



TYPE-CERTIFICATE DATA SHEET

No. E.070

for
M601/H80 series engines

Type Certificate Holder

GE Aviation Czech s.r.o.

Beranových 65
199 02 Praha 9 – Letňany
Czech Republic

(formerly WALTER ENGINES a.s.)

For Models:

M601D	H80
M601D-1	H80-100
M601D-2	H80-200
M601D-11	H75-100
M601D-11NZ	H75-200
M601E	H85-100
M601E-11	H85-200
M601E-11A	
M601E-11AS	
M601E-11S	
M601E-21	
M601F	
M601FS	
M601F-11	
M601F-22	
M601F-32	
M601T	
M601Z	



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I. General**1. Type/ Model/ Variants**

M601D, M601D-1, M601D-2, M601D-11, M601D-11NZ, M601Z, M601E, M601E-21, M601E-11, M601E-11S, M601E-11A, M601E-11AS, M601T, M601F, M601F-11, M601FS, M601F-32, M601F-22, H80, H80-100, H80-200, H75-100, H75-200, H85-100, H85-200.

2. Type Certificate Holder

GE Aviation Czech s.r.o.

Beranových 65
199 02 Praha 9- Letňany
Czech Republic

EASA DESIGN ORGANISATION 21J.300

3. Manufacturer

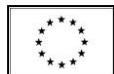
GE Aviation Czech s.r.o.

4. Date of Application

M601D	M601D-1	M601D-2	M601D-11	M601D-11NZ	M601Z	M601E	M601E-21	M601E-11
JUNE 29, 1990	NOV 3, 1998	NOV 3, 1998	MAY 13, 1997	MAY 13, 1997	FEB 25. 1994	FEB 29, 1988	JULY 21, 1994	MARCH 3, 1995
M601E-11S	M601E-11A	M601E-11AS	M601T	M601F	M601F-11	M601FS	M601F-32	M601F-22
MARCH 16, 2001	MARCH 15, 1999	MARCH 16, 2001	APR 13, 1992	APR 7, 2000	APR 14, 2004	MAY 27, 2002	JULY 20, 1995	JULY 20, 1994

Note: WALTER as holder of the Czech TC applied on 10 December 2004 for issue of EASA Type Certificate on basis of the Type Certificates issued by the Czech Republic.

H80	H80-100	H80-200	H75-100	H75-200	H85-100	H85-200		
NOV 25, 2008	OCT 26, 2011	OCT 26, 2011	JUNE 04, 2012	JUNE 04, 2012	JUNE 04, 2012	JUNE 04, 2012		



5. EASA Type Certification Date

M601D	M601D-1	M601D-2	M601D-11	M601D-11NZ	M601Z	M601E	M601E-21	M601E-11
NOV 12, 1990	DEC 15, 1999	DEC 15, 1999	JUNE 10, 1999	JUNE 10, 1999	AUG 18, 1994	MAR 22, 1988	AUG 18, 1994	AUG 15, 1995
M601E-11S	M601E-11A	M601E-11AS	M601T	M601F	M601F-11	M601FS	M601F-32	M601F-22
APR 11, 2001	JAN 10, 2001	APR 11, 2001	MAY 31, 1993	JULY 14, 2000	JUNE 14, 2004	JUNE 14, 2002	DEC 18, 1996	OCT 18, 1994
H80	H80-100	H80-200	H75-100	H75-200	H85-100	H85-200		
DEC 13, 2011	DEC 13, 2011	DEC 13, 2011	NOV 16, 2012	NOV 16, 2012	NOV 16, 2012	NOV 16, 2012		

EASA Type Certificate of these models had previously been covered by the Czech Republic Type Certificates:

TC No.:	99-02	M601D-1, M601D-2
TC No.:	88-02 & 88-02 Supp. 1	M601E, M601E-21
TC No.:	00-03	M601F, M601F-11
TC No.:	99-04/1	M601D, M601D-1, M601D-11, M601D-11NZ, M601Z
TC No.:	89-03	M601E, M601E-21, M601E-11, M601E-11S, M601E-11A, M601E-11AS, M601T, M601F, M601FS, M601F-32, M601F-22

Transfer date to EASA Type Certificate: 26 January 2005

II. Certification Basis

1. EASA Certification Basis

1.1. Airworthiness Standards

CS-E, Amendment 1, dated 10 December 2007 (except E515) JAR-E515 of JAR-E, Change 9	H80, H80-100, H80-200 H75-100, H75-200, H85-100, H85-200
JAR-E Change 9 dated October 21, 1994	M601D-1, M601F, M601F-11
JAR-E Change 9 + OP/E/96/1 + OP/E/97/1	M601D-2
JAR-E Change 7 dated January 24, 1986,	M601E, M601E-21
FAR 33 Amdt. 12 effective Sept 2, 1988	M601D, M601D-1, M601D-11, M601D-11NZ, M601Z, M601E, M601E-21, M601E-11, M601E-11S, M601E-11A, M601E-11AS, M601T, M601F, M601FS, M601F-32, M601F-22

Note: For some engine models the compliance was shown in accordance with JAR-E and FAR 33

1.2. Special Conditions (SC)

None



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1.3. Equivalent Safety Findings (ESF)

- JAR-E 570(a) and FAR 31.71 (b)(6) - Oil filter warning means indicating to the pilot impending its blockage
- JAR-E 560(d) and FAR 33.67 (b) - Fuel filter
- JAR-E 530(e) - Fire Precautions

None for H80, H80-100, H80-200, H75-100, H75-200, H85-100, H85-200

1.4. Deviations

None

1.5. Environmental Protection

Fuel Venting: CS-34.1

III. Technical Characteristics

1. Type Design Definition

M601D: <i>S-M601D</i>	M601D-1: <i>S-M601D-1</i>	M601D-2: <i>S-M601 D-2</i>	M601D-11: <i>S-M601D-11</i>
M601E: <i>S-M601E</i>	M601E-21: <i>S-M601E-21</i>	M601E-11: <i>S-M601E-11</i>	M601E-11S: <i>S-M601E-11S</i>
M601F: <i>S-M601F</i>	M601F-11: <i>S-M601F-11</i>	M601F-22: <i>S-M601F-22</i>	M601F-32: <i>S-M601F-32</i>
M601FS: <i>S-M601FS</i>	M601T: <i>S-M601T</i>	M601Z: <i>S-M601Z</i>	M601E-11A: <i>S-M601E-11A</i>
M601E-11AS: <i>S-M601E-11AS</i>	M601D-11NZ: <i>S- M601D-11NZ</i>		
H80: <i>TR-000087</i>	H80-100: <i>TR-000088</i>	H80-200: <i>TR-000089</i>	
H75-100: <i>TR-000092</i>	H75-200: <i>TR-000093</i>	H85-100: <i>TR-000094</i>	H85-200: <i>TR-000095</i>

See Note 7 to 12 for specific Build Configurations

2. Description

The M601 series engines are two-spool turboprop engines with reverse flow of air and gas, two stage axial compressor, one stage centrifugal compressor, annular combustor, one stage high-pressure turbine and one stage free turbine.

3. Equipment

Approved Equipment is defined in the applicable Engine Installation Manual.



4. Dimensions (mm)

Overall Length	1675
Overall Width	590
Overall Height	650

5. Dry Weight (kg)

H80-100, H75-100, H85-100	200
H80, H80-200, H75-200, H85-200	202
M601D, M601D-1, M601D-2	197
M601E, M601E-21, M601E-11, M601E-11A, M601F, M601F-11, M601F-22, M601F-32, M601T	207
M601D-11, M601D-11NZ	204
M601Z	201
M601E-11S,	212
M601E-11AS, M601FS	

6. Ratings (kW)

	Maximum Continuous at sea level	Take-off (5 min) at sea level	Take-off with water injection (5 min) at sea level	Max. Contingency (10 min) at sea level	Intermediate Contingency at sea level			
M601D-1	490	540	-	-	-			
M601D-2	400	450	-	-	-			
M601E	490	560	595	560	580			
M601E-21								
M601F	500	580						
M601F-11								
M601D	490	540	-	-	-			
M601D-11	450		-	-	-			
M610D-11NZ	320	410	-	-	-			
M601Z	245	382	-	-	-			
M601E-11A	485	526	-	-	-			
M601E-11AS			-	-	-			
M601T	490	560	-	-	-			
M601FS	500	580	580	-	-			
M601F-32	490	560	-	-	-			
M601F-22			-	-	-			



	Maximum Continuous at sea level	Take-off (5 min) at sea level	Take-off with water injection (5 min) at sea level	Max. Contingency (10 min) at sea level	Intermediate Contingency at sea level
H80		597	-		
H80-100			-		
H80-200	522	597	-		
H75-100		560	-		
H75-200			-		
H85-100		634	-		
H85-200			-		

M601E and M601E-21 models according to FAR also are certified for:

- Max. Take-off (5 min at sea level): 595 kW
- Max. Continuous at sea level: 560 kW

M601F and M601FS models according to FAR also are certified for:

- Max. Take-off (5 min at sea level) and Max. Continuous: 580 kW
- H80 and H80-200 models are certified for a Continuous OEI Rating of 597kW
- H85-200 model is certified for a Continuous OEI Rating of 634 kW
- H75-200 model is certified for a Continuous OEI Rating of 595 kW

See Note 1

7. Control System

- Hydro mechanical fuel control system.
- Build Configuration (BC01E) for H75-100 and H80-100, an electronic Engine Control System – EECS can be installed on engine H75-100 with 1950 rpm RGB and on engine H80-100 with a 2080 rpm RGB. The Build Configuration is indicated on the engine identification plate by the designation BC01E. See Note 8 and 11.

8. Fluids (Fuel, Oil, Coolant, Additives)

See applicable Operation Manual.

9. Aircraft Accessory Drives

For accessory drives specifications, including direction of rotation, drive speed ratio to engine speed, torque continuous pad rating and maximum overhung moment, refer to the applicable Engine Installation Manual.



10. Maximum Permissible Air Bleed Extraction

For all engine models, the air bleed extraction limits are specified in the applicable Engine Installation Manual. M601E-11, M601E-11A, M601E-11S, M601E-11AS, M601F, M601FS and M601F-11 can have both a high-pressure air bleed system and a low-pressure air bleed system. The high-pressure air bleed system is the standard bleed system.

M601E Build Configuration (BC01): Low-pressure bleed system can be installed as an option, see note 7

IV. Operating Limitations

1. Temperature Limits

1.1 Maximum Interturbine Temperature [°C]:

	Maximum Continuous	Take-off (5 min)	Max. Contingency (10 min)	Intermediate Contingency	
M601D-1	690	735	-	-	
M601D-2	660	710	-	-	
M601E	690	735	780	760	
M601E-21			-	-	
M601F			-	-	
M601F-11			-	-	
M601D			-	-	
M601D-11			-	-	
M601D-11NZ	650	700	-	-	
M601Z		710	-	-	
M601E-11	690	735	-	-	
M601E-11S			-	-	
M601E-11A	710	710	-	-	
M601E-11AS			-	-	
M601T	690	735	-	-	
M601FS			-	-	
M601F-32	710		-	-	
M601F-22			-	-	
H80	750	780	-	-	
H80-100			-	-	
H80-200	720		-	-	
H75-100	770		-	-	
H75-200			-	-	
H85-100			-	-	
H85-200			-	-	



Models M601E, M601E-21, M601F and M601FS have also been certified in accordance with FAR 33 for Maximum Interturbine Temperature of: 780°C at Max. Continuous

1.2 Oil Inlet Temperature Range [°C]:

Maximum:	85
Minimum:	-20

1.3 Fuel Inlet Temperature Range [°C]:

Maximum:	60
Minimum:	-50

2. Speed Limits

2.1 Maximum Permissible Rotor Speeds:

Rating	Engine Model	Gas Generator Rotor [%]	Propeller Shaft [min^{-1}]	
Take-off	M601D, M601D-1	101,5	2080	
	M601D-2, M601D-11NZ	99	1950	
	M601D-11	100	2080	
	M601E, M601E-11, M601E-21, M601E-11S, M601F, M601FS, M601F-11, M601F-22, M601F-32, M601T			
	M601Z	99	1900	
	M601E-11A, M601E-11AS	98,5	2080	
	H80, H80-100, H80-200	101,5		
	H75-100, H75-200, H85-100			
	H85-200		1950	
Max. Continuous	M601D, M601D-1	99	2080	
	M601D-2	96	1950	
	M601D-11	98,5		
	M601E, M601E-11, M601E-11S, M601E-21, M601F, M601FS, M601F-11, M601F-22, M601F-32, M601T	97	2080	
	M601E-11A, M601E-11AS	98,5		
	M601D-11NZ	95	1950	
	M601Z	94	1800	
	H80, H80-100	100,1	2080	
	H80-200	98,4		
	H75-100, H75-200	101,1		
	H85-100	101,2	1950	
	H85-200			
Max. Contingency (10 min)	M601E, M601E-21, M601F, M601F-11, M601FS	102	2080	
Intermediate Contingency	M601E, M601E-21, M601F, M601F-11, M601FS	100,5		



Max. Take-off (5 min) acc. to FAR 33	M601E, M601E-21, M601F, M601FS	102	
Max. Continuous acc. to FAR 33	M601E, M601E-21, M601F, M601FS	100,5	2080
	H80, H80-200	101,5	
	H80-100	100,1	
	H75-100	101,1	
	H75-200	101,5	
	H85-100	101,2	
	H85-200	101,5	
		1950	

- 100% propeller shaft speed equals to 2080 rpm. For H85-200 the 100% propeller shaft speed equals to 1950 rpm.
- Propeller shaft speed of 2080 rpm corresponds to free turbine speed of 31023 rpm and 30959.5 power turbine rpm for propeller shaft speed of 1950 rpm
- 100% gas generator rotor speed equals to 36660 rpm.
- For M601 engines with installed propellers having diameter smaller than 2185 mm the propeller speed limit is 1950 rpm.

3. Torque Limits

100% torque equals			
H80 H80-100 H80-200	H75-100 H75-200	H85-100	H85-200
2740 Nm (2021 lb.ft)	2570 Nm (1896 lb.ft)	2910 Nm (2146 lb.ft)	3105 Nm (2 290 lb.ft)
Transient (less than 30sec) over-torque to 106% is permitted (<i>without maintenance action</i>) for all listed engine models except for H85-100, where it is 104%. Refer to the Installation Manual and Operation Manual.			
<ul style="list-style-type: none"> - Maximum continuous Nm (max.) applies within range of 1800 rpm to max. cont. speed limit. - Take-off at sea level (5 min) Nm (max.) applies at take-off speed limit. 			

4. Pressure Limits

4.1 Fuel Pump Inlet Pressure [kPa]

Minimum absolute pressure: 80
Maximum gauge pressure: 300

4.2 Oil Pressure [kPa]

- Normal operating gauge pressure: 180 to 270
- Minimum gauge pressure at Idle: 120



5. Oil capacity, consumption limit

See applicable Operation Manual

6. Installation Assumptions

The installation assumptions are quoted in the respective Engine Installation Manuals.

V. Operating and Service Instructions

Engine Model	Installation Manual	Operation Manual	Maintenance Manual	SB
M601D	0982051	0982424	0982051	
M601D-1		0982402		
M601D-2				
M601D-11	0982511	0982415	0982309	
M601D-11NZ				
M601Z		0982521		
M601E	0982502	0982404	0982055	
M601E-21				
M601E-11				
M601E-11S	0982504	0982406	0982302	
M601E-11A				
M601E-11AS				
M601T	0982506	0982410	0982304	
M601F				
M601FS	0982509	0982413	0982302	
M601F-11				
M601F-32	0982062	0982108	0982062	
M601F-22				
H80, H80-100, H80-200				
H75-100, H75-200	0983202	0983302	0983402	
H85-100, H85-200, H85-200-BC04				
<i>Engine Build Configurations:</i>				
H75-100-BC03	0983764	0983765		
H75-100-BC01E		0983770	0983766	
H80-100-BC01E	0983769			

Published as required



VI. Notes

- Note 1: The engine ratings are based on ICAO International Standard Atmosphere sea level, static conditions:
- No loading of accessory drives
 - No compressor air bleed
 - No installation losses
- Note 2: Certain engine parts are life-limited. These limits are published in the Maintenance Manual, Airworthiness Limitations Section.
- Note 3: The M601 series engines meet the requirements of JAR-E 780 (*CS-E780 for H80, H80-100, H80-200, H75-100, H75-200, H85-100 and H85-200*) for operation in icing conditions as defined in FAR 25, Appendix C, when the intake system conforms to the approved design (Part number (P/N) B 062350).
- Note 4: The M601 series engines meet the requirements of JAR-E 500 (*CS-E500 for H80, H80-100, H80-200, H75-100, H75-200, H85-100 and H85-200*) for surge free operation, when the intake system conforms to the approved design (Part number (P/N) B 062350).
- Note 5: The M601 series engines meet the requirements of JAR-E 800 (*CS-E800 for H80, H80-100, H80-200, H75-100, H75-200, H85-100 and H85-200*) for bird ingestion when the intake system conforms to the approved design (Part number (P/N) B 062350).
- Note 6: Power may be restored in hot day conditions by means of water injection when accomplished in accordance with requirements of the applicable Installation Manual and Operation Manual.
This applies to M601D, M601E, M601E-21, M601E-11, M601E-11S, M601F, M601FS and M601F-11 engine models only.
- Note 7: **Build Configuration M601 (BC01):** Low-pressure bleed system can be installed as an option, and this engine build configuration is indicated on the engine (M601E-11, M601E-11A, M601E-11S, M601E-11AS, M601F, M601FS and M601F-11) identification plate by the additional designation BC01.
- Note 8: **Build Configuration (BC01E) for H75-100 –** EECS can be installed on H75-100 engine with 1950 rpm RGB. It is an electronic control system enabling single-power-lever engine/propeller control, automatic engine starting and parameter control & limiting functions. Minimum Fuel Pump Inlet relative pressure: 100 [kPa]. The Operating and Service Instructions per Installation Manual No.EIM-0983769, Operation Manual No.EOM-0983770, and Maintenance Manual No.EMM-0983766.



- Note 9 **Build Configuration (BC02) for M601** - Engines with 4000 flight cycles.
Number of equivalent flight cycles within TBO is extended up 4000 while hourly TBO limit is observed for the following engine models with the additional designation BC02 on the engine plate: M601D, M601E, M601E-11.
- Note 10: **Build Configuration (BC03) for H75-100** - Low rpm speed reduction gearbox can be installed as an option on H75-100 and this engine build configuration is indicated on the engine identification plate by the additional designation BC03. The engine ratings and operational limits, dimensions, weight unchanged while the max permissible Propeller Shaft speed 1900 rpm and torque limitation 2815 Nm (2076 lb.ft). The Operating and Service Instructions per Installation Manual No. 0983764, Operation Manual No. 0983765, and Maintenance Manual No. 0983766
- Note 11: **Build Configuration (BC01E) for H80-100** – EECS can be installed on H80-100 engine with 2080 rpm RGB. The Build Configuration is indicated on the engine identification plate by the designation BC01E. It is an electronic control system enabling single-power-lever engine/propeller control, automatic engine starting and parameter control & limiting functions. Minimum Fuel Pump Inlet relative pressure: 100 [kPa]. The Operating and Service Instructions per Installation Manual No.EIM-0983769, Operation Manual No.EOM-0983770, and Maintenance Manual No.EMM-0983766.
- Note 12: **Build Configuration (BC04) for H85-200** - Reduction gearbox with 1950 rpm is installed on H85-200 and this engine build configuration is indicated on the engine identification plate by the additional designation BC04. The engine ratings and operational limits, dimensions, weight unchanged while the max permissible Propeller Shaft speed 1950 rpm and torque limitation 3105 Nm (2290 lb.ft). The Operating and Service Instructions per Installation Manual No. 0983202, Operation Manual No. 0983302, and Maintenance Manual No. 0983402. This engine build configuration replaces the previous H85-200 engine model baseline.



SECTION: ADMINISTRATIVE**I. Acronyms and Abbreviations**

BC	Build Configuration
CS-E	Certification Specifications for engines
FAR 33	Federal Aviation Regulation – Part 33 – Airworthiness standards: Aircraft engines
ICAO	International Civil Aviation Organization
JAR-E	Joint Aviation Requirements – Engines
OEI	One Engine Inoperative
P/N	Part Number
TBO	Time Between Overhauls
SB	Service Bulletin

II. Type Certificate Holder Record

None

III. Change Record

Issue	Date	Changes	TC issue
Issue 01	26 January 2005	Initial Issue - Transfer to EASA Type Certificate	Initial Issue, 26 January 2005
Issue 02	26 April 2005	Change of TC Holder from Walter to Walter Engines a.s.	26 April 2005
Issue 03	25 August 2008	New TC Holder GE Aviation Czech	25 August 2008
Issue 04	13 December 2011	added H80, H80-100 and H80-200 engine models	13 December 2011
Issue 05	16 November 2012	added H75-100, H75-200, H85-100 and H85-200 engine models	16 November 2012
Issue 06	05 September 2016	Torque limits, BC03 added – new formatting	
Issue 07	30 November 2016	Build Configuration BC01E added as per Major Change M601H-NZ 300, implementation of Engine Electronic Control Unit. Approval No. 10060218	
Issue 08	12 September 2017	Implementation of Build Configuration BC01E for H80-100 engine model added as per Major Change DCP-01450, implementation of Engine Electronic Control Unit. Approval No. 10062865. Implementation of Build Configuration BC04 for H85-200 engine model added as Major Change NZ-3123 introducing a propeller reduction gearbox with shaft speed to 1950 rpm. Approval No. 10063105.	

-END-

