DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

H19NM
Revision 9
MDHI
MD900
December 10, 2013

TYPE CERTIFICATE DATA SHEET NO. H19NM

This data sheet, which is part of Type Certificate No. H19NM, prescribes the conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of Title 14 of the Code of Federal Regulations.

Type Certificate Holder — MD Helicopters, Inc. (MDHI)
4555 East McDowell Road
Mesa, Arizona 85215-9734 U.S.A.

Type Certificate Holder Record — McDonnell Douglas Helicopter Company (MDHC), a wholly owned subsidiary of the Boeing Company, transferred ownership of TC H19NM to MD Helicopters, Inc. (MDHI) on February 18, 1999.

I – Model MD900 (Normal Category Rotorcraft), Approved December 2, 1994

Two MD900 configurations are approved; a basic configuration, marketed by MDHI as the MD900, and an enhanced version with Category A approval, marketed by MDHI as the MD902. See Note 5.

Engines — 2 Pratt and Whitney Canada, Inc. PW206A (TC No. E42NE), or
2 Pratt and Whitney Canada, Inc. PW206E (TC No. E42NE), or
2 Pratt and Whitney Canada, Inc. PW207E (TC No. E42NE)

Fuel

Type	Country and Specifications					
	USA	Canada	UK	France	People's Republic of China	Russian & CIS Countries
Kerosene Jet A Jet A-1 JP-8	ASTM D1655 MIL-T-83133	CAN/CGSB 3.23	DEF STAN 91-87	AIR 3405D	RP-3 (GB 6537-94)	R.T. TS-1 ** (GOST 10227-86)
Wide Cut * Jet B JP-4	ASTM D1655 MIL-T-5624	CAN/CGSB 3.22	DEF STAN 91-88	AIR 3407B		
High Flash JP-5	MIL-T-5624	CAN/CGSB 3.GP-24Ma	DEF STAN 91-86	AIR 3404C		

* Secondary fuel for helicopters with PW206E or PW207E engines.
** Secondary fuel limited by PWC to 100 hours of use, either continuous or intermittently between engine overhauls.
See Rotorcraft Flight Manual (RFM) for additional limitations.

Requirements for anti-icing additives

An approved fuel anti-icing additive is required when the ambient temperature is at or below 13ºF (-10ºC). See RFM for additional limitations.

Fuel Capacity

Helicopters with PW206A engines

Fuel System	Capacity		Usable		Unusable		Arm
	(gal)	(l)	(gal)	(l)	(gal)	(l)	(in)
Standard	149.0	564.0	146.2	553.4	2.8	10.6	190.8
Range Extender	161.3	610.6	158.5	600.0	2.8	10.6	190.9

Helicopters with PW206E or PW207E engines

Fuel System	Capacity		Usable		Unusable		Arm
	(gal)	(l)	(gal)	(l)	(gal)	(l)	(in)
Standard	161.3	610.6	158.5	600.0	2.8	10.6	190.9

See RFM, Section 6, Weight and Balance Data, for variations of fuel weight and moment-arm with variations of fuel type and fuel quantity. Empty weight of the helicopter includes weight of unusable fuel.

Fluids

Engine Oil

Engine oils conforming to MIL-PRF-23699 are approved for use.
See the latest revision of Pratt & Whitney Canada Installation Manual Turboshaft Engine PW206A, PW206E, or PW207E for approved oil manufacturers.

Transmission Oil

See RFM for approved oils. Observe servicing instructions on placard on transmission oil filler.

Hydraulic Fluid

Hydraulic fluids conforming to MIL-PRF-83282 are approved for use.

Fluid Capacity

Fluid Type	Component or System	Capacity	
		(gal)	(l)
Oil	Engine (each)	1.04	3.93
	Main Transmission	2.50	9.46
Hydraulic Fluid	System 1, Total	0.25	0.95
	System 2, Total	0.30	1.14
	Rotor Brake, Total	0.03	0.11

Engine Limits

Pratt and Whitney Canada, Inc. PW206A

All Engines Operating Limits							
Rating	Max Torque		Max MGT	Max N_G		N_P (Nominal)	
	(ft-lb)	(%)	(ºC)	(RPM)	(%)	(RPM)	(%)
Takeoff (5 min)	438	100	863	57,250	98.7	6,000	100
						6,240*	104*
Max Continuous	438	100	820	57,250	98.7	6,000	100
						6,240*	104*
One Engine Inoperative Limits (see Note 10)							
Rating	Max Torque		Max MGT	Max N_G		N_P (Nominal)	
	(ft-lb)	(%)	(ºC)	(RPM)	(%)	(RPM)	(%)
2.5 Minute	569	130	902	58,600	101	6,000	100
						6,240*	104*
Continuous	438	100	863	57,250	98.7	6,000	100
						6,240*	104*

* N_P operation at 6,240 RPM (104%) is limited to airspeed of 100 KIAS or less.

Pratt and Whitney Canada, Inc. PW206E

All Engines Operating Limits							
Rating	Max Torque		Max MGT	Max N_G		N_P (Nominal)	
	(ft-lb)	(%)	(ºC)	(RPM)	(%)	(RPM)	(%)
Takeoff (5 min)	482	110	863	57,250	98.7	6,000	100
Max Continuous	438	100	820	56,500	97.4	6,000	100
One Engine Inoperative Limits							
Rating	Max Torque		Max MGT	Max N_G		N_P (Nominal)	
	(ft-lb)	(%)	(ºC)	(RPM)	(%)	(RPM)	(%)
2.5 Minute	569	130	930	59,400	102.4	6,000	100
Continuous	544	124	885	58,250	100.4	6,000	100

Pratt and Whitney Canada, Inc. PW207E

All Engines Operating Limits							
Rating	Max Torque		Max MGT	Max N_G		N_P (Nominal)	
	(ft-lb)	(%)	(ºC)	(RPM)	(%)	(RPM)	(%)
Takeoff (5 min)	482	110	900	57,900	99.8	6,000	100
Max Continuous	438	100	850	56,400	97.2	6,000	100
One Engine Inoperative Limits							
Rating	Max Torque		Max MGT	Max N_G		N_P (Nominal)	
	(ft-lb)	(%)	(ºC)	(RPM)	(%)	(RPM)	(%)
2.5 Minute	591	135	970	59,750	103	6,000	100
Continuous	544	124	900	57,900	99.8	6,000	100

Rotor Speed Limits

Helicopters with PW206A engines

Condition	Minimum N_R		Maximum N_R	
	(RPM)	(%)	(RPM)	(%)
Power-On (more than 100 KIAS)	388	99	396	101
Power-On (100 KIAS or less) *	388	99	412	105
Power-Off	345	88	424	108

* When airspeed is 47 KIAS or less, the nominal N_R is 104%

Helicopters with PW206E or PW207E engines

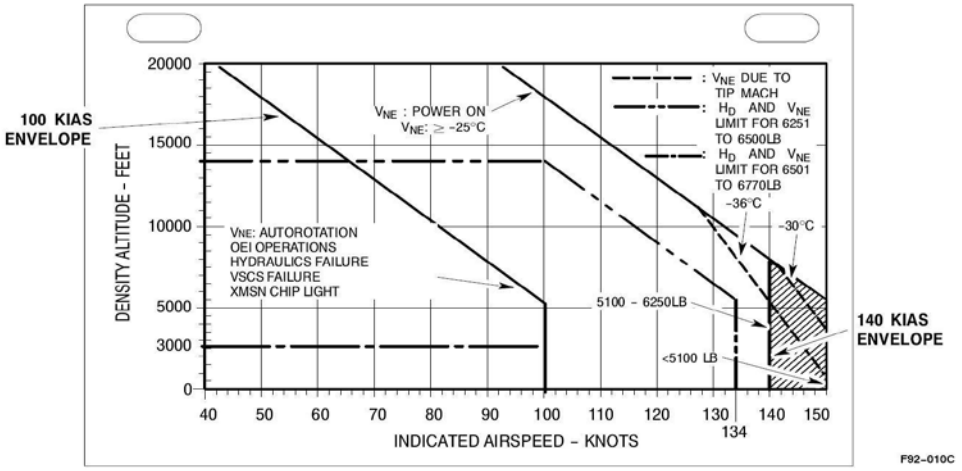
Condition	Minimum N_R		Maximum N_R	
	(RPM)	(%)	(RPM)	(%)
Power-On	388	99	396	101
Power-Off	345	88	424	108

Transmission Torque Limits

Rating	Max Torque at 100% N_R					
	PW206A		PW206E		PW207E	
	(ft-lb)	(%)	(ft-lb)	(%)	(ft-lb)	(%)
Takeoff (5 min)	876	100	964	110	964	110
Max Continuous	876	100	876	100	876	100
OEI, 2.5 Minute	569	130	569	130	591	135
OEI Continuous	438	100	544	124	544	124

Airspeed Limits

Power On and Power Off V_{NE}



Power On and Power Off V_{NE} when lateral C.G. exceeds +2 in.

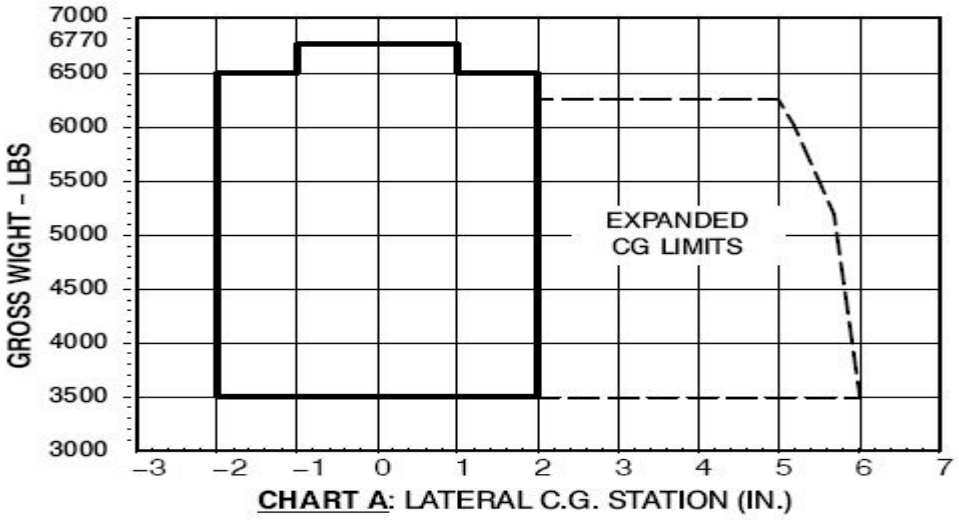
60 KIAS

Power On V_{NE} with cargo hook installed

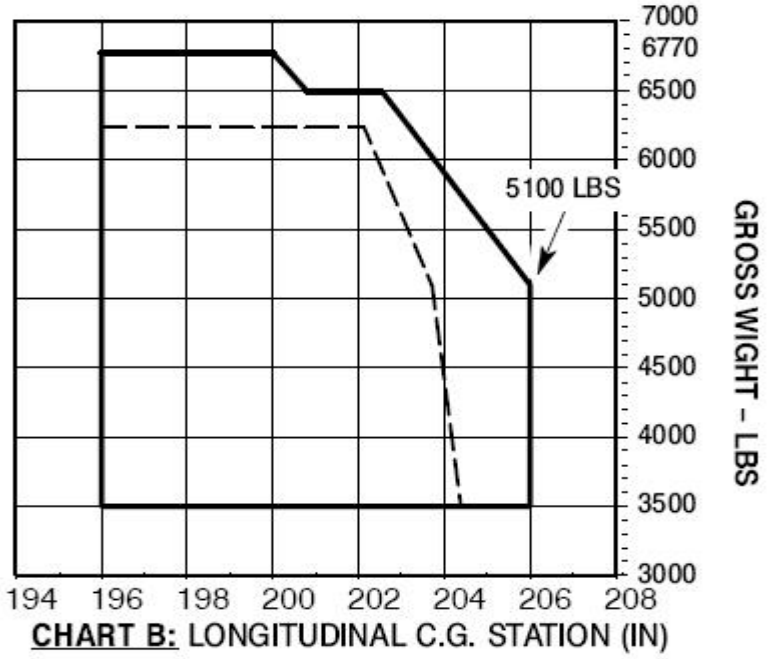
90 KIAS with no load on cargo hook
100 KIAS with a load on cargo hook. See RFM for V_{NE} above 5,500 ft H_D

Center of Gravity (C.G.) Range

Lateral C.G. Range



Longitudinal C.G. Range



When the lateral C.G. is in the Expanded C.G. Limits area, depicted by the dashed lines on Chart A, above, the longitudinal C.G. must not be aft of the dashed line in the longitudinal C.G. chart, Chart B, above.

Empty Weight C.G. Range

None.

Maximum Weight

6,500 lb

6,770 lb for helicopters modified in accordance with MDHI Technical Bulletin No. TB900-044R1 or later FAA approved revision. (See Note 11)

Minimum Crew

1 pilot, seated in the right crew seat.

Number of Passenger Seats

7 seats, located as follows:

Location	No. of Seats	Arm (in)
Crew Compartment	1	130.7
Cabin, Forward	3	173.0
Cabin, Aft	3	213.0

See RFM for other approved cabin configurations.

Maximum Compartment Weight

Cargo deck

1,500 lb, not to exceed floor loading density of 115 lb per square foot.

Baggage compartment

500 lb, not to exceed floor loading density of 115 lb per square foot.

Maximum Operating Altitude

Weights of 6,250 lb or less

Helicopters with PW206A engines: 20,000 feet density altitude

Helicopters with PW206E or PW207E engines and using –

Primary fuels: 20,000 feet density altitude, or

Secondary fuels: 10,000 feet density altitude

Weights from 6,251 lb. to 6,500 lb

14,000 feet density altitude

Weights from 6501 lb to 6,770 lb

3,000 feet density altitude

Manufacturer Serial Numbers

S/N 900-00008, 900-00010, and subsequent.

S/N 900-00052 and subsequent are produced as enhanced versions. See Note 5.

Certification Basis

14 CFR part 27 as amended by Amendment 27-1 through Amendment 27-26.

14 CFR part 36 as amended by Amendment 36-1 through Amendment 36-20, Appendix J for initial certification at a maximum weight of 6,000 lb with P&W 206A engines.

14 CFR part 36 as amended by Amendment 36-1 through Amendment 36-21, Appendix H (See Exemption No. 6505.) for certification at:

A maximum weight of 6,500 lb with P&W 206A engines, and

Maximum weights of 6,250 lb and 6,500 lb with P&W 207E engines.

The FAA determined that the noise characteristics of the MD900 at a maximum weight of 6,250 lb with P&W 206E engines were equivalent to the characteristics approved in the initial certification.

The FAA determined that the noise characteristics of the MD900 at a maximum weight of 6,500 lb with P&W 206E engines were equivalent to the characteristics approved for the MD900 at a maximum weight of 6,500 lb with P&W 206A engines.

The FAA determined that the noise characteristics of the MD900 incorporating the thruster extension kit with P&W 206A, 206E, or 207E engines were equivalent to the previously approved noise characteristics.

14 CFR part 36 as amended by Amendment 36-1 through Amendment 36-25, Appendix J for certification at a maximum weight of 6,770 lb with P&W 207E engines.

MDHI requested certification of the MD900 (902 configuration) to the proposed Category A requirements for part 27 rotorcraft in Docket No. 28008; Notice No. 94-36, "Rotorcraft Regulatory Changes Based on European Joint Airworthiness Requirements Proposals," The FAA concurred with MDHI's request and subsequently certificated the MD900 for Category A operations. The Category A requirements in NPRM 94-36, with minor changes, were incorporated into part 27 as Appendix C – Criteria for Category A by Amendment 27-33.

Special Condition

Docket No. 91-ASW-2; Special Condition 29-ASW-2, "McDonnell Douglas Model MD-900 Helicopter, Critical Functioning Electrical/Electronic Systems." Issued December 26, 1991. This special condition addresses protection for electrical/electronic systems from High Intensity Radiated Fields (HIRF). See http://rgl.faa.gov for the full text of this special condition.

Equivalent Level of Safety (ELOS) Findings

ELOS No. TD9369LA-R/F-2, "MD Helicopters, Incorporated (MDHI), Equivalent Level of Safety (ELOS) Finding to 14 CFR 27.143(c)(4) and 27.1587(a)(2)(ii)." This ELOS addresses low speed controllability and the associated presentation of information in the RFM.

Equivalent Level of Safety (ELOS) finding for compliance to 29.1181(a) and 29.1191(a)(1) for the engine forward firewall.

Exemptions

Exemption No. 6505, "In the matter of the petition of McDonnell Douglas Helicopter Systems for an exemption from Section 27.1(a) of Title 14, Code of Federal Regulations," issued on September 5, 1996. This exemption allowed McDonnell Douglas Helicopter Systems to increase the maximum gross weight of the MD900 from 6,000 lb to 7,000 lb. Title 14 CFR 27.1(a) was amended in 1999 to expand the maximum weight limit for normal category rotorcraft to 7,000 lb.

Exemption No. 7360, "In the matter of the petition of MD Helicopters Inc. for an exemption from Section C36.105(c)(1) of Title 14, Code of Federal Regulations" issued on September 27, 2000. (The section cited in the exemption title is incorrect. The correct section, H36.105(c)(1), is discussed in the body of the exemption.) This exemption allowed an alternative level flyover airspeed of 90 percent of the never-exceed airspeed ($0.9V_{NE}$) for use in the 14 CFR part 36 noise certification of the MD900 at weights above 6,250 lb since at those

weights MDHI defined the V_{NE} as 100 KTAS, a speed less than the true V_H. This exemption expired on July 2, 2004 when Appendix H was amended to include this criteria.

Type Certificate

Date of application: April 25, 1989

Type Certificate No. H19NM, issued on December 2, 1994

TC reissued on February 8, 1999 to replace certificate reported lost.

TC reissued on February 18, 1999 to MD Helicopters, Inc.

Kinds of Operation

The MD900 (all versions) is eligible for the following operations when the appropriate equipment and instruments required by the airworthiness and operating regulations are installed, approved, and in an operable condition:

- Day and night operation under visual flight rules (VFR)
- Day and night operation under instrument flight rules (IFR), see requirements in Note 9.

Datum

199.3 inches forward of the main rotor hub centerline.

Leveling Means

Plumb line from aft inside top of left cabin door frame, Fuselage Station 215.43.

Control Surface Movements

For rigging information refer to the MDHI Model MD900 Maintenance Manual, publication no. CSP-900RMM-2

Production Basis

Production Certificate No. PC 410NM was issued to McDonnell Douglas Helicopter Company (MDHC), the original holder of TC H19NM. MDHC built helicopter serial numbers 900-00065 and prior under this PC.

Production Certificate No. PC 714NM was issued to McDonnell Douglas Helicopter Company (MDHC) on February 19, 1999. MDHC, under license from MDHI, built helicopter serial numbers 900-00066 and 900-00067 under this PC.

Production Certificate No. PC 715NM. This PC was issued to MDHI on November 5, 1999. Helicopters manufactured under this PC include serial numbers 900-00068 and subsequent.

Equipment

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the helicopter for certification. In addition, the following FAA Approved Rotorcraft Flight Manuals (RFM) or FAA Approved RFM Supplements are required:

MD900 (Basic RFM, 6,500 LB)
Helicopters with PW206A engines: RFM No. CSP-900RFM206A-1
Helicopters with PW206E engines: RFM No. CSP-900RFM206E-1
Helicopters with PW207E engines: RFM No. CSP-900RFM207E-1

MD900 (902 Configuration) (Basic RFM, 6,500 LB)
Helicopters with PW206E engines: RFM No. CSP-902RFM206E-1
Helicopters with PW207E engines: RFM No. CSP-902RFM207E-1

MD900 with PW207E engines (RFM Supplements, 6,770 LB)
900 Configuration: CSP-900RFM207E-S-3
902 Configuration: CSP-902RFM207E-S-3

Notes

Note 1. A current Basic Weight and Balance Record, and MD900 Required/Optional Equipment List must be provided for each aircraft at the time of original certification.

Note 2. See FAA Approved Rotorcraft Flight Manual for required placards.

Note 3. The retirement times of certain parts and inspection requirements are listed in Airworthiness Limitations Section (ALS), Section 04-00-00, of the Model MD900 Maintenance Manual (CSP-900RMM-2). These values of retirement of service lives and inspection cannot be increased without FAA approval. See http://www.mdhelicopters.com/publications/pdf/pubs_index/900index.pdf to determine the current revision of level of CSP-900RMM-2.

Note 4. For initial type certification, MDHS elected to incorporate engine isolation features that comply with engine isolation requirements in §§ 27.79(b)(2), 27.141(b)(1) and 27.143(d)(1). Compliance was shown by applying the limited time period method presented in Advisory Circular AC 27-1. This method was presented in paragraph 780 of the AC revision in effect when the MD900 was initially certificated, but now resides in paragraph AC 27 MG 3 of the current revision. This method was applied to the multiengine Category A engine isolation requirements in part 29 as amended through Amendment 29-29.

Note 5. On February 11, 1998, the FAA approved an enhanced version of the MD900 for Category A operations. The enhanced version, designated MD902 by MDHI, is referred to by the FAA as the MD900 (902 Configuration). The MD900 (902 Configuration) incorporated a number of changes, including additional engine isolation features, changes to the Integrated Instrument Display System (IIDS), and a separate RFM. These changes allowed the MD900 (902 Configuration) to comply fully with Category A certification requirements.

Note 6. The MD900 rotorcraft employs electronic engine controls, commonly referred to as Full Authority Digital Engine Controls (FADEC). Engines with FADEC are recognized to be more susceptible to Electromagnetic Interference (EMI) than engines with manual (non-electronic) controls. For this reason, modifications that add or change electrical systems that have the potential for EMI must be qualified to an FAA acceptable standard. For guidance refer to section MG-4 of Advisory Circular AC 27-1B Change 2, or later revision. See MDHI Service Bulletin SB900-067R1 “Electromagnetic Compatibility Test” or latest approved revision.

Note 7. Any changes to the type design of this helicopter by means of an amended type certificate (TC), supplemental type certificate (STC), or amended STC, requiring instructions for continued airworthiness (ICA) must be submitted through the project aircraft certification office (ACO) for review and acceptance by the Fort Worth -Aircraft Evaluation Group (FTW-AEG) Flight Standards District Office (FSDO) prior to the aircraft delivery, or upon issuance of the first standard airworthiness certificate for the affected aircraft, whichever occurs later as prescribed by Title 14 CFR 21.50. Type design changes (major repairs or alterations) by means of a FAA Form 337 (field approval) that require ICA’s must have those ICA’s reviewed by the field approving FSDO.

Note 8 MD900 serial numbers 900-00008 through 900-00051 are eligible for conversion to the enhanced version (902 configuration). Each eligible

helicopter, after conversion to the enhanced version in accordance with MDHI Report No. 900R000378 Rev - or MDHI Technical Bulletin TB900-28, fully complies with Category A certification requirements (See Certification Basis and Note 5). The conversion includes replacement of the original Rotorcraft Flight Manual with the Rotorcraft Flight Manual for the enhanced version, MDHI Publication No. CSP-902RFM207E-1.

Note 9

Model MD900 helicopters, S/N 900-00010 and subsequent, are eligible for day and night IFR operations, when modified in accordance with MD Helicopters Inc. STC SR00436WI-D. The STC addresses Single Pilot, Dual Pilot, and Category A operations.

Note 10

MD900s S/N 900-00010 through 900-00051 with PW 206A engines may operate with increased One Engine Inoperative (OEI) torque limits with the incorporation of Technical Bulletin TB900-010R1 or later approved revision.

Note 11

MD900s certificated for a maximum weight of 6,770 lbs. are limited to those aircraft that have been modified in accordance with MDHI Technical Bulletin TB900-044R1 or later FAA approved revision and identified by serial number in FAA Approved RFM Supplement specified by the technical bulletin.

----End----