TYPE-CERTIFICATE

DATA SHEET

No. EASA.R.516

for

H160

Type Certificate Holder

Airbus Helicopters

Aéroport International Marseille – Provence

13725 Marignane CEDEX

France

For Model: H160-B

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SECTION 1: H160-B

I. General

1.	Type/ Model	
	1.1 Type	H160
	1.2 Model	H160-B
2.	Airworthiness Category	Large Rotorcraft, Category A and B
3.	Manufacturer	Airbus Helicopters Aéroport International Marseille – Provence 13725 Marignane CEDEX, France
4.	Type Certification Application Date	16 November 2012
5.	State of Design Authority	EASA
6.	EASA Type Certification Date	1 July 2020

II. Certification Basis

1.	Reference Date for determining the applicable requirements	1 November 2016

2. Airworthiness Requirements

- Certification Specifications for Large Rotorcraft, CS-29 Amendment 3, dated 11 December 2012 except for the following:
- 29.917, 29.927, and 29.1585 of CS-29 Amdt. 5, dated 14 June 2018;
- 29.865 of CS-29 Amdt. 8, dated 24 June 2020 for external loads.
- 29.801 (c)(2), 29.805 (c), 29.807 (d)(1), 29.807 (d)(2), 29.809 (c), 29.811 (h)(2), 29.1415 (b)(1), 29.1415 (b)(2), 29.1415 (c), 29.1555 (d)(2), 29.1561 (a)(c), and 29.1587 (c) of CS-29 Amdt. 11, dated 27 January 2023.

3. Special Conditions

SC B-03 -	Search and Rescue (SAR) modes certification
SC E-01 -	Extended Take-Off Power Duration
SC F-01 -	Protection from the effects of High Intensity Radiated Fields (HIRF)
SC F-13 -	Non-rechargeable Lithium Battery Installations
SC F-35 -	Equipment, Systems and Network Information Security

4. Deviations

DEV D-21 -	29.735 (c)(2) - Electric Brake Slope Landing
DEV D-23 -	29.865 (a), 29.1301 (d), 29.1309 (a), (b) - COLLINS AEROSPACE ‘Population 2’ Hoist System Installation. See Note 8.

5. Equivalent Safety Findings

ESF D-15 -	29.807 (c) - Passenger emergency exits / other than side-of-fuselage
ESF D-16 -	29.807 (d)(2) and (d)(3) - Ditching emergency exit for passengers
ESF D-19 -	29.807 (a)(4) - Passenger emergency exits
ESF D-22 -	29.807 (c) - Use of flight crew emergency exits for passenger evacuation with the rotorcraft on its side. See Note 9.

ESF E-07 -	29.1203 (d) - Fire detection electrical circuit testability
ESF E-28 -	29.1145 - Ignition Switches
ESF E-29 -	29.1195 - Multipurpose Fire Extinguishing System
ESF E-35 -	29.1191 - Backside Fire Ignition – except for configurations where direct compliance with 29.1191 was demonstrated. See Note 10.
ESF F-03 -	29.1305, 29.1351, 29.1435 - Part time display of vehicle parameters
ESF F-04 -	29.1303 (g)(2), CS 29 App B VIII (a)(2) - Independent Power Source for Standby Attitude Instrument
ESF F-05 -	CS-29, Appendix B VIII c – Thunderstorm Lights
ESF FCD-01-	CS-FCD T3 Evaluation Process
ESF G-03 -	29.1305, 29.1309, 29.1525, 29.1549 - Engine Training Mode
ESF G-05 -	29.1545, 29.1549 - Airspeed and Powerplant indicators green arcs
ESF G-06 -	29.1555 (c)(1) - Usable fuel capacity marking

6. Environmental Protection Requirements

6.1 Noise Requirements	See TCDSN No. EASA.R.516
6.2 Emission Requirements	Chapter 2 of Part II of Volume II, Third Edition (Amdt. 8) of ICAO Annex 16 to the Chicago Convention (as implemented in CS-34, Amdt. 2, dated 12 January 2016)

7. Operational Suitability Data (OSD) (See SECTION 2 below)

7.1 Master Minimum Equipment List	Certification Specifications and Guidance Material for Master Minimum Equipment List, CS-MMEL, initial issue dated 31 January 2014
7.2 Flight Crew Data (FCD)	Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data, CS-FCD, initial issue dated 31 January 2014
7.3 Simulation Data	Certification Specifications and Guidance Material for Simulator Data, CS-SIMD, initial issue, dated 2 December 2014

III. Technical Characteristics and Operational Limitations

1. Type Design Definition
   - U000A0257E01_DDD H160-B Type Design Definition - Issue H, and subsequent issues
   - U000A0318E01_DDD H160-B Optionals Type Design Definition - Issue G, and subsequent issues

2. Description

Medium twin-engine passenger transport helicopter, conventional configuration

Main rotor:	Spheriflex, 5 blades
Tail rotor:	Fenestron ducted tail rotor, 10 blades
Fuselage:	Composite structure
Landing gear:	Tricycle, retractable
Control system:	Mechanical with hydraulic actuation
Powerplant:	2 independent freewheel turbines

3. Equipment

As required by compliance with the Certification Basis and listed in the Type Design Definition documents.

4. Dimensions

4.1 Fuselage — Length: 13.96 m; Width: 3.55 m; Height: 4.92 m

4.2 Main Rotor — Diameter: 13.40 m

4.3 Tail Rotor — Diameter: 1.20 m

5. Engine

5.1 Model — Safran Helicopter Engines
ARRANO 1 Series / ARRANO 1A
Number: 2

5.2 Type Certificate — EASA TC/TCDS No.: EASA.E.095

5.3 Limitations

5.3.1 Installed Engine Limitations and Transmission Torque Limits (see Note 7.)

	Torque limits [%] at MBG input	Gas generator rpm [%]	Temperature TOT [°C]
AEO 20 sec transient	108%	46 550 (105.5%)	934
Take-off / 30-min AEO	100% up to V_y+10 KIAS 93.7% above V_y+ 30 kts	45 910 (104.0%)	912
AEO-MCP	93.6%	45 470 (103.0%)	886
OEI (30 sec)	145% (72.5% at output level)	47 590 (107.8%)	991
OEI (2 min)	127.5% (63.8% at output level)	46 620 (105.6%)	957
OEI CT	112.1% (56.0% at output level)	46 130 (104.5%)	914

5.3.2 Other Engine and Transmission Torque Limits

Refer to approved RFM

6. Fluids

6.1 Fuel — JET A, JET A-1, JP-8, JP8+100, JP-5, No.3 Jet Fuel, TS-1 (TC-1) / RT(PT)
For code No., specifications and more details refer to approved RFM

For alternative authorised fuels refer to approved RFM

6.2 Additives — Refer to approved RFM

6.3 Oil — Refer to approved RFM

7. Fluid capacities

7.1 Fuel — Max usable fuel capacity: 1 440 litres
Unusable fuel: 9.9 litres

7.2 Oil — Engine (each): 5.8 litres
MGB: 24 litres
TGB: 0.5 litres

Hydraulic system: Left circuit: 5.1 litres
Right circuit: 5.3 litres

8. Air Speed Limitations — $V_{NE\ PWR\ ON}$ = 170 KIAS up to 5 000 ft PA
For reduction of V_{NE} with altitude refer to approved RFM
$V_{NE\ OEI} = V_{NE\ PWR\ OFF} = V_{NE\ PWR\ ON}$ - 35 KIAS

For other speed limitations refer to approved RFM

9. Rotor Speed Limitations

Power on:

NR regulated range AEO	96.0 - 105.3 %	(308.7 – 338.6 rpm)
Reference	100.0 %	(321.6 rpm)
Maximum CT	107.8 %	(346.7 rpm)
Minimum CT AEO	92.0 %	(295.9 rpm)
Minimum CT OEI	95.5 %	(307.1 rpm)
Minimum transient	83.0 %	(266.9 rpm)

Power off:

Maximum transient	117.0 %	(376.3 rpm)
Maximum CT	109.8 %	(353.1 rpm)
Minimum CT	92.0 %	(295.9 rpm)
Minimum transient	83.0 %	(266.9 rpm)

10. Maximum Operating Altitude and Temperature

10.1 Altitude

Flight altitude -1 500 ft to +20 000 ft PA
Take-off and landing altitude:

- Minimum: -1 500 ft PA and -4 600ft DA
- Maximum
  - Category B: 13 000 ft DA
  - Category A clear area: 12 500 ft DA

10.2 Temperature

-20°C to ISA+37°C limited to +50°C

11. Operating Limitations

VFR day and night and IFR in non-icing conditions
Flight in falling and blowing snow: Refer to rotorcraft flight manual.

12. Maximum Mass

- in-flight: 6 050 kg
- on-ground: 6 100 kg

13. Centre of Gravity Range

Longitudinal C.G. limits
maximum forward limit:
5 092 mm aft of DP at 5 300 kg
5 130 mm aft of DP at 6 050 kg
maximum rearward limit:
5 390 mm aft of DP at 4 500 kg
5 287 mm aft of DP at 6 050 kg

Lateral C.G Limits
maximum deviation on right / left:
65 mm at 5 500 kg
20 mm at 6 050 kg

For detailed data refer to approved RFM

14. Datum

Longitudinal: the datum plane (STA 0) is located at 5 217 mm forward of the main rotor head centre.
Lateral: fuselage symmetry plane

15. Levelling Means

Levelling reference marking on upper deck on LH side near to MGB between frames 3 and 4

16. Minimum Flight Crew

VFR - one pilot (right seat)
IFR - one pilot (right seat)

17. Maximum Number of People on Board

14 (including Flight Crew)

18. Passenger Emergency Exit

6 exits, of which are
- 1 exit on each side of the cockpit
- 2 exits on each side of the passenger cabin (see Note 4.)

19. Maximum Baggage/ Cargo Loads

Cargo floor max. load: 300 kg
(330 kg with the optional cargo extension installed and with mandatory approved restraint nets),
Cargo floor max. unit load: 300 kg/m²

For complementary limitations and specific loading conditions refer to approved RFM

20. Rotor Blade Control Movement

For rigging information refer to Maintenance Manual

21. Auxiliary Power Unit (APU)

n/a

22. Life-limited Parts

Refer to approved ALS

23. Wheels and Tyres

	wheels	tyres
nose	C20727100	5.00-5 / 8 PR with P/N 021-310-0
main	C20781200	17,5x5,75-8 / 12 PR with P/N 178K23-5

IV. Operating and Service Instructions

1. Flight Manual

e-RFM:
- data file(s):
  AIRCREW H160-000, dated 25 June 2020 (EASA-approved 1 July 2020, or later approved versions)
- software applications:
  - HCrew v1.0.0, EASA-approved 1 July 2020, or subsequent approved versions
  - H160 Flight Perfo v3.0.0, EASA-approved 1 July 2020, or subsequent approved versions

For authorised e-RFM host platforms and installation information refer to 'H160 c-RFM Installation Guide', Airbus Helicopters document ref. TN U000A1570E01 issue E, or later revisions.
The use of e-RFM software applications on other host platforms than those specified in the above document is not allowed.

Paper format RFM:
Rotorcraft Flight Manual H160-B, first issue, dated 25 June 2020, EASA-approved 1 July 2020, or later approved revisions

2. Maintenance Manual

- Airworthiness Limitations Section H160-B, issue dated 15 June 2020, Revision 000, EASA-approved 1 July 2020, or later approved revisions
- Maintenance Servicing Manual H160 and Aircraft Maintenance Manual H160.

3. Structural Repair Manual

Structural Repair Manual H160

4. Weight and Balance Manual

Section 6 of Complementary RFM

5. Illustrated Parts Catalogue

Illustrated Parts Catalogue H160

6. Miscellaneous Manuals

none

7.	Service Letters and Service Bulletins	Safety Information Notices, Information Notices, Alert Service Bulletins, Service Bulletins, Repair Design Approval Sheets H160, as published by Airbus Helicopters
8.	Required Equipment	As per compliance with Certification Basis and in accordance with Type Design Definition. Refer to approved RFM.

V. Notes

1. Manufacturer's eligible serial numbers: s/n 1002, and subsequent.
2. The certified optional installations are each approved independently of the basic helicopter and are part of the relevant approved RFM.
3. The H160-B is certified for ditching with the optional installations and operating procedures as defined in approved RFM.
4. Passenger Emergency Exits:
   The Sliding Door Jettisonable Window, which is one of the 2 separate exits on each side of the passenger cabin, has been demonstrated to be equivalent to two Type IV emergency exits as specified in 29.807(a)(4) (ESF D-19 refers).
5. Halon replacement applicability, in reference to Regulation EC No. 1005 / 2009 of the European Parliament and of the Council of 16 September 2009 on substances that deplete ozone layer referred as Ozone Regulation, is recorded in 'CRI A-04'.
6. The H160-B has been demonstrated compliant with Certification Specifications for Airborne Communications Navigation and Surveillance, CS-ACNS sections A, B and D initial issue, dated 17 December 2013, taking into account Deviation DEV F-25 to CS ACNS.D.ELS.045 and CS ACNS.D.ADSB.105 'ADS-B Out Extended Squitter & ELS installation with T3CAS Multifunction Transponder'.
7. The APU mode approved at engine level is not approved at aircraft level.
8. DEV D-23 is applicable only to the following options:
   Single Hoist pop 2 including the following: ECP_H160.S01129, ECP_H160.S01130, ECP_H160.S01132, ECP_H160.S01133, ECP_H160.S01134, ECP_H160.S01135, ECP_H160.S01136, ECP_H160.S01137, ECP_H160.S01138, ECP_H160.S01141, ECP_H160.S01259, ECP_H160.S03563, ECP_H160.S03895, ECP_H160.S04278, ECP_H160.S04279, ECP_H160.S04390, ECP_H160.S04553, ECP_H160.S04998, ECP_H160.S05086, ECP_H160.S05163, and ECP_H160.S05195
9. ESF D-22 is applicable only to the following configurations:
   Cabin Configurations for Public Service Missions including the following:
   ECP_H160.S04734, ECP_H160.S04750, ECP_H160.S04751, ECP_H160.S04752, ECP_H160.S04878, ECP_H160.S04881, and ECP_H160.S05060.
10. For the following, direct compliance with CS 29.1191 was demonstrated without ESF E-35:
    - Modification of torque-tube to improve fire protection, ECP_H160.S04920;
    - Improvement of engine deck fire protection ECP_H160.S05062.

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SECTION 2: OPERATIONAL SUITABILITY DATA (OSD)

For the OSD certification basis refer to point II.7. of SECTION 1.

The OSD elements listed below are approved by the European Union Aviation Safety Agency as per Commission Regulation (EU) 748/2012.

II.1 MMEL

H160-B Master Minimum Equipment List, in paper and e-MMEL formats, package of data files ref. 1882_23062021, or later approved revisions.
The software application for e-MMEL is HCrew. For information on approved versions of HCrew and authorised host platforms refer to point IV.1. of SECTION 1.

II.2 Flight Crew Data

H160 EASA Operational Suitability Data (OSD) - Flight Crew Data (FCD), Normal Revision 0, Date 20-26, or later approved revisions.

II.3 SIM Data

H160-B Simulation Data, doc. ref. U150A0025E01_TN issue A, or later approved revisions.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

AEO	All Engines Operative
ALS	Airworthiness Limitations Section
APU	Auxiliary Power Unit
CT	Continuous
C.G.	Centre of Gravity
CRI	Certification Review Item
DA	Density Altitude
DEV	Deviation
DP	Datum Point
e-RFM	Electronic RFM
ESF	Equivalent Safety Finding
FCD	Flight Crew Data
HIRF	High Intensity Radiated Field
IFR	Instrument Flight Rules
KIAS	Knots Indicated Air Speed
Max	Maximum
MCP	Maximum Continuous Power
MGB	Main Gearbox
min	Minute
MMEL	Master Minimum Equipment List
No.	Number
OEI	One Engine Inoperative
OSD	Operational Suitability Data
P/N	Part Number
PA	Pressure Altitude
PWR	Power
ref.	Reference
RFM	Rotorcraft Flight Manual
s/n	Serial Number
SC	Special Condition
Sec	Seconds
STA	Station
TGB	Tail Gearbox
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TCDSN	Type Certificate Data Sheet for Noise
TOT	Turbine Outlet Temperature
VFR	Visual Flight Rules
V_{NE}	Never Exceed Speed

II. Type Certificate Holder Record

II.1 Type Certificate Holder	Period
Airbus Helicopters Aéroport International Marseille – Provence 13725 Marignane CEDEX, France	From 1 July 2020

III. Change Record

Issue	Date	Changes	TC issue
Issue 1	1 Jul 2020	Initial issue of EASA TCDS	Initial Issue, 1 July 2020
Issue 2	5 Mar 2021	SECTION 1: - II. 4.: DEV E-34 ‘CS 29.965 (d) - Fuel Tank Test – Slosh and Vibration’ removed - II. 5.: ESF E-31 “CS 29.1193 (e) (3) - Flight and Ground Conditions for Cowlings Fire Testing” removed - III. 1.: Type Design Definition document references updated - III. 5.3.1.: reference to Note 7. added - V.: Note 7. added SECTION 2: - Information regarding OSD elements pending approval updated and information on approved OSD elements added - II.2: Flight Crew Data reference added SECTION: ADMINISTRATIVE - I.: APU acronym added	---

Issue	Date	Changes	TC issue
Issue 3	15 Oct 2021	SECTION 1: - II.7.4: Empty section removed, - III.5.3.1: unit KIAS amended, - III.9.: NR range amended. SECTION 2: - Information regarding OSD elements pending approval removed, introduction modified, - Approved MMEL and SIM Data OSD elements added, - Empty sections for Maintenance Certifying Staff Data and Cabin Crew Data OSD elements removed.	---
Issue 4	2 Feb 2023	SECTION 1, II.: - CS 29.865 of CS-29 Amdt. 8 added, - DEV D-23 and reference to Note 8 added, - ESF D-22 and reference to Note 9 added, - Reference to Note 10 added to ESF-E-35. SECTION 1, III, 6.1: text reduced to TCDSN reference. SECTION 1, V.: - Relevant sections of CS-ACNS added to Note 6, - Notes 8 to 10 added. All sections: editorial alignments	---
Issue 5	22 Apr 2025	SECTION 1, II.: - Elect to Comply to 29.801 (c)(2), 29.805 (c), 29.807 (d)(1), 29.807 (d)(2), 29.809 (c), 29.811 (h)(2), 29.1415 (b)(1), 29.1415 (b)(2), 29.1415 (c), 29.1555 (d)(2), 29.1561 (a)(c), and 29.1587 (c) of CS-29 Amdt. 11 is added. - SC B-03 is added. - SC E-32 is deleted. - ESF D-17 is deleted. - ESF FCD-01 is added. SECTION 1, III. 4.1: - Fuselage Width and Height values corrected. SECTION 1, III. 6.3: - Engine lubricants, MGB lubricants and TGB lubricants tables deleted. - Hydraulic fluids section deleted. SECTION 1, III., 11.: - update regarding flight in falling and blowing snow limitation. SECTION 1, V., 9.: - ECP typo correction.	

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