



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	
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, M601F, M601FS, 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	M601F	M601FS				
MARCH 16, 2001	MARCH 15, 1999	MARCH 16, 2001	APR 7, 2000	MAY 27, 2002				

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	M601F	M601FS				
APR 11, 2001	JAN 10, 2001	APR 11, 2001	JULY 14, 2000	JUNE 14, 2002				
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
TC No.:	90-04/1	M601D, M601D-1, M601D-11, M601D-11NZ, M601Z
TC No.:	89-03	M601E, M601E-21, M601E-11, M601E-11S, M601E-11A, M601E-11AS, M601F, M601FS

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
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. 11 effective Apr 24, 1986	M601D, M601D-1, M601D-11, M601D-11NZ, M601Z
FAR 33 Amdt. 12 effective Sept 2, 1988	M601E, M601E-21, M601E-11, M601E-11S, M601E-11A, M601E-11AS, M601F, M601FS

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

1.2. Special Conditions (SC)

None



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>	M601Z: <i>S-M601Z</i>	M601E-11A: <i>S-M601E-11A</i>	M601FS: <i>S-M601FS</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	207
M601D-11, M601D-11NZ	204
M601Z	201
M601E-11S, M601E-11AS, M601FS	212

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	580	595	560
M601E-21					
M601F	500	580	580	-	580
M601D	490	540	540	-	-
M601D-11	450		-	-	-
M610D-11NZ	320	410	-	-	-
M601Z	245	382	-	-	-
M601E-11	490	560	560	-	-
M601E-11S	490	560	560	-	-
M601E-11A	485	526	-	-	-
M601E-11AS			-	-	-
M601FS	500	580	580	-	-



	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	597		-	-	-
H80-200	522	597	-	-	-
H75-100	560		-	-	-
H75-200	560		-	-	-
H85-100	634		-	-	-
H85-200	634		-	-	-

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 and M601FS 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.

M601 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			-	-
M601D			-	-
M601D-11	650	700	-	-
M601D-11NZ		710	-	-
M601Z	690	735	-	-
M601E-11			-	-
M601E-11S	710	710	-	-
M601E-11A			-	-
M601E-11AS	690	735	-	-
M601FS			-	-
H80	750	780	-	-
H80-100			-	-
H80-200			-	-
H75-100	770	780	-	-
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		
	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	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	
	H85-200		1950
Max. Contingency (10 min)	M601E, M601E-21, M601F, M601FS	102	2080
Intermediate Contingency	M601E, M601E-21, M601F, 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	

- 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	Published as required
M601D-1	0982511	0982402	0982309	
M601D-2		0982415		
M601D-11				
M601D-11NZ				
M601Z				
M601E	0982502	0982404	0982055	
M601E-21	0982504	0982406	0982302	
M601E-11				
M601E-11S				
M601E-11A				
M601E-11AS				
M601F	0982509	0982413	0982302	
M601FS				
H80, H80-100, H80-200	0983202	0983302	0983402	
H75-100, H75-200				
H85-100, H85-200, H85-200-BC04				
<i>Engine Build Configurations:</i>				
H75-100-BC01E	0983769	0983770	0983766*	
H80-100-BC01E				

* This maintenance manual must be used in conjunction with the maintenance manual 0983402. See Note-13 for Operating and Service Instructions of Build Configurations.



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 and M601FS 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 and M601FS) 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].



- 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).
- 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].
- 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). This engine build configuration replaces the previous H85-200 engine model baseline.
- Note 13: Unless otherwise specified in Section V, the Operating and Service Instructions for all Build Configurations are contained in the instructions of the main engine model.



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.	
Issue 09	21 June 2021	Surrender of TC for M601F-11, M601F-22, M601F-32 and M601T. (EASA Certification Information note 2021-25) Various TCDS corrections	21 June 2021

-END-

