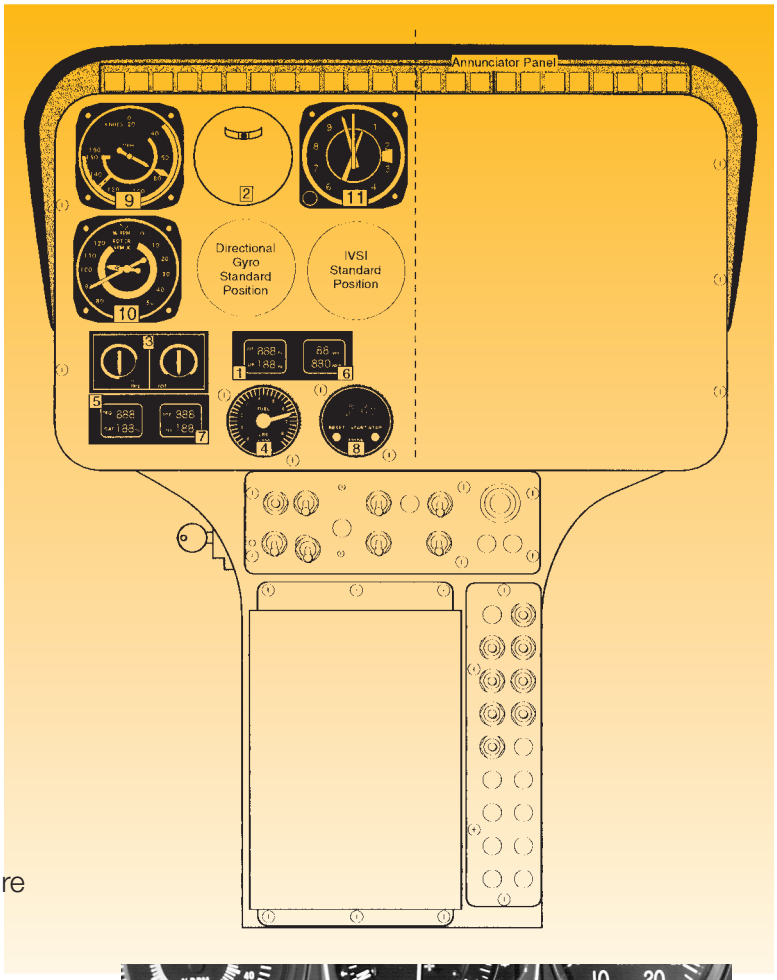
The direct jet thruster is located at the aft end of the circulation control tailboom and consists of an exterior cylinder with an open cutaway section which rotates over an interior cylinder. The interior cylinder contains ducts that, when aligned with the cutaway in the exterior cylinder, vary the volume and direction of ducted air from the boom's interior. The resulting variable jet thrust provides additional anti-torque effect and assists in directional control.

3.12 **Interior.**

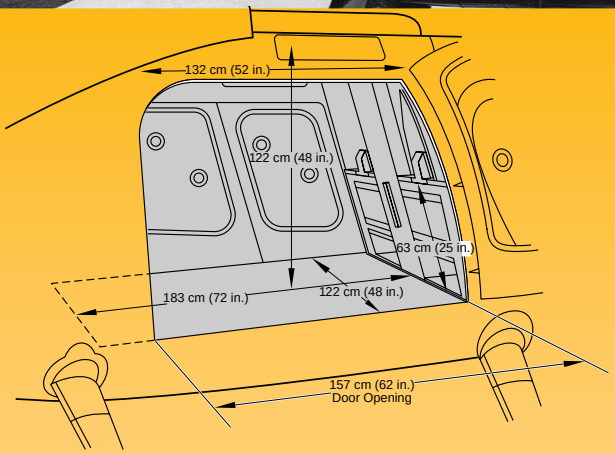
The forward cabin provides space for the pilot and co-pilot in either a right or left-hand command configuration. In the left hand command configuration, with single pilot controls installed, space for two passengers is provided.

Crew seats are either the cushion type or optionally, a tubular structure with mesh-type covering. Both attach to the energy-absorbing airframe structure. The standard crew and passenger seats have been redesigned to provide much greater comfort and up to one and one-half inches more headroom.

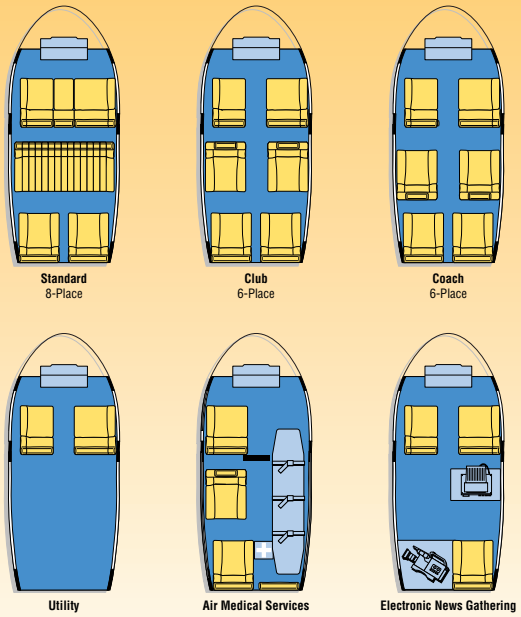
The MD 600N® instrument panel, is a “T” configuration providing space for engine and flight instruments in the upper portion and for avionics/communications in the lower portion. This instrument panel incorporates internally-lighted instruments for easier reading. A “slant panel” that provides additional space for avionics is available as an option, and custom avionics arrangements are also available.



Digital engine oil temperature/oil pressure
Slip indicator
Analog engine torque/turbine outlet temperature
Fuel quantity indicator
Digital engine torque/outside air temperature
Digital volt/ampere meter
Digital turbine outlet temperature/N_1 tachometer
Digital chronometer
Airspeed indicator
Dual tachometer, N_R and N_2
Barometric altimeter
Not shown:
Magnetic compass



Seating Configurations:



Cabin Doors.

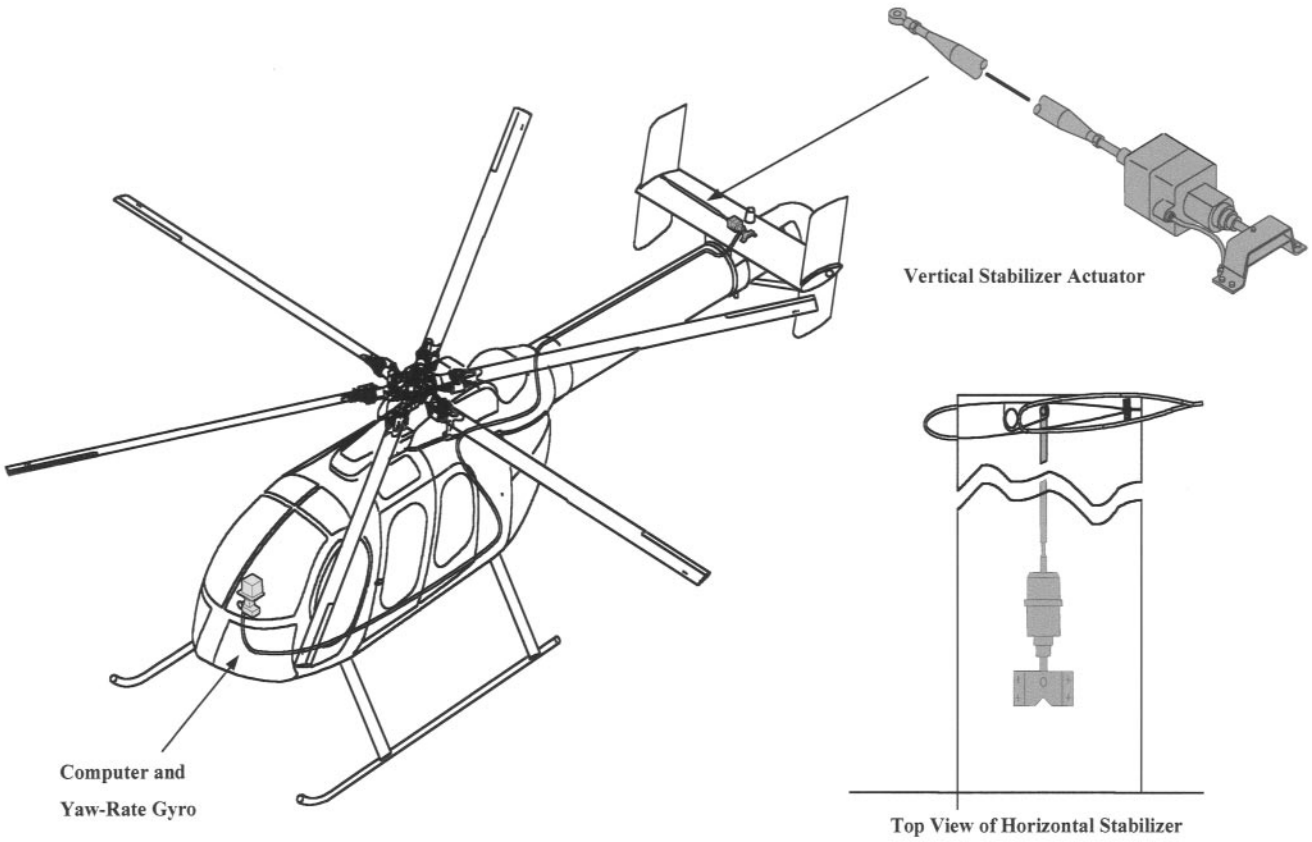
Four removable doors provide access to the aft cabin. The doors, two on either side, are center opening and contain transparent acrylic windows. The mid-door overlaps the aft door for greater safety. The aft door contains a second set of fuselage closing pins. The doors open to provide 157 cm (62 in) of room for loading cargo or passengers. Flight with doors on or off is approved.

When the seats are removed, the aft cabin provides 1.83 m (6 ft) of flat floor space. Cargo, passengers or a combination of cargo and passengers may be carried in the aft cabin. Five passengers can be seated in the cabin, and a variety of seating configurations are possible, as illustrated on the facing page. The quick-release, reversible-center seating provides for either club seating or all forward-facing seating. A new, more advanced seat belt restraint system offers easier operation.

Yaw Stability Augmentation System (Yaw-SAS, Optional).

MD Helicopters, Inc. has recently developed and tested a new MD 600N yaw stability augmentation system (Yaw-SAS). This new system significantly reduces pilot workload throughout the flight envelope, especially in gusty/turbulent weather conditions. Pilot evaluations have been very positive

The Yaw-SAS is based on the proven MD 520N configuration. Yaw rate data drives the right-side vertical stabilizer, which corrects out-of-trim flight. Pilot inputs during maneuvers and level flight a significantly reduced. The left-side vertical stabilizer is not connected to the Yaw-SAS.



4.0 **Standard Equipment and Features.**

Airframe

- Tinted canopy panels
- Tinted door/window panes (6)
- Rain gutter set
- Cabin door openers (4)
- Extended landing gear, MD 600N
- Keyed locks (4)
- Fuselage hard points
- Jacking fittings
- Passenger steps
- Anti-collision lights (2)
- Landing light, nose mounted
- Position lights
- Dual, center-opening, double doors - aft cabin
- 1-color Dupont Imron polyurethane exterior paint

Interior

- Crew seats with 4-point harness restraint
- Passenger seats with 3-point harness restraint
- Vinyl and fabric cushions - 8 seats
- Vinyl interior trim panels
- Crew and cabin compartment floor carpet
- Map case
- Fire extinguisher
- First aid kit
- Crew ashtray and lighter/28-volt utility outlet
- Cabin lighter/28-volt utility outlet
- Battery-heavy duty Marathon 17-ampere-hour
- Ventilation system
- Reversible aft cabin bench seat
- Cockpit utility light
- Cabin convenience light
- Instrument lighting
- Cabin soundproofing
- Cargo tie-down fittings

Engine and Electrical

- Allison 250-C47M engine, 808 shp (603 kw)
- Automatic engine reignition
- Engine wash kit, MD 500 series
- Engine compressor anti-ice
- Engine compartment fire detection system
- 115 gallon (435 l) fuel system
- Heavy duty starter/generator - 150 amp
- Filter assembly for fuel and engine scavenge oil
- External power receptacle

Rotor and Controls

- Flight controls, single, left hand command

Flight and Engine Instruments

- Dual tachometer, N_R and N_2
- Engine oil pressure indicator
- Engine torque meter
- N_1 tachometer
- Hobbs engine running time meter
- Fuel quantity indicator
- Digital chronometer
- Airspeed indicator
- Barometric altimeter
- Digital volt and ammeter
- Outside air temperature indicator
- Magnetic compass
- Digital/analog turbine outlet temp. indicator
- Engine oil temp indicator

MD600N

STANDARD EQUIPMENT AND FEATURES

Annunciator Panel

- Battery overtemp warning light
- Engine chip detector warning light
- Engine out warning light
- Engine fire warning light
- Fan transmission chip detector warning light
- Fuel filter obstruction warning light
- Fuel low warning light
- Generator out warning light
- Low rotor rpm warning light
- Main transmission chip detector warning light
- Main transmission oil pressure warning light
- Main transmission oil temp warning light
- FADEC and ECU caution lights
- Voice warning audio system

Miscellaneous

- Ground handling wheels
- Engine and airframe log books
- Engine maintenance manual
- Battery manual
- Flight manual
- Handbook of maintenance instructions
- Illustrated parts catalog
- Engine exhaust cover
- Engine inlet cover
- Pitot tube cover
- Main rotor blade tie-downs
- NOTAR inlet, thruster and tailboom cover

Airframe Features

- Semi-monocoque aluminum fuselage
- Composite tailboom and empennage
- Extended tubular skid landing gear
- Hydraulic landing gear dampers

Interior Features

- 6-Foot, flat cabin cargo floor
- Flow-through positive ventilation system

Engine and Electrical Features

- Full authority digital engine control (FADEC)
- Hydro-mechanical backup engine control
- Engine driven fuel pump
- 28-Volt DC electrical system

Rotor and Controls Features

- Fully articulated, 6-bladed main rotor system
- Static and rotating main rotor mast system
- 600 shp (447 kw) drive-train system
- NOTAR anti-torque system
- Mechanical flight control system

MD600N

OPTIONAL EQUIPMENT

Airspeed/Time	lb	kg
ASTROTECH LC-6 CLOCK	0.3	0.1
DAVTRON M877 CLOCK	0.2	0.1
HEATED PITOT TUBE, MD 600N	1.0	0.5

Altitude	lb	kg
KRA10-00 RADAR ALT W/KI250 IND	4.4	2.0
KRA405B-15 RADAR ALT W/KNI416 IND	10.5	4.8
TRIMBLE TRA 3000 TRI40 RADAR ALTIMETER	2.6	1.2
UNITED 5035 ENCODING ALTIMETER	3.7	1.7
UNITED 5120 BLIND ENCODER	2.0	0.9
UNITED 7130-C82 IVSI	2.5	1.1

Altitude/Heading	lb	kg
AIM ATTITUDE GYRO 510-1B	3.1	1.4
AIM DIRECTIONAL GYRO 205-1BL	3.0	1.4
BF GOODRICH WX 950 COLOR STORMSCOPE	10.0	4.5
EHS 40 ELECTRONIC FLIGHT INSTRUMENT SYSTEM	23.9	10.8
KCS55A-01 COMP SYS WKI525A HSI,KA51B	10.3	4.7
KI229-00 RADIO MAGNETIC INDICATOR	2.0	0.9
MID-CONTINENT 9510 3-INCH TURN AND BANK INDICATOR	1.6	0.7
UNITED 9551 2-INCH TURN AND BANK INDICATOR	1.4	0.6
Yaw-SAS STABILITY AUGMENTATION SYSTEM	10.0	4.5

Comm/Intercom	lb	kg
FLIGHT TRAILS AVIONICS MASTER SWITCH	1.5	0.7
FLIGHT TRAILS COPILOT ICS FOOT SWITCH	0.5	0.2
FLIGHT TRAILS CYCLIC REMOTE FREQ SWITCH ONLY	0.3	0.1
FLIGHT TRAILS REAR SEAT TRANSMIT	2.5	1.1
HEADSET BOSE SERIES II	1.1	0.5
HEADSET BOSE SERIES X	1.1	0.5
HEADSET DAVID CLARK H10-56	1.1	0.5
HEADSET WIRE HARNESS (W/O ICS) W/ADAPTS	2.0	0.9
KFM985 FM TRANSCEIVER	3.0	1.4
KHF990-00 HF SYSTEM WITH BELLY MOUNTED ANT	22.5	10.2
KMA24H-71 AUDIO CONTROL/INTERCOM (5 Place)	3.1	1.4
KMA24H-71 AUDIO CONTROL/INTERCOM (8 Place)	2.3	1.0
KMA24H-71 DUAL AUDIO CONTROL/INTERCOM	6.2	2.8
KY196A-30 TRANSCEIVER	5.2	2.4
KY196A-30 TRANSCEIVER W/ CYCLIC REMOTE SWITCH	5.5	2.5
MOTOROLA DVP-DVS ENCODER	6.2	2.8
NAT 138 FMNPX HIGH BANDTRANSCEIVER	3.1	1.4
NAT 150 VHF HI BAND TRANSCEIVER	8.5	3.9
NAT 403-00 UHF TRANSCEIVER	5.5	2.5
NAT 806 UHF 800MHZ BAND TRANSCEIVER	6.0	2.7
NAT AA22-163 100 WATT PA AND SIREN	21.6	9.8
NAT AA22-163, 220 WATT PA AND SIREN	21.4	9.7
NAT AA34-200 UNIVERSAL RADIO INTERFACE	1.0	0.5
NAT AA94-SSD DUAL CHANNEL AUDIO CONTROLLER	2.3	1.0
NAT AA95-512 SINGLE CHANNEL AUDIO CONTROLLER	2.5	1.1
NAT AA95-512 SINGLE CHANNEL AUDIO DUAL CONTROLLERS	5.0	2.3
NAT AA97-400 SINGLE CHANNEL AUDIO CONTROLLER	2.5	1.1
NAT AMS44 DUAL CHANNEL AUDIO CONTROLLER	2.8	1.3
NAT CC250 COMMUNICATIONS CONTROLLER	3.0	1.4
NAT CC450 COMMUNICATIONS CONTROLLER	2.5	1.1
NAT DTE12-001 DATA ENCODER KEYBOARD	0.8	0.4
NAT TH250-7NN MASTER CONTROL HEAD	2.1	1.0
NAT TH350-2 MASTER CONTROL HEAD	3.0	1.4
PROVISIONS C1000-10 FLEXCOMM CONTROL HEAD	0.7	0.3
PROVISIONS C5000-1 FLEXCOMM CONTROL HEAD	0.7	0.3
TECHNISONIC A710 AUDIO INTERCOM (8 PLACE)	2.3	1.0

TFM-138 VHF HIGH BAND TRANSCEIVER	3.1	1.4
WULFSBERG C1000-10 FLEX COMM CONTROL HEAD	2.6	1.2
WULFSBERG RT138F-0 TRANSCEIVER	7.5	3.4
WULFSBERG RT30-0 TRANSCEIVER (WIDEBAND)	8.3	3.8
WULFSBERG RT406F-0 TRANSCEIVER	7.5	3.4
WULFSBERG RT5000-01 TRANSCEIVER	27.2	12.3
WULFSBURG C5000-1 FLEX COMM CONTROL HEAD	4.2	1.9

COMM/NAV	*lb*	*kg*
EMERGENCY LOC TRANS, ARTEX-100HM	6.9	3.1
EMERGENCY LOC. TRANSMITER POINTER 3000	4.0	1.8
FOXTRONICS 3050 WIDE BAND ANTENNA	2.5	1.1
KI202-00 VOR/LOC INDICATOR	1.3	0.6
KI203-00 VOR/LOC INDICATOR	1.0	0.5
KI204-02 VOR/LOC/GS INDICATOR	3.0	1.4
KI206-04 VOR/LOC/GS INDICATOR	3.0	1.4
KI208-00 VOR/LOC INDICATOR	2.4	1.1
KI209-01 VOR/LOC/GS INDICATOR	1.2	0.5
KN53-00 NAV RECEIVER W/GLS	3.0	1.4
KN62A-01 DME	2.6	1.2
KN63-04 DME w/KDI 572 INDICATOR	3.6	1.6
KN75-02 GLIDESLOPE RECEIVER	1.6	0.7
KR22-00 MARKER BEACON RECEIVER	2.0	0.9
KR87-16 ADF	6.8	3.1
KR87-16 ADF W/KI227-00 IND	8.2	3.7
KT70-00 S-MODE TRANSPONDER	5.2	2.4
KT71-00 A AND C-MODE DIGITAL TRANSPONDER	4.0	1.8
KT76A-01 A AND C-MODE TRANSPONDER	4.2	1.9
KX155-39 NAV/COMM TRANSCEIVER	7.9	3.6
KX155-39 NAVCOMM W/KI208 VOR IND	9.7	4.4
KX155-43 NAV/COMM TRANSCEIVER W/GLS	7.9	3.6
KX155-43 NAVCOMM W/GS W/KI209 VOR/GLS IND	9.7	4.4
KX165-25 NAVCOMM W/GS W/KI206 VOR/GLS IND	10.6	4.8

Flight Controls	*lb*	*kg*
FLIGHT CONTROLS-DUAL,LH COMMAND	10.4	4.7
FLIGHT CONTROLS-DUAL,RH COMMAND	10.4	4.7
MILITARY CYCLIC CONTROL GRIPS	1.0	0.5

Electrical System	*lb*	*kg*
FLIGHT TRAILS 28V RECP FRONT AND REAR	1.6	0.7
KA-33 AVIONICS COOLING FAN	2.2	1.0
VOLTMETER-DAVTRON M450 DIGITAL BATTERY	1.2	0.5

Engine	*lb*	*kg*
HOBBS COLLECTIVE RUNNING TIME METER	0.5	0.2
PARTICLE SEPARATOR, MD 600N	13.2	6.0

Environmental	*lb*	*kg*
AIR CONDITIONING, INTEGRATED FLIGHT SYSTEMS	83.9	38.1
HEATER-DEFOGGER, MD 600N	6.7	3.0

MD600N

OPTIONAL EQUIPMENT

Exterior Accessories	lb	kg
BREEZE CARGO HOOK, MD 600N	7.0	3.2
ONBOARD SYSTEMS CARGO HOOK	7.0	3.2
ONBOARD SYSTEMS CARGO HOOK LOAD WEIGHT SYSTEM	5.0	2.3
PROVISIONS FLIR REAR MONITOR MOUNT	1.1	0.5
PROVISIONS ULTRA 7000 FLIR LEFT SIDE MOUNTED	10.0	4.5
PROVISIONS ULTRA 7000 FLIR RIGHT SIDE MOUNTED	10.0	4.5
WATER PROOF COVER	0.0	0.0
WIRE STRIKE KIT, 600N	15.4	7.0

Exterior Lights	lb	kg
FLOAT LIGHT KIT	4.8	2.2
NIGHTSCANNER 400K CPWR SEARCHLIGHT	23.0	10.4
NIGHTSCANNER, IR LENS KIT	0.8	0.4
NIGHTSCANNER, SUPER 800K CPWR	24.1	10.9
NIGHTSCANNER, SUPER, IR LENS KIT	0.8	0.4
PROVISIONS SX16 SEARCHLIGHT LEFT SIDE MOUNTED	30.0	13.6
PROVISIONS SX16 SEARCHLIGHT RIGHT SIDE MOUNTED	30.0	13.6
PROVISIONS SX5 SEARCHLIGHT LEFT SIDE MOUNTED	23.5	10.7
PROVISIONS SX5 SEARCHLIGHT NOSE MOUNTED	23.3	10.6
PROVISIONS SX5 SEARCHLIGHT RIGHT SIDE MOUNTED	23.3	10.6
SX16 SEARCHLIGHT LEFT SIDE MOUNTED	65.0	29.5
SX16 SEARCHLIGHT RIGHT SIDE MOUNTED	65.0	29.5
SX5 SEARCHLIGHT LEFT SIDE MOUNTED	14.8	6.7
SX5 SEARCHLIGHT NOSE MOUNTED	14.8	6.7
SX5 SEARCHLIGHT RIGHT SIDE MOUNTED	14.8	6.7

Fuel System	lb	kg
AIRFRAME FUEL FILTER, 600N	6.7	3.0
ROBERTSON 33.5 GAL (127L) AUX TANK	50.0	22.7
SHADIN DIGIDATA FUEL AIR DATA SYSTEM	2.4	1.1

Gear/Handling	lb	kg
EMERGENCY FLOATS, APICAL INDUSTRIES	115.0	52.2
FLIGHT TRAILS CREW HANDLES (4)	5.0	2.3
FLIGHT TRAILS SKID MIRROR	2.0	0.9

Interior Trim/Lights/Seats	lb	kg
FLIGHT TRAILS CONSOLE FACE PLATE	0.0	0.0
FLIGHT TRAILS NVG LIGHTING COMPATABILITY	6.0	2.7
FLIGHT TRAILS OAT GAUGE LIGHT	0.0	0.0
FLIGHT TRAILS POST LIGHT MODIFICATION	0.0	0.0
FLIGHT TRAILS SLANT PANEL	3.0	1.4
INTERIOR SOUNDPROOF IN SPECIAL COLOR	119.9	54.4
INTERIOR- LEATHER SEATS, PANELS, TRIM, MD 600N	20.0	9.1
INTERIOR-BASIC MILITARY BLACK	30.0	13.6
INTERIOR-BASIC MILITARY GREY	30.0	13.6
INTERIOR-SOUNDPROOF IN BEIGE	119.9	54.4
INTERIOR-SOUNDPROOF IN GRAY	119.9	54.4
INTERIOR-STANDARD OPTIONAL COLORS	0.0	0.0
SEATS (2) - BUSINESS CABIN, 600N	33.7	15.3
SEATS - BLACK MESH 2+1+ 2	-27.0	-12.3

MD600N

OPTIONAL EQUIPMENT

Interior Accessories	lb	kg
COCKPIT UTILITY-MAP GOOSENECK LIGHT - NVG	3.1	1.4
COCKPIT UTILITY-MAP LUMINATOR LIGHT - NON-NVG	3.1	1.4
COCKPIT UTILITY-MAP LUMINATOR LIGHT - NVG	3.1	1.4
FLIGHT TRAILS INSTRUMENT PANEL MAP CASE	0.5	0.2
FLIGHT TRAILS LH FWD MAP CASE	0.3	0.1
LITTER KIT, SINGLE, RIGHT SIDE	24.3	11.0
PIONEER CD PLAYER, SINGLE DISK	20.0	9.1
ROTOR BRAKE LH COMMAND	6.7	3.0
ROTOR BRAKE RH COMMAND	6.7	3.0

NAV Special	lb	kg
ARGUS 5000 MOVING MAP DISPLAY	3.5	1.6
ARGUS 7000 MOVING MAP DISPLAY	4.6	2.1
FLIGHT TRAILS GPS-VOR SWITCH	0.3	0.1
GARMIN 155 XL GPS	4.3	2.0
GARMIN 250 XL GPS/COMM	5.3	2.4
GARMIN GNS-430 MAP/COMM/VOR/GPS	7.8	3.5
GARMIN GNS-530 MAP/COMM/VOR/GPS	9.8	4.5
KLN90B-01 GPS NORTH AMERICA	8.4	3.8
KLN90B-11 GPS INTERNATIONAL	8.4	3.8
KLX135-00 GPS NORTH AMERICA	9.5	4.3
KLX135-01 GPS INTERNATIONAL	9.5	4.3
MAGELLAN 5000 SKY-NAV GPS	3.0	1.4
RYAN ATS-7000 TCAD	4.0	1.8
RYAN ATS-9900 TCAD	5.0	2.3

Paint	lb	kg
HIGH VISABILITY MAIN ROTOR BLADE PAINT	0.4	0.2
PAINT 0 COLOR PRIMER ONLY 600 SERIES	-20.0	-9.1
PAINT 2 COLOR BRAVADO	0.0	0.0
PAINT 2 COLOR CUSTOM 2	0.0	0.0
PAINT 2 COLOR FINESSE	0.0	0.0
PAINT 2 COLOR FLAIR	0.0	0.0
PAINT 2 COLOR PANACHE	0.0	0.0
PAINT 2 COLOR VOGUE	0.0	0.0
PAINT 3 COLOR BRAVADO	0.0	0.0
PAINT 3 COLOR CUSTOM 3	0.0	0.0
PAINT 3 COLOR FINESSE	0.0	0.0
PAINT 3 COLOR FLAIR	0.0	0.0
PAINT 3 COLOR PANACHE	0.0	0.0
PAINT 3 COLOR VOGUE	0.0	0.0
PAINT 4 COLOR CUSTOM 4	0.0	0.0
PAINT 4 COLOR FINESSE	0.0	0.0
PAINT 4 COLOR PANACHE	0.0	0.0
PAINT 5 COLOR CUSTOM 5	0.0	0.0
PAINT 5 COLOR VOGUE	0.0	0.0

Windows/Canopy	lb	kg
MEEKER QUICK RELELEASE ENGINE BAY DOORS	2.1	1.0
MEEKER QUICK-RELEASE DOOR HINDGES (6), MD 600N	9.0	4.1
PARAVION LEFT FRONT DOOR OPENER	1.2	0.5
PARAVION RIGHT FRONT DOOR OPENER	1.5	0.7
TECH TOOL COMFORT WINDOWS (6), W/HORIZONTAL SLIDES	2.0	0.9
TECH TOOL COMFORT WINDOWS (6), W/VERTICAL SLIDES	2.0	0.9
TECH TOOL COMFORT WINDOWS, 6 EACH, POP-OUT VENTS	2.0	0.9

PERFORMANCE SPECIFICATIONS (IMPERIAL)

5.0 **Performance Specifications.**

		3,100 lb	3,600 lb	4,100 lb
Maximum Cruise Speed	KTAS Sea Level Standard 5,000 ft, ISA	144 148	139 143	134 kt (154 mph) 134 kt (154 mph)
Maximum Permitted Speed	V_{ne} (KCAS) at Sea Level	152 (175)	152 (175)	135 kt (155 mph)
Maximum Range	Sea Level 5,000 ft, ISA	374 (430) 423 (487)	357 (411) 401 (461)	342 nm (393 mi) 380 nm (440 mi)
Maximum Endurance	Sea Level 5,000 ft, ISA	3.9 4.4	3.8 4.1	3.6 hr 3.9 hr
Maximum Rate-of-Climb	Sea Level Standard ISA + 20 °C Day	2,100 1,900	1,700 1,500	1,350 ft/min 1,150 ft/min
Maximum Operating Altitude	Density Altitude	20,000	20,000	20,000 ft
Service Ceiling	ISA @ 100 ft/min	20,000+	18,500	13,500 ft
Hover In-Ground Effect (HIGE)	Standard Day ISA + 20 °C Day	14,500+ 12,200+	14,500+ 11,600	11,100 ft 7,000 ft
Hover Out-of-Ground Effect (HOGE)	Standard Day ISA + 20 °C	14,500+ 12,200+	11,700 8,000	6,000 ft 3,200 ft

Certification Limits:		
Standard Weight	Normal Category External Load	4,100 lb 4,700 lb *
Empty Weight	Standard Configuration Industrial Configuration	2,100 lb 2,036 lb
Useful Load	Internal External	2,000 lb 2,600 lb **
Cargo Hook Structural Rating		3,000 lb
Fuel Capacity		115 gal

Powerplant: Rolls-Royce Allison Engine Company Model 250-C47M gas turbine, rated at 603 kw (808 shp), derated for reliability and safety to: Takeoff 447 kw (600 shp) Max Continuous Power 395 kw (530 shp)

Pending further testing: *4500 lb, **2400 lb limits

MD600N

PERFORMANCE SPECIFICATIONS (METRIC)

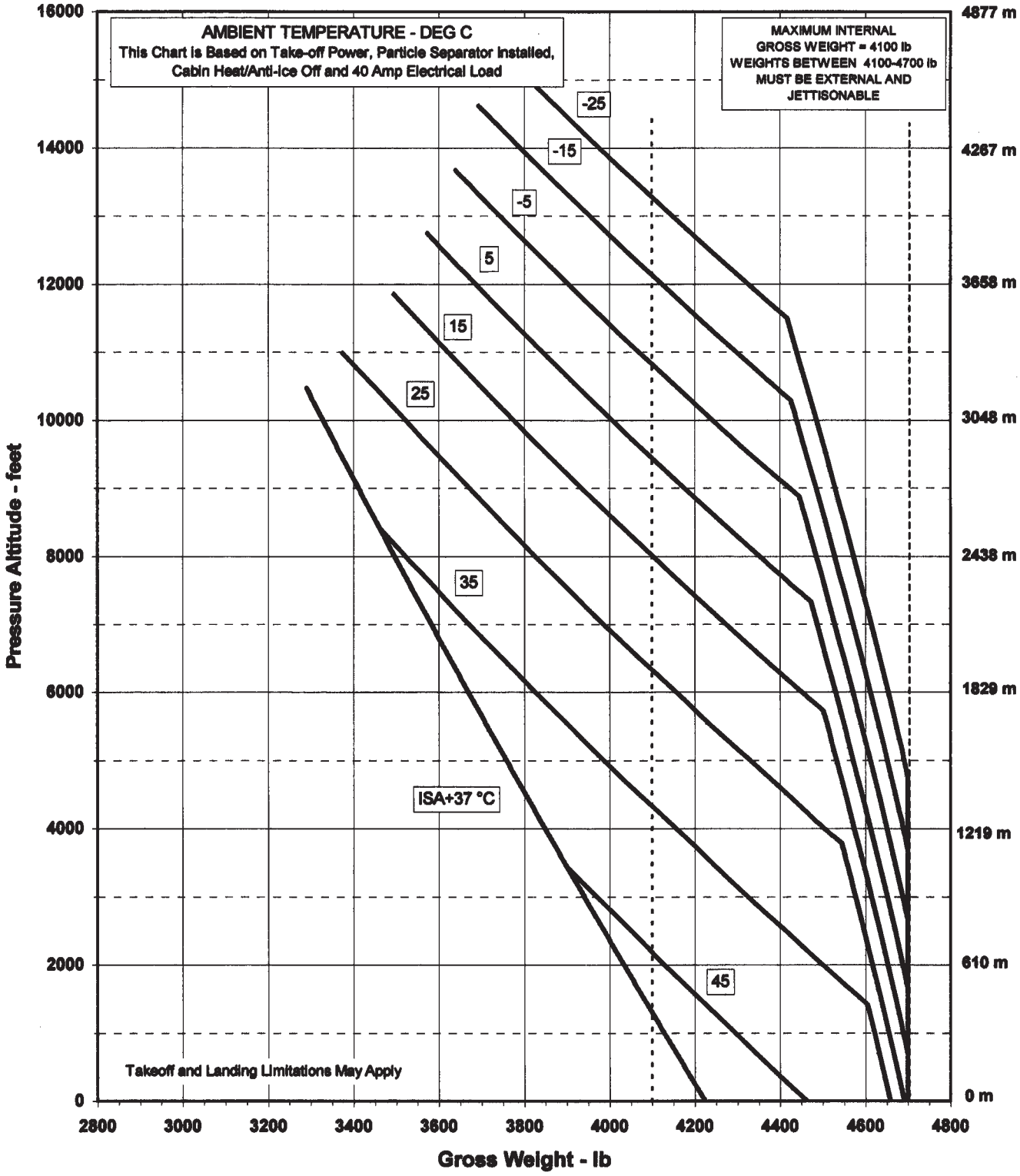
		1406 kg	1633 kg	1860 kg
Maximum Cruise Speed	KTAS Sea Level Standard	267	257	248 kph
	1524 m, ISA	274	265	248 kph
Maximum Permitted Speed	V_{ne} (KCAS) at Sea Level	282	282	250 kph
Maximum Range	Sea Level	693	661	633 km
	1524 m, ISA	783	743	704 km
Maximum Endurance	Sea Level	3.9	3.8	3.6 hr
	1524 m, ISA	4.4	4.1	3.9 hr
Maximum Rate-of-Climb	Sea Level Standard	10.7	8.6	6.9 m/s
	ISA + 20 °C Day	9.6	7.6	5.8 m/s
Maximum Operating Altitude	Density Altitude	6096	6096	6096 m
Service Ceiling	ISA @ 30.5 m/min	6096+	5639	4115 m
Hover In-Ground Effect (HIGE)	Standard Day	4420+	4420+	3383 m
	ISA + 20 °C Day	3719+	3536	2134 m
Hover Out-of-Ground Effect (HOGE)	Standard Day	4420+	3566	1829 m
	ISA + 20 °C	3719+	2438	975 m

Certification Limits:		
Standard Weight	Normal Category	1859 kg
	External Load	2131 kg *
Empty Weight	Standard Configuration	952 kg
	Industrial Configuration	923 kg
Useful Load	Internal	907 kg
	External	1179 kg **
Cargo Hook Structural Rating		1360 kg
Fuel Capacity		435 l

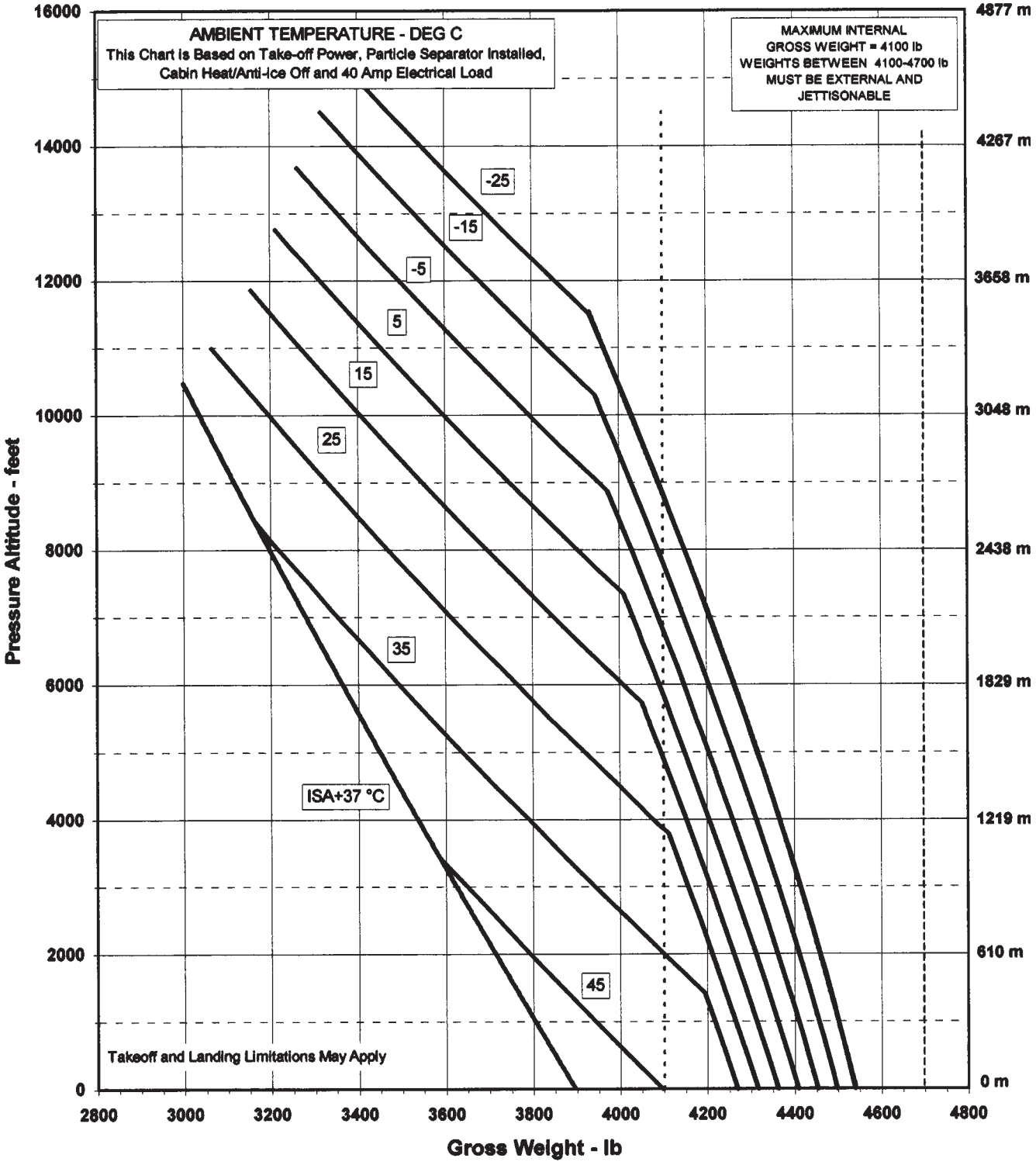
Powerplant: Rolls-Royce Allison Engine Company Model 250-C47M gas turbine, rated at 603 kw (808 shp), derated for reliability and safety to:Takeoff 447 kw (600 shp) Max Continuous Power 395 kw (530 shp)

Pending further testing: *2040 kg, **1088 kg limits

5.1.1 **Hover-In-Ground-Effect.**



5.1.2 **Hover-Out of-Ground-Effect.**

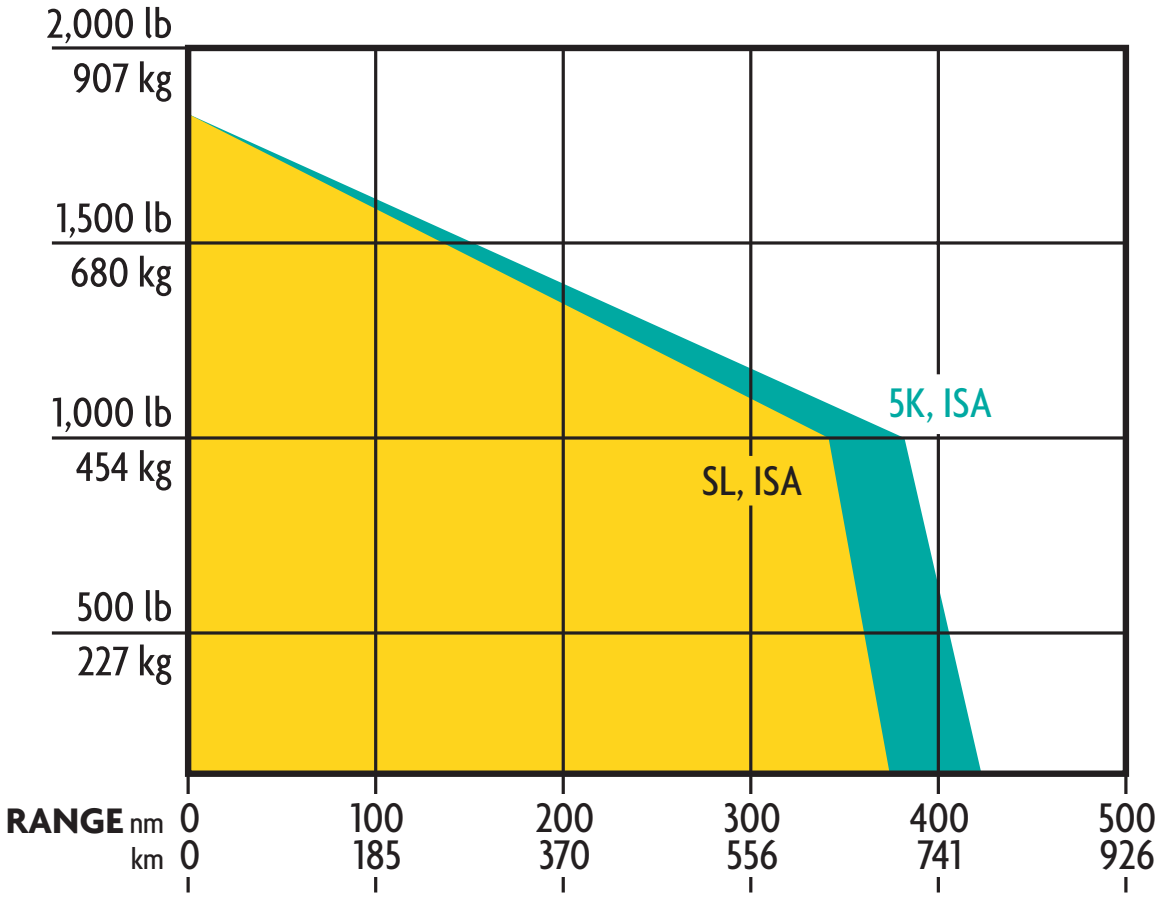


TAKEOFF GROSS WEIGHT WORKSHEET

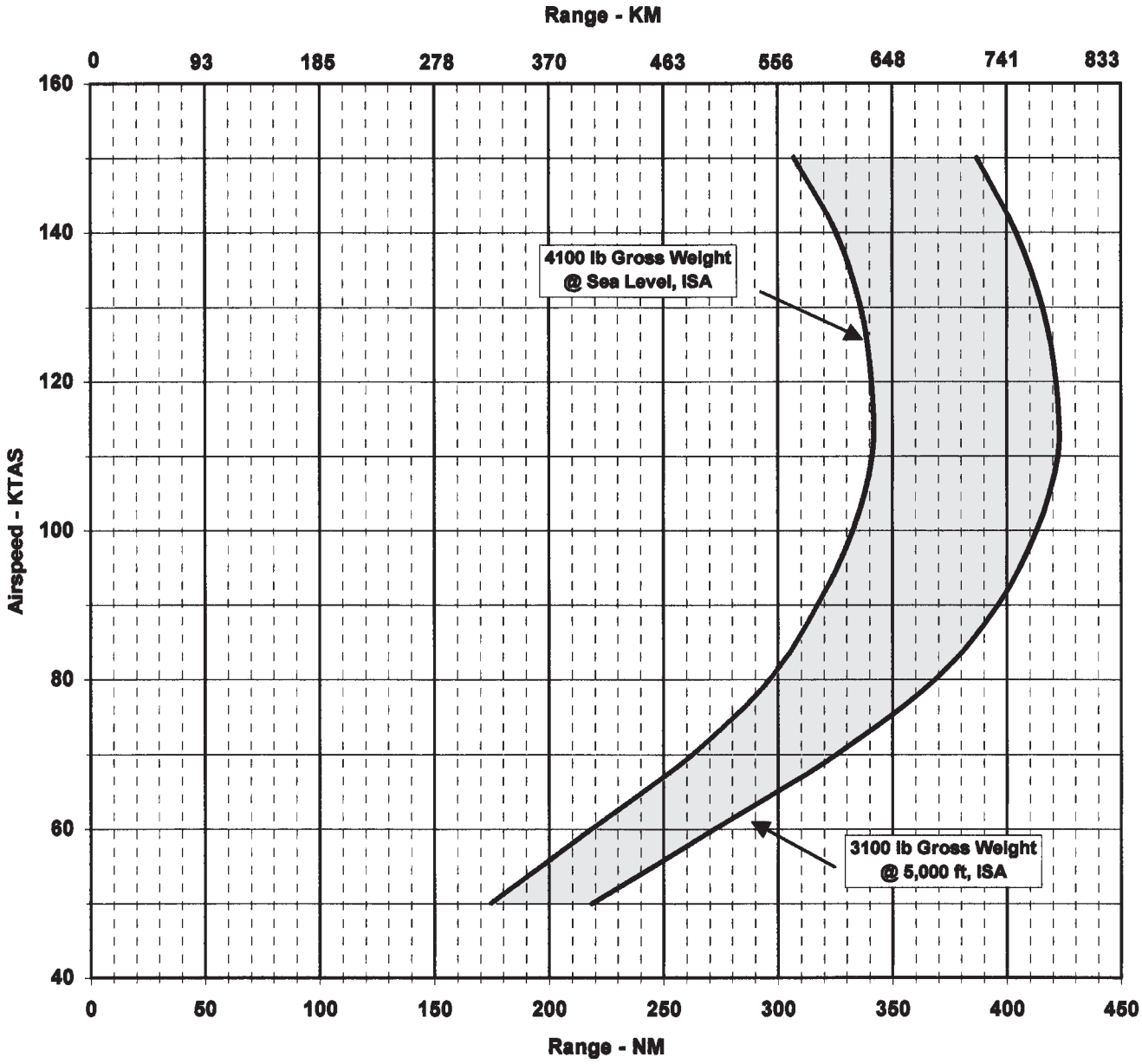
5.2 **Gross Weight Worksheet.**

	Example	Mission #1	Mission #2
Empty Weight	2,100 lb (952 kg)		
Pilot	170 lb (77 kg)		
Fuel	782 lb (355 kg)		
Payload	1,048 lb (476 kg)		
Takeoff GW	4,100 lb (1860 kg)		

5.3 **Payload vs Range.**

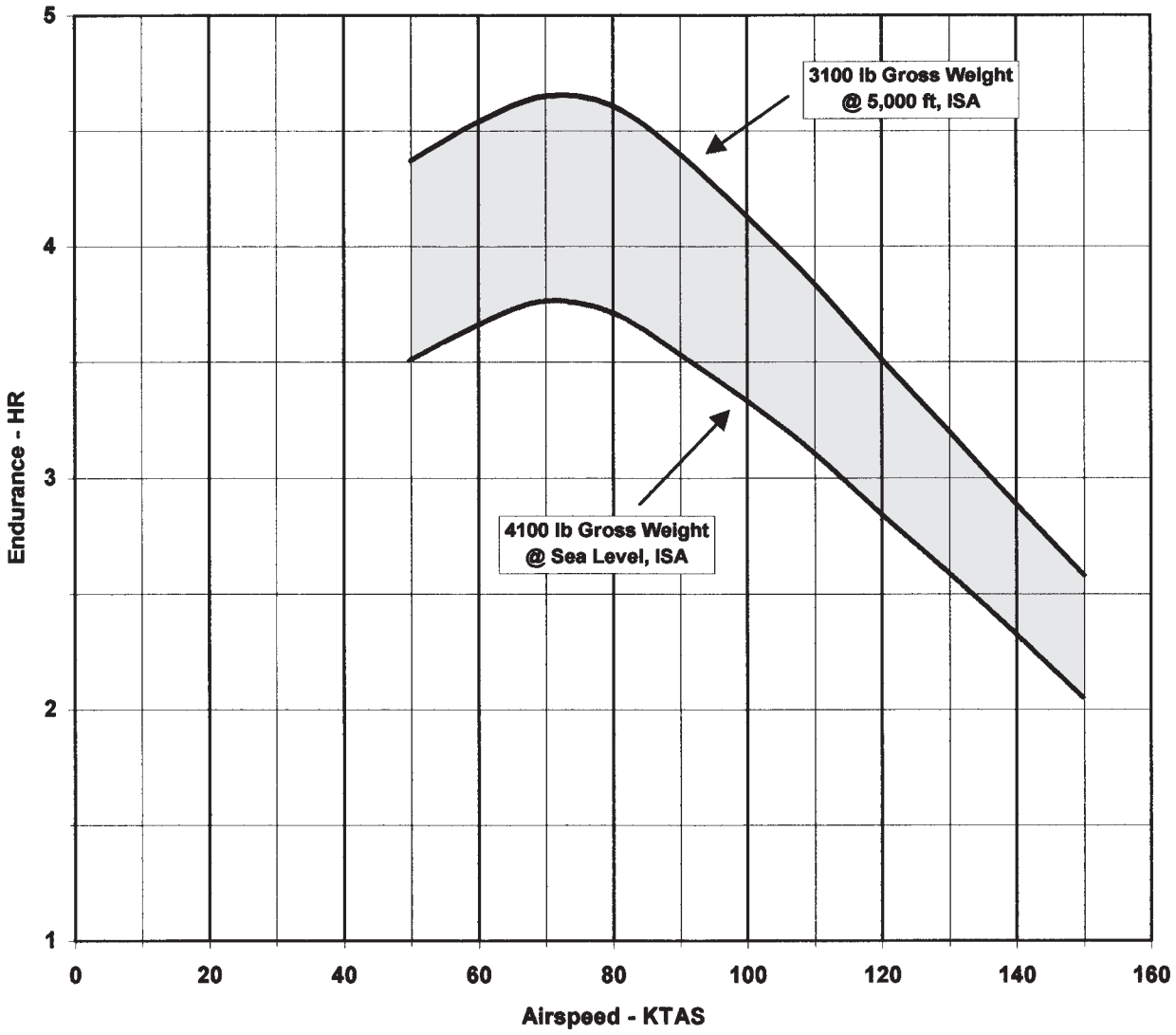


5.4 **Speed for Best Range.**



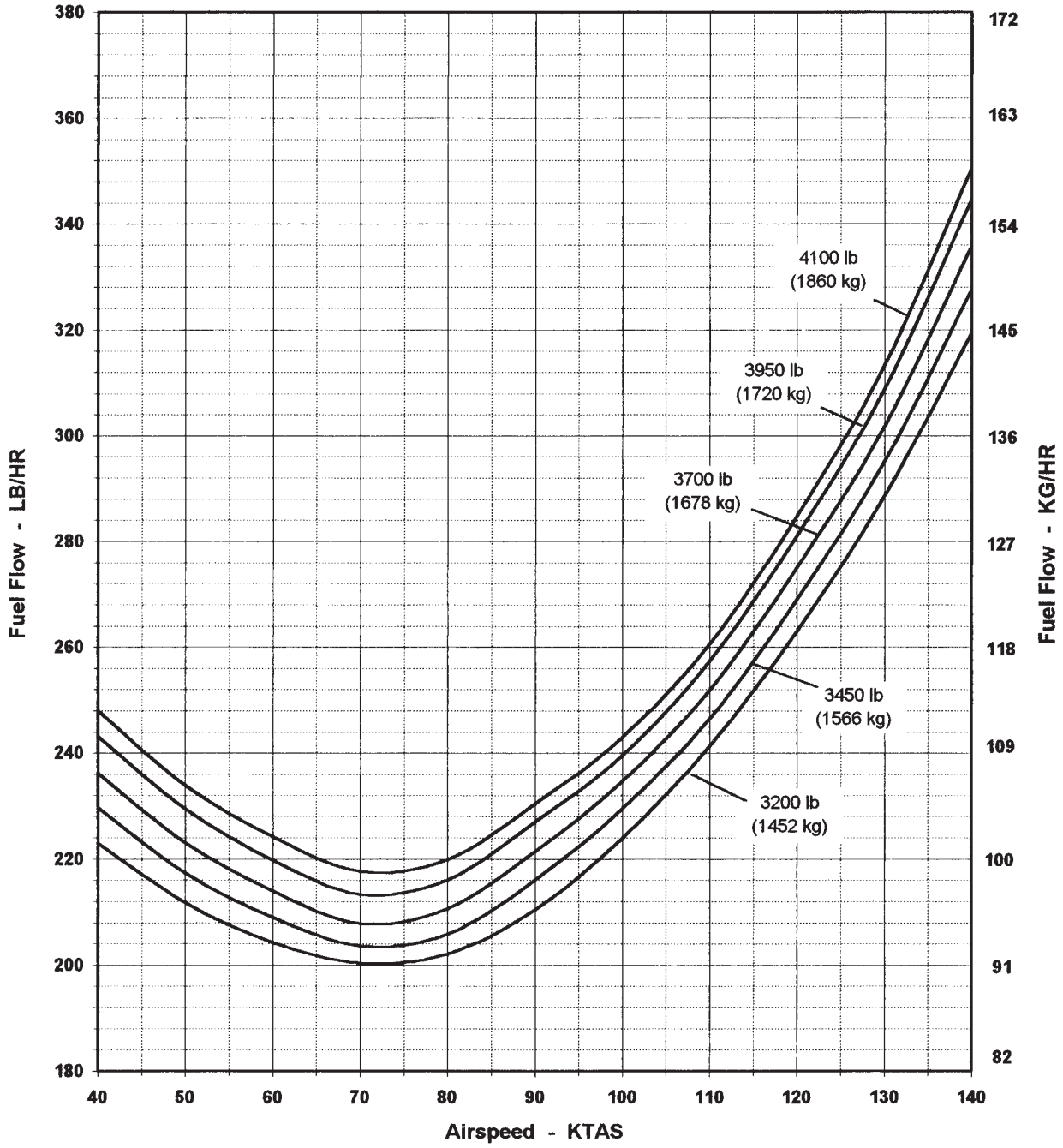
Note: Use for Estimates Only. Not FAA Approved. Based on clean aircraft, level flight performance, minimum specification engine, particle separator and 40 ampere electrical load.

5.5 **Speed for Best Endurance.**



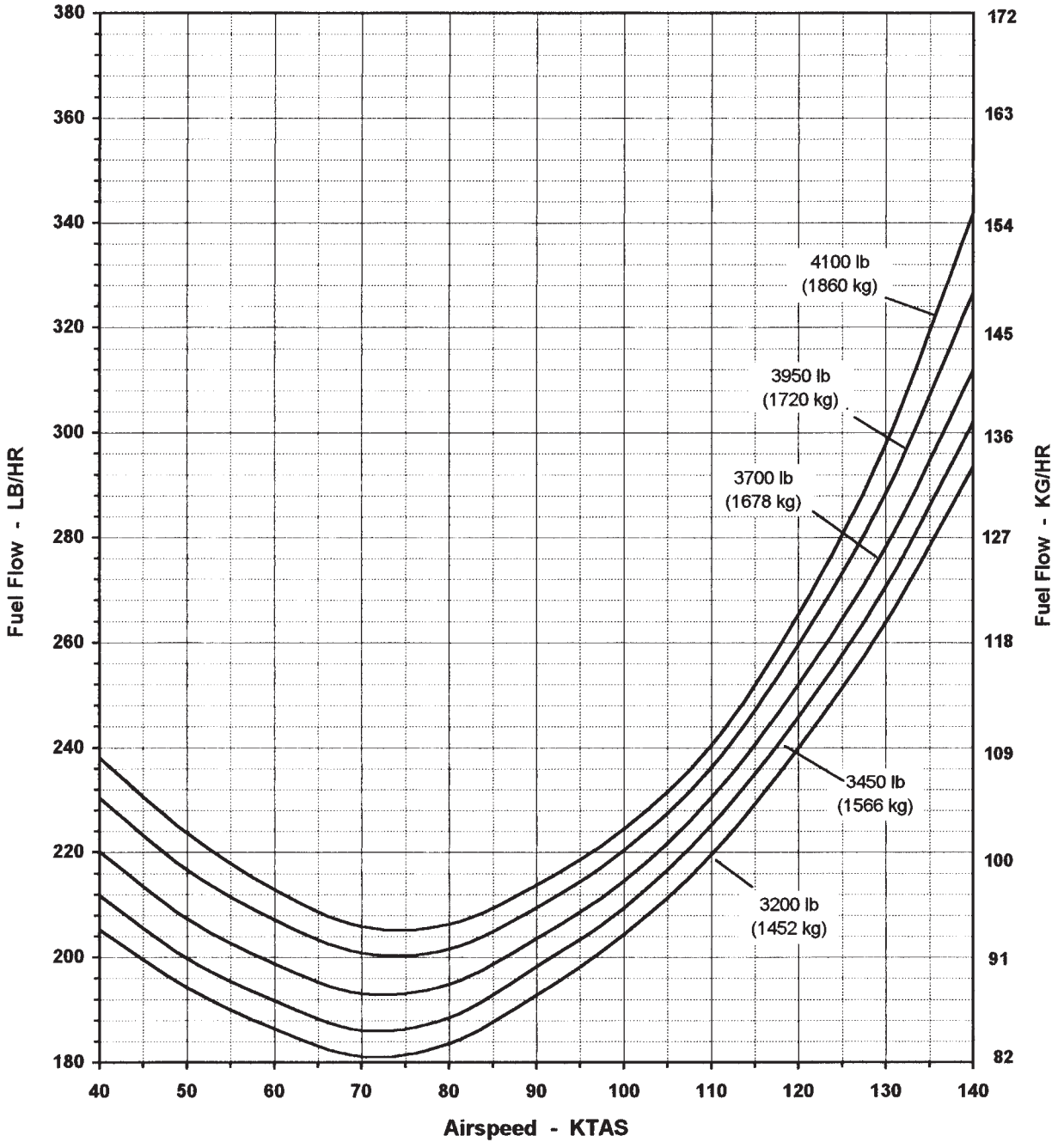
Note: Use for Estimates Only. Not FAA Approved. Based on clean aircraft, level flight performance, minimum specification engine, particle separator and 40 ampere electrical load.

5.6.1 **Fuel Flow, Sea Level, ISA (15°C).**



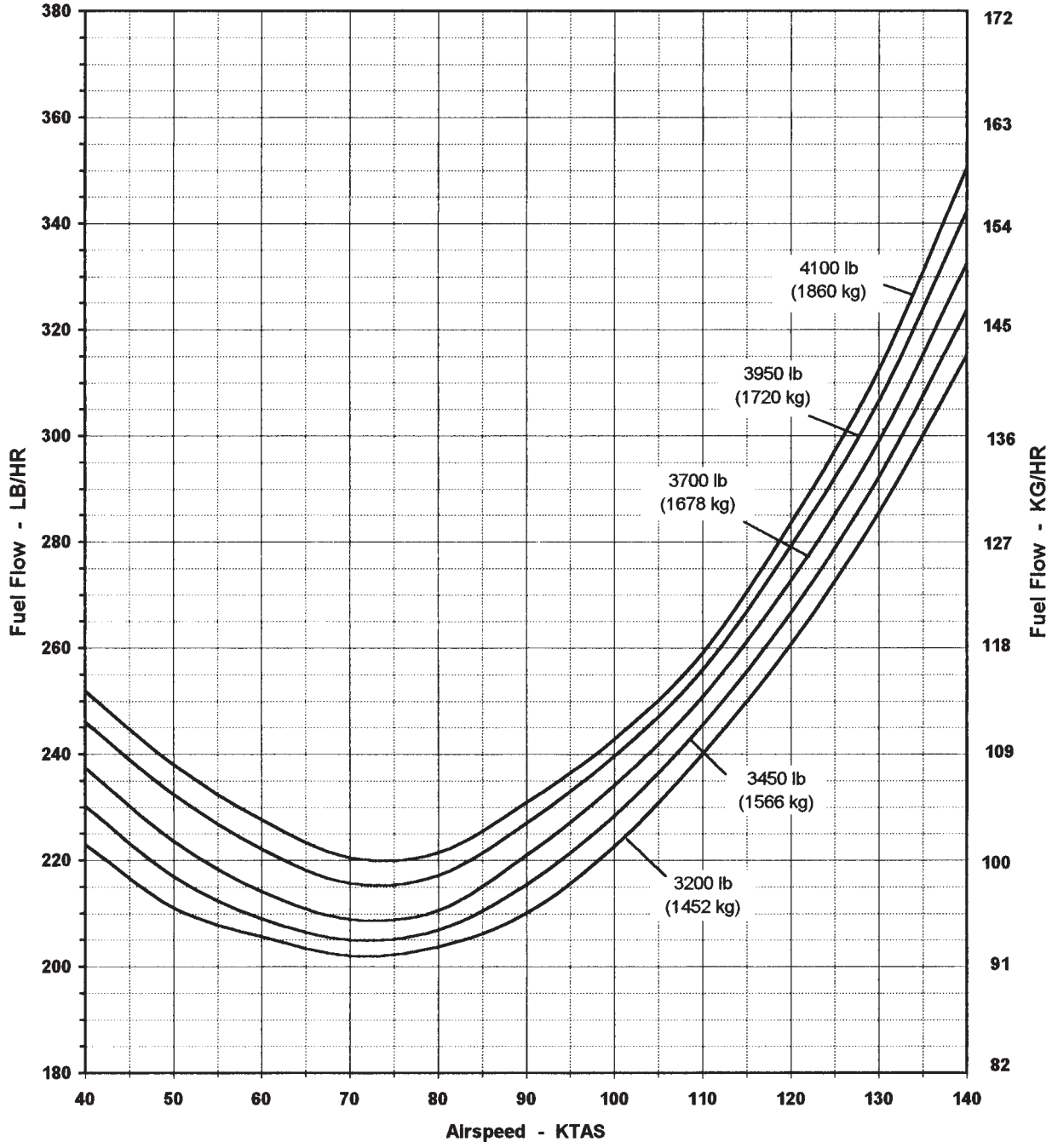
Note: Use for Estimates Only. Not FAA Approved. Based on clean aircraft, level flight performance, minimum specification engine, particle separator and 40 ampere electrical load.

5.6.2 **Fuel Flow, 4000 ft, ISA (7°C).**



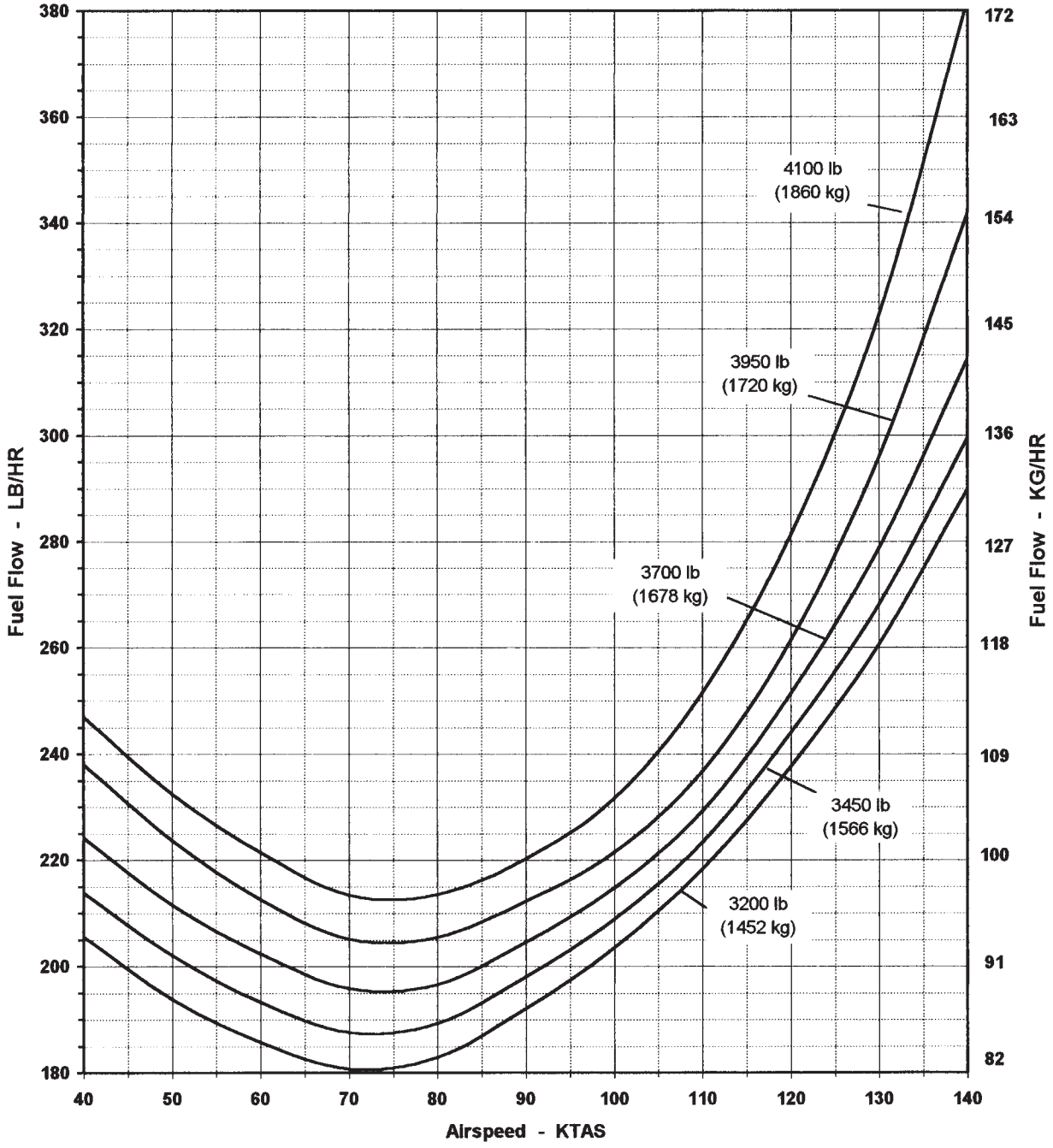
Note: Use for Estimates Only. Not FAA Approved. Based on clean aircraft, level flight performance, minimum specification engine, particle separator and 40 ampere electrical load.

5.6.3 **Fuel Flow, Sea Level, ISA +20 (35°C).**



Note: Use for Estimates Only. Not FAA Approved. Based on clean aircraft, level flight performance, minimum specification engine, particle separator and 40 ampere electrical load.

5.6.4 **Fuel Flow, 4000 ft, ISA +20 (27°C).**



Note: Use for Estimates Only. Not FAA Approved. Based on clean aircraft, level flight performance, minimum specification engine, particle separator and 40 ampere electrical load.

ESTIMATED DIRECT OPERATING COST

6.0 **Direct Operating Cost.**

Estimated Direct Operating Cost Per Hour
(Based upon year 2001 US $)

C47M Engine

- Fuel and Lubricants[1]:
  - Fuel @ $2.06* per gallon @ approx. 42 gallons per hour .....$ 86.52
  - Lubricants @ 3% of fuel 2.60
  - **Total Fuel Cost** .....**$ 89.12**

- Airframe Maintenance and Spares[2]:
  - Maintenance labor costs:
  - Scheduled (.15 Manhours/Flight Hours) @ $58.00/Hour* .....$ 8.70
  - Unscheduled (.26 Manhours/Flight Hours) @ $58.00/Hour* 15.08
  - Spares Cost:
  - Scheduled (Inspection) Parts: Used during periodic inspection i.e. filters, seals, o-rings, etc. .....$ 5.78
  - On-Condition/Unscheduled Part 23.89
  - Reserves: Component Overhaul (TBO) 34.09
  - Reserves: Limited-Life Parts 44.51
  - **Total Airframe Cost** .....**$ 132.05**

- Engine[3]:
  - Scheduled maintenance labor & parts .....$ 3.00
  - Reserve for engine overhaul, spares and accessories 44.15
  - **Total Engine Cost** .....**$ 47.15**

- **Total Direct Operating Cost**[4] .....**$ 268.32**

* Fuel Cost and labor rate is based on Conklin & deBecker book, “The Aircraft Cost Evaluator” dated Spring 2000.

1 Average cost while operating under the following conditions:
- Gross Weight: 10% less than maximum certified
- Speed: Maximum Range Speed, 123 KIAS
- Altitude: 1,000 feet on a standard day

2 Overhaul costs (Projected) are based on participation in factory exchange program.

3 Engine fleet maintenance costs provided by Rolls Royce Engine Company.

4 Indirect costs such as insurance, hangar, salary, etc., are excluded.

Preliminary Data Subject to Change Without Notice

Cost figures shown are extrapolated from a broad data base and are intended for example purposes only. Actual costs will vary, depending on local operating conditions, pricing and supplier practices. We encourage you to compare these figures with other manufacturers’, using the same unit costs for fuel, labor, etc.

MD600N

TOTAL COST OF OPERATION WORKSHEET

Direct Operating Cost per Hour

- Fuel and Lubricants

  Fuel @ $_____ per gallon @ approx._____ gallons per hour .....$ _____
  Lubricants @ _____ % of fuel .....$ _____
  Total Fuel Cost .....**$** _____ (A)

- Airframe Maintenance and Spares

  Scheduled maintenance labor rate @ $_____ per hour
  (Maintenance man-hour/flight hour=$_____) .....$ _____
  Unscheduled maintenance labor rate @ $_____ per hour
  (Maintenance man-hour/flight hour=$_____) .....$ _____
  Scheduled (Inspection) Parts: .....$ _____
  On-Condition/Unscheduled Part .....$ _____
  Reserves: Component Overhaul (TBO) .....$ _____
  Reserves: Limited-Life Parts .....$ _____
  Total Airframe Cost .....**$** _____ (B)

- Engine

  Scheduled maintenance labor rate @ $_____ per hour
  (Maintenance man-hour/flight hour=$_____) .....$ _____
  Unscheduled maintenance labor rate @ $_____ per hour
  (Maintenance man-hour/flight hour=$_____) .....$ _____
  Reserves for engine overhaul and spares .....$ _____
  Total Engine Cost .....**$** _____ (C)
  Total Direct Maintenance/Spares Cost (B+C).....$ _____

- **Total Direct Operating Cost** (A+B+C) .....**$** _____ (D)

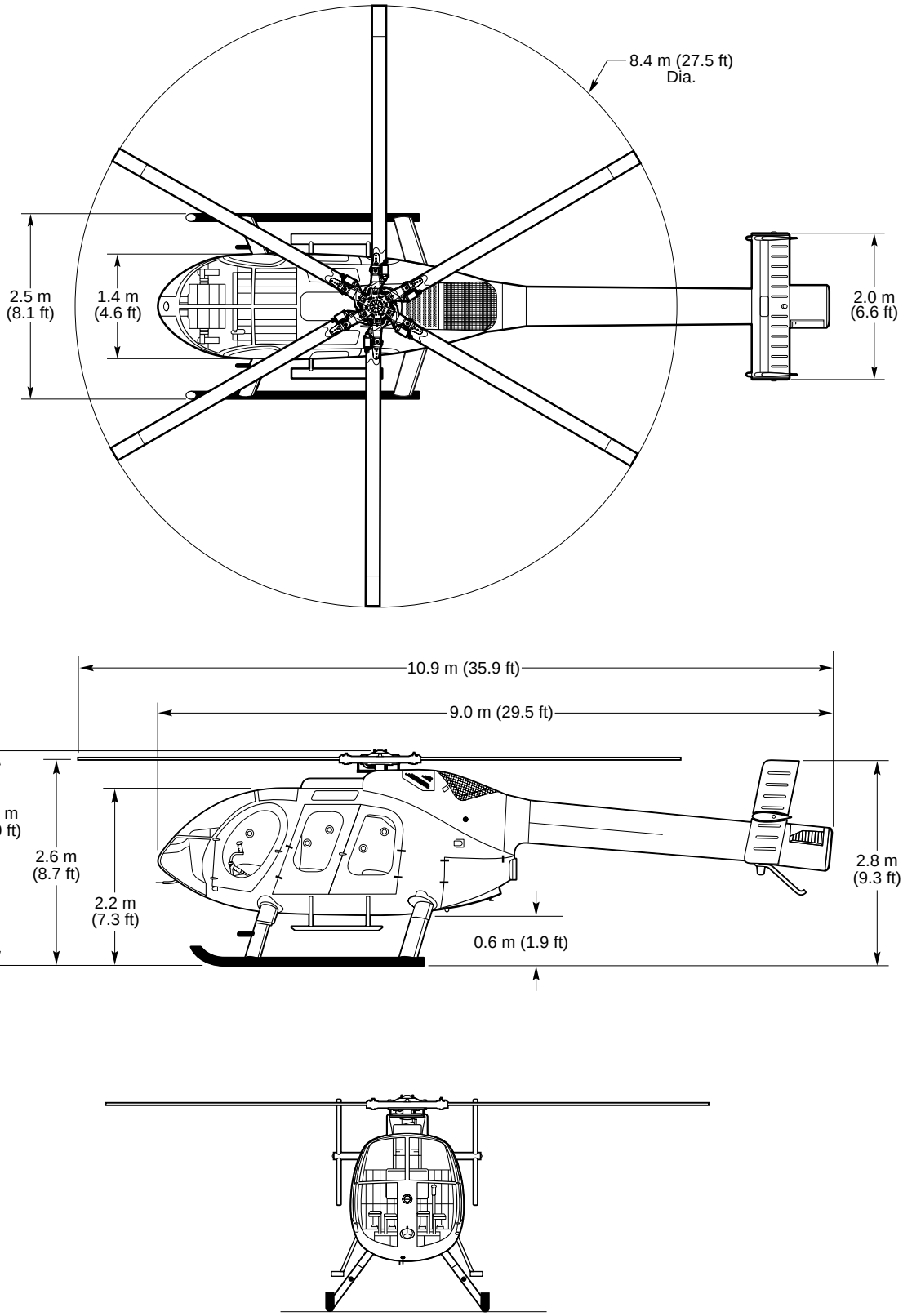
Fixed Operating Cost

- Depreciation

  Hull insurance .....$ _____
  Liability insurance.....$ _____
  Pilot salary .....$ _____
  Hangar rental.....$ _____
  Total Annual Fixed Operating Cost .....**$** _____ (E)
  Total Hours (_____) flown annually (F)
  Total Fixed Operating Cost Per Hour (E÷F) .....**$** _____ (G)
  Total Direct Operating Cost Per Hour (from above) .....**$** _____ (D)

- **Total Hourly Fixed Operating Cost** (D+G) .....**$** _____

7.0 **Dimensions.**



With the launch of the new helicopter company, MD Helicopters, Inc. announces its new Product Support Plan. Named *The MDHI Support Plan 2000*, it signifies MDHI's commitment to satisfy the operators of its products now and well into the next century.

8.0 **The MDHI Support Plan 2000**

MDHI is dedicated to a successful fielding of its new helicopters and to improve the support it currently offers operators of its commercial helicopters. The following items highlight how the MDHI helicopters will be the best-supported aircraft of its type anywhere in the world.

Operator Input

Input from many of our existing fleet operators has been actively solicited by our support team. We have created Customer Satisfaction Advisory Teams, composed of operators from all over the world who are chartered to work together with MDHI technical representatives to lower operating costs, and to improve our products and the way we support them. As a result of this improved level of two-way communication, many improvements suggested by our customers are being included in our production, publications, and maintenance procedures.

Training

MDHI offers pilot and maintenance training to our new customers at no extra charge. Customers will be trained at the MDHI Commercial Training Center by our staff of specially trained pilots and technical representatives. At the training center, we stress hands-on experience in both our flight and ground schools. The materials we use for our school are continually updated to reflect the latest product and maintenance developments by our technical staff.

IInitial Fielding

All new aircraft customers will be greeted at their facility by a Customer Support Technical Representative who is trained specifically on the operation and maintenance of MDHI helicopters. These Technical Representatives are backed up by a factory team of MDHI Product Support Engineers who can be called upon at any time to support specific technical issues or questions that may arise. The Technical Representatives will spend as much time with the customers as required to familiarize them with their new aircraft.

Regular Maintenance

Follow-up visits by our Customer Support Technical Representatives will be performed as required at the regularly scheduled maintenance periods. This provides the customer with the latest maintenance information, and provides the factory with feedback on the operation, reliability and maintainability of their new aircraft. In addition, we plan to offer all models maintenance and parts manuals on CD-ROM.

Direct Operating Costs

The operating costs of MDHI helicopters are planned to be clearly the lowest in their classes. The plan is to keep the parts costs down, maximize the reliability of the helicopter systems, and minimize maintenance hours. This is accomplished by “benchmarking” all of these areas against the existing fleet of MD 500® helicopters, already one of the most reliable turbine helicopter lines in the world. Every part, system and maintenance procedure has undergone scrutiny before being incorporated on new production aircraft.

Spare Parts

The MDHI recognizes the importance of timely deliveries of spare parts to our customers. A thorough review of spare parts utilization has been conducted with the intent to significantly improve turnaround time of AOG spares. Additionally, we will increase our activities in using customer advanced spares requirement notification to eliminate known spare part requirements. On-line spares ordering and statusing is in our near future. Additionally, we have established a MDHI Support Center in Europe, where a significant inventory of spare parts, exchange components and tools are maintained.

9.0 **Training**

The MDHI Commercial Training Center offers cost-effective factory designed training courses for MD600N pilots and maintenance crews. This training, given by senior instructors with extensive experience in our products, provides our customers/students with the detailed knowledge of our products that will increase safety, reduce insurance costs and result in more efficient operation of the aircraft. Training is customarily conducted at our facility in Mesa, but offsite training at the customer's facility can also be arranged. We can also arrange for pilot training in the customer's aircraft, as long as MDHI's insurance requirements are met before training begins.

Pilot Training

The transition flight training course is designed to familiarize a rated helicopter pilot with the operation of the 600N. This five-day course introduces the student to all the associated company publications as well as detailed explanations of all aircraft systems and daily/preflight inspection procedures. The ground school, including the exam and exam review, requires 16 to 20 hours to complete. The student will be expected to pass an exam demonstrating basic knowledge of the aircraft. The flight training syllabus includes five hours of instructor time and is broken down into four flight lessons:

- Normal Operations (pattern and hover work)
- Normal Operations and emergency procedures
- Heavy Weight Performance
- Emergency Procedures (autorotations)

Recurrent pilot training consists of a two-day refresher course for any pilot who has previously attended the transition flight training course. Ground school includes a closed-book exam, review of AD's and notices, and a daily/preflight inspection review. A BFR (biennial flight review) can also be given in conjunction with this course and includes review of FAR Part 91 and an open book exam. Flight training consists of three hours of intensive emergency procedures review.

Maintenance Training

The Airframe Maintenance Course is designed to familiarize a licensed A & P mechanic with the maintenance and inspection of all major systems on the aircraft. This 2-week course will require the student to learn and demonstrate the skill and knowledge required to safely perform selected maintenance tasks on the 600N. The 1-week course is available to selected students with prior knowledge of MD products (the 500 series aircraft). The 80-hour syllabus is comprised of the following sections:

- Intro to helicopter design
- Landing gear
- Fan assembly
- Rotor assembly, controls and rigging
- Lubrication/fuel
- Engine controls
- Airframe
- Drive system
- Anti-torque
- Track and balance
- Powerplant
- Electrical systems

Other Training

The other types of training that are currently available to 600N customers are:

- Instructor pilot training
- Maintenance test flight pilot training

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