No. EASA.IM.R.520

for

505

Type Certificate Holder
Bell Textron Canada Ltd.

12 800, rue de l’Avenir
Mirabel, Québec J7J 1R4
Canada

For Model: 505
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SECTION 1: 505

I. General

1. Type/ Model/ Variant
   1.1 Type  
   Bell 505
   1.2 Model  
   Bell 505
   1.3 Variant  - - -

2. Airworthiness Category  
   Small Rotorcraft

3. Manufacturer  
   Bell Textron Canada Ltd.
   12 800, rue de l’Avenir
   Mirabel, Québec J7J 1R4, Canada

4. Type Certification Application Date  
   to TCCA: 10 September 2013
   to EASA: 17 November 2014

5. State of Design Authority  
   Transport Canada

6. Type Certificate Date by TCCA  
   19 December 2016

7. Type Certificate n° by TCCA  
   H-112

8. Type Certificate Data Sheet n°  
   H-112

9. EASA Type Certification Date  
   10 November 2017

II. Certification Basis

1. Reference Date for determining the applicable requirements  
   10 September 2013

2. Airworthiness Requirements  
   CS-27 Amdt. 3, dated 11 December 2012

3. Special Conditions  
   - JAA INT/POL 27/29/1 Issue 3 HIRF Protection
   - TCCA SCA 2015-09 Rechargeable Lithium Batteries
   - Automatic Speech Recognition (ASR)

4. Exemptions  
   none

5. Deviations  
   none

6. Equivalent Safety Findings  
   - TCCA AWM Chapter 527, sections 527.307 (b)(5), 527.723, 527.725 and 527.727 - Landing Gear Limit Drop Test
   - CS 27.921 Non-guarded Rotor Brake control
   - CS 27.995 (d) Fuel Shut off Valve
   - TCCA AWM 527.1545 (b)(2) - Airspeed Indicator Markings of VNE (autorotation)
   - TCCA AWM 527.49(a), 527.51(a), 527.75(a)(1), 527.141(b), 527.143(a), 527.143 (c)(2), 527.143(d), 527.695(a), 527.1581, 527.1587(a)(2)(i), 527.1587(a)(2)(ii) - High Altitude Controllability

7. Requirements elected to comply  
   none

8. Environmental Protection Requirements  
   See TCDSN EASA.IM.R.520

8.1 Noise Requirements  
   CS-34, Amdt. 1, dated 29 January 2013

8.2 Emission Requirements  
   See SECTION 2 below

9. Operational Suitability Data (OSD)  
   see SECTION 2 below
III. Technical Characteristics and Operational Limitations

1. Type Design Definition
   SLS-100-003-001 revision C, or later approved revision

2. Description
   Main rotor: Semi rigid teetering type, 2 all metal blades
   Tail rotor: Semi rigid teetering type, 2 all metal blades
   Fuselage: Metallic primary structure with composite side panels and aft fuselage skins
   Landing gear: Conventional skids
   Powerplant: Single turboshaft powered, FADEC
   Avionics: Integrated glass flight deck

3. Equipment
   Basic equipment must be installed and operational prior to registration of the helicopter.

4. Dimensions
   4.1 Fuselage
      Length: 10.53 m
      Width hull: 1.52 m
      Height: 3.10 m
   4.2 Main Rotor
      Diameter: 11.28 m
   4.3 Tail Rotor
      Diameter: 1.65 m

5. Engine
   5.1 Model
      Safran Helicopter Engines
      1 x Model Arrius 2R
   5.2 Type Certificate
      EASA TC/TCDS n°: EASA.E.031
   5.3 Limitations
      5.3.1 Installed Engine Limitations and Transmission Torque Limits

<table>
<thead>
<tr>
<th>Torque limits</th>
<th>Gas generator speed</th>
<th>Turbine TOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>[% (lb·ft)]</td>
<td>[% (rpm)]</td>
<td>[°C]</td>
</tr>
<tr>
<td>TOP (5 min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 (442.5)</td>
<td>101.29 (54 817)</td>
<td>853</td>
</tr>
<tr>
<td>92 (405.6)</td>
<td>99.80 (54 011)</td>
<td>817</td>
</tr>
</tbody>
</table>

Note: Output shaft speed limit is 104 % (5 834 rpm)

5.3.2 Other Engine and Transmission Torque Limits

<table>
<thead>
<tr>
<th>Torque limits</th>
<th>[%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>TKOF</td>
<td>100</td>
</tr>
<tr>
<td>MCP</td>
<td>90</td>
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<tr>
<td>Transient</td>
<td>105</td>
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</tbody>
</table>

6. Fluids (Fuel/ Oil/ Additives)

6.1 Fuel

<table>
<thead>
<tr>
<th>Type</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerosene</td>
<td>Canada CGSB 3.23</td>
</tr>
<tr>
<td></td>
<td>USA ASTM D1655</td>
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<tr>
<td></td>
<td>MIL-DTL-83133</td>
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<tr>
<td>Wide Cut</td>
<td>CGSB 3.22</td>
</tr>
<tr>
<td>Jet B, JP4</td>
<td>CGSB 3.22</td>
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<tr>
<td></td>
<td>ASTM D1655</td>
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<td></td>
<td>MIL-DTL-5624</td>
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<tr>
<td>High Flash</td>
<td>3-GP-24</td>
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<tr>
<td>JP5</td>
<td>MIL-DTL-5624</td>
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</tbody>
</table>

Note: Refer to approved RFM for fuel temperature limitations
6.2 Oil
For approved engine oil types, prohibition against mixing brands and for approved transmission and gearbox oil types refer to Maintenance Manual BHT-505-MM

6.3 Additives
Refer to approved RFM

7. Fluid capacities

7.1 Fuel
Fuel tank capacity: Refer to approved RFM
Usable fuel: Refer to approved RFM

7.2 Oil
Refer to approved RFM

7.3 Coolant System Capacity
n/a

8. Air Speed Limitations
V_{NE}: 135 KIAS
For further information refer to approved RFM.

9. Rotor Speed Limitations
Nominal rotor rpm is 104 % (383 rpm)
Power on:
Maximum 107 % (394 rpm)
Minimum 97 % (357 rpm)
Power off:
Maximum 115 % (422 rpm)
Minimum 90 % (331 rpm)

10. Maximum Operating Altitude and Temperature
10.1 Altitude
20 000 ft (6 096 m) PA
10.2 Temperature
-40°C to 50°C (-40°F to 122°F)
For variation of temperature limitation with altitude refer to approved RFM.

11. Operating Limitations
VFR day and night

12. Maximum Mass
1 669 kg (3 680 lb) internal loading
2 030 kg (4 475 lb) external loading

13. Centre of Gravity Range
Refer to approved RFM (see Note 3)

14. Datum
Longitudinal:
the datum plane (STA 0) is located at 960 mm (37.8 in) forward of the nose of the helicopter.
Lateral: fuselage median plane.

15. Levelling Means
Protractor or level placed on the crew or passenger floor or seat rails, both longitudinally and laterally

16. Minimum Flight Crew
1 pilot

17. Maximum Passenger Seating Capacity
4

18. Passenger Emergency Exit
1 on each side of the passenger cabin

19. Maximum Baggage/ Cargo Loads
Cabin cargo loading: 269 kg/m² (55 lb/ft²)
Cabin cargo mass: 129 kg (425 lb)
Baggage compartment loading: 244 kg/m² (50 lb/ft²)
Baggage compartment mass: 113 kg (250 lb)

20. Rotor Blade Control Movement
For rigging information refer to Maintenance Manual

21. Auxiliary Power Unit (APU)
n/a

22. Life-limited Parts
See approved ALS Section in Chapter 04 of the Maintenance Planning Information BHT-505-MPI, Issue 3, dated 18 May 2017, or later -approved revisions
IV. Operating and Service Instructions

1. Flight Manual
   Bell Rotorcraft Flight Manual:
   - for s/n 65011 to s/n 65300 (excluding s/n 65170):
     BHT-505-FM-1, dated 27 August 2017, or later approved revisions
   - for s/n 65170, s/n 65301, and subsequent:
     BHT-505-FM-2, dated 30 October 2019, or later approved revisions
   for all s/n:
     BHT-505-FMS-EASA, dated 4 October 2020, or later approved revisions

   - Maintenance Planning Information BHT-505-MPI
   - Maintenance Manual BHT-505-MM
   - Engine documents as per Engine TCDS EASA.E.031

   Structural Repair Manual BHT-ALL-SRM

   Refer to Maintenance Manual BHT-505-MM

5. Illustrated Parts Catalogue
   Illustrated Parts Catalogue BHT-505-IPC

6. Miscellaneous Manuals
   - Wiring Diagram Manual BHT-505-WDM
   - Component Maintenance Manual - Vendor Data BHT-505-CMM-V
   - Fault Isolation Manual BHT-505-FIM

7. Service Letters and Service Bulletins
   As published by Bell Helicopter Textron Canada, or Bell Textron Canada

8. Required Equipment
   Refer to approved Rotorcraft Flight Manual and related supplements for other approved mandatory and optional equipment and Master Minimum Equipment List.

V. Notes

1. Manufacturer’s eligible serial numbers: s/n 65011, and subsequent.
2. All placards listed in the approved Rotorcraft Flight Manual must be installed in the specified locations.
3. The current weight and balance report, including list of equipment included in approved empty weight and load instructions, when necessary, must be in each rotorcraft at the time of original certification.
SECTION 2: OPERATIONAL SUITABILITY DATA (OSD)


I. OSD Certification Basis

I.1 Reference Date for determining the applicable OSD requirements
10 September 2013

I.2 MMEL - Certification Basis
Special Condition SC-CS-GEN-MMEL-H Initial Issue

I.3 Flight Crew Data - Certification Basis
CS-FCD Initial Issue

I.4 SIM Data - Certification Basis
reserved

I.5 Maintenance Certifying Staff Data - Certification Basis
reserved

II. OSD Elements

II.1 MMEL
EASA MMEL Bell 505, BHT-505-EASA-MMEL Revision -, EASA-approved on 10 November 2017, or subsequent approved revisions

II.2 Flight Crew Data
EASA Operational Suitability Data (OSD), Flight Crew Data, Bell 505, BHT-505-EASA-FCD Revision -, EASA approved on 10 November 2017, or subsequent approved revisions

II.3 SIM Data
reserved

II.4 Maintenance Certifying Staff Data
reserved
### I. Acronyms and Abbreviations

<table>
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<tr>
<th>Amdt.</th>
<th>Amendment</th>
<th>PA</th>
<th>Pressure Altitude</th>
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<tr>
<td>CRI</td>
<td>Certification Review Item</td>
<td>s/n</td>
<td>Serial Number</td>
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<tr>
<td>FCD</td>
<td>Flight Crew Data</td>
<td>SC</td>
<td>Special Condition</td>
</tr>
<tr>
<td>TCCA</td>
<td>Transport Canada</td>
<td>STA</td>
<td>Station</td>
</tr>
<tr>
<td>KIAS</td>
<td>Knots Indicated Air Speed</td>
<td>TOP</td>
<td>Take-Off Power</td>
</tr>
<tr>
<td>MCP</td>
<td>Maximum Continuous Power</td>
<td>TOT</td>
<td>Turbine Outlet Temperature</td>
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<tr>
<td>min</td>
<td>Minute</td>
<td>TKOF</td>
<td>Take-Off</td>
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<td>MMEL</td>
<td>Master Minimum Equipment List</td>
<td>VFR</td>
<td>Visual Flight Rules</td>
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<tr>
<td>OSD</td>
<td>Operational Suitability Data</td>
<td>V_ne</td>
<td>Never Exceed Speed</td>
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### II. Type Certificate Holder Record

#### II.1 Type Certificate Holder

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<thead>
<tr>
<th>Bell Helicopter Textron Canada Ltd.</th>
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<tr>
<td>12 800, rue de l’Avenir</td>
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<td>Mirabel, Québec J7J 1R4, Canada</td>
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<td>12 800 rue de l’Avenir, Mirabel, Québec, J7J 1R4, Canada</td>
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### III. Change Record

<table>
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<th>Issue</th>
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<th>Changes</th>
<th>TC issue</th>
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<tr>
<td>Issue 1</td>
<td>10 Nov 2017</td>
<td>Initial issue of EASA TCDS</td>
<td>Initial Issue, 10 November 2017</td>
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<td>Issue 2</td>
<td>16 Dec 2019</td>
<td>Type Certificate Holder name change</td>
<td>Reissued, 16 December 2019</td>
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<tr>
<td>Issue 3</td>
<td>4 Nov 2020</td>
<td>- II.6.: ESF ‘High Altitude Controllability’ added</td>
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<td>- III.6.3: reference added</td>
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<td></td>
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<td>- III.10.2: low temperature range extended</td>
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<td>- IV.1.: additional RFM added</td>
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<td>- III.22, IV.2.: editorial correction</td>
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<tr>
<td>Issue 4</td>
<td>23 Apr 2021</td>
<td>- III.12: maximum mass with external loading added</td>
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