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
TABLE OF CONTENTS

SECTION 1: H160-B .......................................................................................................................... 3
  I. General ........................................................................................................................................ 3
  II. Certification Basis .......................................................................................................................... 3
  III. Technical Characteristics and Operational Limitations ............................................................. 4
  IV. Operating and Service Instructions ............................................................................................. 8
  V. Notes ........................................................................................................................................... 9

SECTION 2: OPERATIONAL SUITABILITY DATA (OSD) ................................................................. 10

SECTION: ADMINISTRATIVE ......................................................................................................... 11
  I. Acronyms and Abbreviations ....................................................................................................... 11
  II. Type Certificate Holder Record .................................................................................................. 11
  III. Change Record ............................................................................................................................ 11
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 Amdt. 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.

3. Special Conditions
   SC E-01 - Extended Take-Off Power Duration
   SC E-32 - Continued Flight with Cargo/Baggage Compartment Fire Detected
   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-17 - 29.855 - Fires in cargo and baggage compartments
   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 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 TCDS 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: 3.54 m
   - Height: 4.91 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.)

<table>
<thead>
<tr>
<th>Torque limits</th>
<th>Gas generator rpm [%]</th>
<th>Temperature TOT [°C]</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEO 20 sec transient</td>
<td>108%</td>
<td>46 550 (105.5%)</td>
</tr>
<tr>
<td>Take-off / 30-min AEO</td>
<td>100% up to Vᵣ+10 KIAS</td>
<td>45 910 (104.0%)</td>
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<tr>
<td></td>
<td>93.7% above Vᵣ+30 kts</td>
<td></td>
</tr>
<tr>
<td>AEO-MCP</td>
<td>93.6%</td>
<td>45 470 (103.0%)</td>
</tr>
<tr>
<td>OEI (30 sec)</td>
<td>145%</td>
<td>47 590 (107.8%)</td>
</tr>
<tr>
<td></td>
<td>(72.5% at output level)</td>
<td></td>
</tr>
<tr>
<td>OEI (2 min)</td>
<td>127.5%</td>
<td>46 620 (105.6%)</td>
</tr>
<tr>
<td></td>
<td>(63.8% at output level)</td>
<td></td>
</tr>
<tr>
<td>OEI CT</td>
<td>112.1%</td>
<td>46 130 (104.5%)</td>
</tr>
<tr>
<td></td>
<td>(56.0% at output level)</td>
<td></td>
</tr>
</tbody>
</table>

5.3.2 Other Engine and Transmission Torque Limits
Refer to approved RFM

6. Fluids

6.1 Fuel
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

6.3.1 Engine lubricants

<table>
<thead>
<tr>
<th>Type of oil</th>
<th>NATO code</th>
<th>Specifications</th>
<th>Approved oil brands</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>France</td>
<td>USA</td>
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<tr>
<td>Synthetic 5 cSt</td>
<td>O-154</td>
<td>-</td>
<td>MIL-PRF 23699</td>
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</tr>
</tbody>
</table>

For replacement oil, cold weather oil and and further details refer to approved RFM

6.3.2 MGB lubricants

<table>
<thead>
<tr>
<th>Type of oil</th>
<th>Temperature limitations</th>
<th>Approved oil brands (other products are excluded)</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral 8 cSt</td>
<td>For starting -25°Cs OAT</td>
<td>Total / Aerogear 823</td>
<td>NATO O-155</td>
</tr>
<tr>
<td>Mineral 12 cSt</td>
<td>No limitation for flight</td>
<td>Total / Aerogear 1032</td>
<td></td>
</tr>
</tbody>
</table>
For further details refer to approved RFM

### 6.3.3 TGB lubricants

<table>
<thead>
<tr>
<th>Type of oil</th>
<th>Temperature limitations</th>
<th>Approved brands (other products are excluded)</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synthetic 3 cSt</td>
<td>-40°C ≤ OAT ≤ +10°C For starting and flight</td>
<td>Nyco/Tubonycoil 160</td>
<td>O-148</td>
</tr>
<tr>
<td>Synthetic 5 cSt</td>
<td>-40°C ≤ OAT ≤ +50°C</td>
<td>Nyco/Tubonycoil 640</td>
<td>O-154</td>
</tr>
<tr>
<td>Mineral 12 cSt</td>
<td>-25°C ≤ OAT ≤ +30°C</td>
<td>Total / aerogear 1032</td>
<td>O-155</td>
</tr>
</tbody>
</table>

For further details refer to approved RFM

### 6.3.4 Hydraulic fluids

- MIL-PRF-83282 or MIL-PRF-87257

### 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

- $V_{NE \text{ PWR ON}} = 170$ KIAS up to 5,000 ft PA
- $V_{NE \text{ OEI}} = V_{NE \text{ PWR OFF}} = V_{NE \text{ PWR ON}} - 35$ 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 -4,600 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 without inlet barrier filter installed is prohibited

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

<table>
<thead>
<tr>
<th></th>
<th>wheels</th>
<th>tyres</th>
</tr>
</thead>
<tbody>
<tr>
<td>nose</td>
<td>C20727100</td>
<td>5.00-5 / 8 PR with P/N 021-310-0</td>
</tr>
<tr>
<td>main</td>
<td>C20781200</td>
<td>17.5x5.75-8 / 12 PR with P/N 178K23-5</td>
</tr>
</tbody>
</table>
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 e-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

   - Airworthiness Limitations Section H160-B, issue dated 15 June 2020, Revision 000, EASA-approved 1 July 2020, or later approved revisions

   Structural Repair Manual H160

   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).


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:

9. ESF D-22 is applicable only to the following configurations:

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.

* * *
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 H Crew. For information on approved versions of H Crew 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

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEO</td>
<td>All Engines Operative</td>
</tr>
<tr>
<td>ALS</td>
<td>Airworthiness Limitations Section</td>
</tr>
<tr>
<td>APU</td>
<td>Auxiliary Power Unit</td>
</tr>
<tr>
<td>CT</td>
<td>Continuous</td>
</tr>
<tr>
<td>C.G.</td>
<td>Centre of Gravity</td>
</tr>
<tr>
<td>CRI</td>
<td>Certification Review Item</td>
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<tr>
<td>DA</td>
<td>Density Altitude</td>
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<tr>
<td>DEV</td>
<td>Deviation</td>
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<tr>
<td>DP</td>
<td>Datum Point</td>
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<td>e-RFM</td>
<td>Electronic RFM</td>
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<tr>
<td>ESF</td>
<td>Equivalent Safety Finding</td>
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<tr>
<td>FCD</td>
<td>Flight Crew Data</td>
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<td>HIRF</td>
<td>High Intensity Radiated Field</td>
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<td>IFR</td>
<td>Instrument Flight Rules</td>
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<td>KIAS</td>
<td>Knots Indicated Air Speed</td>
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<td>Max</td>
<td>Maximum</td>
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<td>MCP</td>
<td>Maximum Continuous Power</td>
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<td>MGB</td>
<td>Main Gearbox</td>
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<td>min</td>
<td>Minute</td>
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<td>MMEL</td>
<td>Master Minimum Equipment List</td>
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<td>No.</td>
<td>Number</td>
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<td>OEI</td>
<td>One Engine Inoperative</td>
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<td>OSD</td>
<td>Operational Suitability Data</td>
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<td>P/N</td>
<td>Part Number</td>
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<td>PA</td>
<td>Pressure Altitude</td>
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<td>PWR</td>
<td>Power</td>
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<td>ref.</td>
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<td>RFM</td>
<td>Rotorcraft Flight Manual</td>
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<td>SC</td>
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<td>TCDS</td>
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<td>Type Certificate Data Sheet for Noise</td>
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<td>TOT</td>
<td>Turbine Outlet Temperature</td>
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<td>VFR</td>
<td>Visual Flight Rules</td>
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<tr>
<td>VNE</td>
<td>Never Exceed Speed</td>
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II. Type Certificate Holder Record

II.1 Type Certificate Holder

Airbus Helicopters
Aéroport International Marseille – Provence
13725 Marignane CEDEX, France

Period
From 1 July 2020

III. Change Record

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Changes</th>
<th>TC issue</th>
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<tr>
<td>Issue 1</td>
<td>1 Jul 2020</td>
<td>Initial issue of EASA TCDS</td>
<td>Initial Issue, 1 July 2020</td>
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</table>
| 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 Cowings 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 | --- |
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<th>Issue</th>
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<th>TC issue</th>
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| 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 | ---      |