AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRASIL

TYPE CERTIFICATE DATA SHEET No. ER-2000T05

Type Certificate Holder:

BELL HELICOPTER TEXTRON
A DIVISION OF TEXTRON CANADA
12800 Rue De L'Avenir
Mirabel, Quebec J7J 1R4
CANADA

ER-2000T05-01
Sheet 01

BELL

427

07 July 2009

This data sheet, which is part of Type Certificate No. 2000T05, prescribes conditions and limitations under which the product, for which the Type Certificate was issued, meets the airworthiness requirements of the Brazilian Aeronautical Regulations.

I - Model 427 (Normal Category), approved 08 November 2001. (See Note 4)

ENGINE

2 Pratt & Whitney Canada PW207D

FUEL

TYPE	SPECIFICATION	
Kerosene Jet A, A-1 JP8	Canada CGSB 3.23 3-GP-23	USA ASTM D1655 MIL-T-83133
Wide Cut Jet B JP4	 CGSB 3.22 CGSB 3.22	 ASTM D1655 MIL-T-5624
High Flash JP5	 3-GP-24	 MIL-T-5624

See Rotorcraft Flight Manual for fuel temperature limitations.

ENGINE LIMITS

	Torque lb-ft (%)	Turbine Temp. °C	Gas. Gen. Speed % (RPM)	
Twin Engine Operation				
Take-off (5 min)	481 (68.6)	900	99.8	(57 900)
Max. Continuous	481 (68.6)	850	97.2	(56 400)
One Engine Inoperative (OEI)				
30 sec. OEI	569 (81.2)	990	104.3	(60 500)
2 min. OEI	569 (81.2)	950	102.2	(59 300)
30 min. OEI	481 (68.7)	925	101.2	(58 700)
Continuous OEI	481 (68.7)	900	99.8	(57 900)

See Rotorcraft Flight Manual for transient limits.

Output shaft speed limit is 104.5% (6 271 rpm)

TRANSMISSION LIMITS

	Torque Limits (%)
Both Engines Operating:	
Take-off	100
Maximum Continuous	100
One Engine Inoperative OEI:	
30 seconds OEI	81.2
02 minutes OEI	75.6
Continuou OEI	57.5

ROTOR LIMITS

Power On:	Maximum:	411 RPM (104%)
	Mininimum:	391 RPM (99%)
Power Off:	Maxixmum:	423 RPM (107%)
	Minimum:	356 RPM (90%)

OIL

For approved engine oil types, prohibition against mixing brands and for approved transmission and gearbox oil types refer to Maintenance Manual BHT-427-MM-01.

AIRSPEED LIMITS

V_{NE} (never exceed) 140 KIAS.
For further information see Rotorcraft Flight Manual as listed in Approved Publications

MAXIMUM WEIGHT

Basic Aircraft (See NOTE 1)

2 880 kg (6 350 lb) Internal loading
2 971 kg (6 550 lb) External loading

Aircraft when kit 427-706-021 (IGW 6550 lb kit) is installed
(See NOTES 5 & 7)

2 971 kg (6 550 lb) Internal loading
2 971 kg (6 550 lb) External loading

C.G. LIMITS

1. Basic Aircraft

   a) Internal Loading

      Longitudinal C.G. Limits cm (in)

      Forward Limit
      561.3 cm (221.0 in) at 1 724 kg (3 800 lb) changing linearly to 548.6 cm (216.0 in) at 2 087 kg (4 600 lb), 548.6 cm (216.0 in) from 2087 kg (4 600 lb) up to 2 495 kg (5 500 lb), changing linearly to 553.0cm (217.7 in) at 2 880 kg (6 350 lb).

      Aft Limit
      576.6 cm (227.0 in) at 1724 kg (3 800 lb) up to 2 495 kg (5 500 lb), changing linearly to 574.4 cm (226.15 in) at 2 880 kg (6 350 lb)

      Lateral C.G. Limits

      Left
      –2.8 cm (-1.1 in) at 1724 kg. (3 800 lb), changing linearly up to –5.3 cm (-2.1 in) at 1814 kg (4 000 lb), changing linearly to –3.4 cm (-1.3 in) at 2 880 kg (6 350 lb)

C.G. LIMITS (Cont.)

Right

4.6 cm (1.8 in) at 1724 kg (3 800 lb) changing linearly up to 7.1 cm (2.8 in) at 1 814 kg (4 000 lb), changing linearly up to 4.8 cm (1.9 in) at 2 880 kg (6 350 lb).

b) External Loading

Longitudinal C.G. Limits cm (in)

Forward Limit
561.3 cm (221.0 in) at 1 724 kg (3 800 lb) changing linearly to 548.6 cm (216.0 in) at 2 087 kg (4 600 lb), 548.6 cm (216.0 in) from 2 087 kg (4 600 lb) up to 2 495 kg (5 500 lb), changing linearly to 550.2 cm (216.6 in) at 2 971 kg (6 550 lb).

Aft Limit
576.6 cm (227.0 in) at 1 724 kg (3 800 lb) up to 2 495 kg (5 500 lb), changing linearly to 573.9 cm (225.95 in) at 2 971 kg (6 550 lb).

Lateral C.G. Limits

Left
–2.8 cm (-1.1 in) at 1 724 kg. (3 800 lb), changing linearly up to –5.3 cm (-2.1 in) at 1 814 kg (4 000 lb), changing linearly to -3.3 cm (-1.3 in) at 2 971 kg (6 550 lb).

Right
4.6 cm (1.8 in) at 1724 kg (3 800 lb) changing linearly up to 7.1 cm (2.8 in) at 1 814 kg (4 000 lb), changing linearly to 4.3 cm (1.7 in) at 2 971 kg (6 550 lb).

2. Aircraft when Kit 427-706-021 (IGW 6 550 lb Kit) is installed.

a) Internal Loading

Longitudinal C.G. Limits cm (in)

Forward Limit

561.3 cm (221.0 in) at 1724 kg (3 800 lb) changing linearly to 548.6 cm (216.0 in) at 2087 kg (4 600 lb), 548.6 cm (216.0 in) from 2 087 kg (4 600 lb) up to 2 495 kg (5 500 lb), changing linearly to 550.0 cm (216.6 in) at 2971 kg (6 550 lb).

Aft Limit
576.6 cm (227.0 in) at 1724 kg (3 800 lb) to 2495 kg (5 500 lb) varying linearly to 573.9 cm (225.95 in) at 2 971 kg (6 550 lb)

Lateral C.G. Limits

Left
–2.8 cm (-1.1 in) at 1 724 kg. (3 800 lb), changing linearly up to –5.3 cm (-2.1 in) at 1814 kg (4 000 lb), changing linearly to –3.3 cm (-1.3 in) at 2 971 kg (6 550 lb)

Right
4.6 cm (1.8 in) at 1724 kg (3 800 lb) changing linearly up to 7.1 cm (2.8 in) at 1 814 kg (4 000 lb), changing linearly up to 4.3 cm (1.7 in) at 2 971 kg (6 550 lb)

b) External Loading

Longitudinal C.G. Limits cm (in)

Forward Limit
561.3 cm (221.0 in) at 1 724 kg (3 800 lb) changing linearly to 548.6 cm (216.0 in) at 2087 kg (4 600 lb), 548.6 cm (216.0 in) from 2 087 kg (4 600 lb) up to 2 495 kg (5 500 lb), changing linearly to 550.2 cm (216.6 in) at 2971 kg (6 550 lb)

Aft Limit
576.6 cm (227.0 in) at 1 724 kg (3 800 lb) up to 2495 kg (5 500 lb), changing linearly to 573.9 cm (225.95 in) at 2971 kg (6 550 lb).

Lateral C.G. Limits

Left
–2.8 cm (-1.1 in) at 1724 kg. (3 800 lb), changing linearly up to –5.3 cm (-2.1 in) at 1814 kg (4 000 lb), changing linearly to –3.3 cm (-1.3 in) at 2971 kg (6 550 lb)

Right
4.6 cm (1.8 in) at 1 724 kg (3 800 lb) changing linearly up to 7.1 cm (2.8 in) at 1814 kg (4 000 lb), changing linearly up to 4.3 cm (1.7 in) at 2 971kg (6 550 lb)

DATUM

Model 427 Station 0 datum is 203.2 cm (80 in) forward of the nose of the helicopter.

LEVELLING MEANS

Plumb line from underside of the engine pan through the access panel in the baggage compartment roof to an index plate on the floor of the baggage compartment.

MINIMUM CREW

1 pilot

MAXIMUM OCCUPANTS

8 (includes crew)

MAXIMUM CARGO

Refer to Flight Manual for loading schedule.

FUEL CAPACITY

770.3 litres (203.5 US Gal.) usable,
12.5 litres (3.3 US Gal.) unusable.

OIL CAPACITY

Each engine:	5.1 litres (4.5 Imp. quarts); Usable oil 1.1 litres (1 Imp. quart) included in capacity. Undrainable oil, 1.6 lb.
Transmission:	8.5 litres (7.5 Imp quarts)
Tail Rotor Gearbox:	0.31 litres (0.27 Imp. quarts)

ALTITUDE LIMITS

Maximum altitude for approved MGW configuration of
2 722 kg (6 000 lb) or less is 2 743.2 m (9 000 ft) density altitude.

Maximum altitude for approved MGW configuration of
2 880 kg (6 350 lb) is 3 048 m (10 000 ft) pressure altitude.

OAT LIMITS
(See NOTES 6 & 7)

-20°C (-4°F) to 42.2°C (108°F) or
-20°C (-4°F) to 51.7°C (125°F)

CERTIFICATION BASIS
(See NOTE 9)

Normal Category

1. For approved MGW configuration of 2 722 kg (6 000 lb)

a) Airworthiness Manual (AWM) Chapter 527 including change 527-3 effective 3 January 1994, plus the following FAR amendments as adopted by reference:

14 CFR Part 27, amendment 27-29, effective 25 March 1995;
14 CFR Part 27, amendment 27-30, effective 5 June 1995;
14 CFR Part 27, amendment 27-32, effective 11 June 1995;
14 CFR Part 27, amendment 27-37, effective 18 October 1999;
Sections 27.1 and 27.2; plus

In conjunction with the adoption of 14 CFR Amendment 27-30, the additional airworthiness requirements of AWM Chapter 527, paragraph 527.975(b) Fuel Tank Vents, effective 5 June 1995.

The above is equivalent to 14 CFR Part 27 including amendment 27-32 effective 11 June 1996 plus the following AWM Manual Chapter 527 paragraphs at change 527-3 effective 3 Jan. 1994:

527.1093(b)(1)(ii) & (iii)	Induction System Icing Protection
527.1301-1	Rotorcraft Operations After Ground Cold Soak
527.1557(c)(3)	Miscellaneous Markings and Placards
527.1581(e)&(f)	Rotorcraft Flight Manual
527.1583(h)	Operating Limitations -Ambient Temperatures

Plus the additional airworthiness requirements of AWM Chapter 527, paragraph 527.975(b) Fuel Tank Vents, effective 5 June 1995.

b) The following paragraphs of AWM Chapter 529 change 529-4 effective 1 June 2002 are used for showing compliance with the engine isolation. (The FAA 14 CFR equivalent of which is defined in FAA AC 27-1A Section 780):

529.861(a)	529.901(c)	529.903(b),(c) & (e)
529.908(a)	529.917(b)&(c)(1)	529.927(c)(1)
529.953(a)	529.1027(a)	529.1045
529.1047(a)	529.1181(a)	529.1189(c)
529.1191(a)(1)	529.1193(e)	529.1195(a)&(d)
529.1197	529.1199	529.1201
529.1305(a)(6)&(b)	529.1309(b)(2)(i)&(d)	529.1331(b)

c) AWM Chapter 516 Change 516-05 effective 8 February 1998, plus Amendment 6 to ICAO Annex 16, Volume I, 3rd Edition. Compliance with 14 CFR Part 36 including amendment 36-22 has also been found.

CERTIFICATION BASIS (Cont.)

d) Special Conditions:

a) SCA 97-01 - HIRF
b) SCA 97-11 - Lightning Protection Indirect Effects
c) SCA 99-02 - 30 Second OEI Limits - Limit Over-ride Feature.

e) Findings of Equivalent Safety exist with respect to the following regulations:

AWM Chapter 527, sections CAM 527.307(b)(5), 527.723, 527.725, 527.727 - Landing Gear Limit Drop Test;
AWM Chapter 529 section 529.1181(a)(6) - Designated Fire Zones: Regions included.
AWM Chapter 527, section 527.175(c) - Static Longitudinal Stability in Autorotation.

2. For approved MGW configuration of 2880 kg (6350 lb):
The basis of certification is the same as in 1. above in addition to the following sections of 14 CFR Part 27:

Section 27.561 at amendment 27-32
Sections 27.1 and 27.2 at amendment 27-37

3. When fitted with kit 427-706-025 (Category A), the certification basis is as above plus AWM 527 Change 4 Appendix C Criteria for Category A in its entirety. This is equivalent to 14 CFR Part 27 Appendix C at Amendment 27-33.

CONFIGURATION

The Model 427 is defined by Bell Helicopter Textron top drawing number:

427-100-001 Revision JJ, or later approved revision, for serial numbers 56001 and subsequent, and 427-100-002 Revision DY, or later approved revision, for serial numbers 58001 and subsequent.

REQUIRED EQUIPMENT

The basic required equipment as prescribed in the applicable airworthiness standards (See Basis of Certification) must be installed in the helicopter.

In addition, the following items of equipment are required:

1. For approved MGW configuration of 2 722 kg (6 000 lb)
Transport Canada approved Rotorcraft Flight Manual
BHT-427-FM-1 dated 19 November 1999 or later approved revision.

2. For approved MGW configuration of 2 880 kg (6 350 lb)
Transport Canada approved Rotorcraft Flight Manual
BHT-427-FM-2 dated 27 April 2000, or later approved revision.

SERIAL NUMBERS ELIGIBLE (See NOTES 1 & 7)

56001 and subsequent and 58001 and subsequent

APPROVED PUBLICATIONS (See NOTE 5,6, 7 & 8)

1. For approved MGW configuration of 2 772 kg (6 000 lb)
S/N 56001 to 56024:

Transport Canada approved Bell Rotorcraft Flight Manual,
BHT-427-FM-1, dated 19 November 1999 or later approved revision.

APPROVED PUBLICATIONS (Cont.)

2. For approved MGW configuration of 2880 kg (6350 lb) S/N 56025 and subsequent, and 58001 and subsequent:

   Transport Canada approved Bell Rotorcraft Flight Manual, BHT-427-FM-2, dated 27 April 2000, or later approved revision.

3. Maintenance Manual BHT-427-MM-01, Chapter 4, dated 19 November 1999 or later approved revision.

LIFE LIMITED PARTS

Refer to approved Maintenance Manual Chapter 4.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Model 427 Maintenance Manual as listed in Approved Publications.

NOTES:

NOTE 1

1. Model 427 helicopters S/N 56001 to 56024, initially certified at MGW of 2 722 kg (6 000 lb). These aircraft were converted and may be operated at MGW of 2880 kg (6 350 lb) as Bell Helicopter kits 427-704-002 (IGW to 6 350 lb) and 427-706-018 "Airframe Fuel Shut-off Valve" (which includes kit 427-704-003 Flammable Fluids bay modifications as a prerequisite) are incorporated. Helicopters, once modified must be operated in accordance with flight manual BHT-427-FM-2.

2. Model 427 helicopters S/N 56025 and subsequent are approved at MGW of 2 880 kg (6 350 lb) having the intent of the kits listed in paragraph 1 above incorporated during production.

NOTE 2

Markings and Placards: The following placard must be displayed in front of and in clear view of the pilot:

"THIS HELICOPTER MUST BE OPERATED IN ACCORDANCE WITH THE OPERATING LIMITATIONS SPECIFIED IN THE CTA APPROVED ROTORCRAFT FLT MAN. THE AIRWORTHINESS LIMITATIONS SECTION OF THE ROTORCRAFT MAINTENANCE MANUAL MUST BE COMPLIED WITH."

All placards required in the approved flight manual must be installed in the appropriate locations. In addition, all markings and placards for passenger information under normal or emergency conditions must be in Portuguese (or English and Portuguese). External markings for emergency operation of doors, normal ground operation of cargo doors and servicing operations must be in Portuguese (or English and Portuguese). Marking and placards indicating maximum loads in cargo and baggage compartments must be also presented in Portuguese (or English and Portuguese). A list of these placards for the rotorcraft and the respective translations acceptable to CTA is provided in the Annex II to the report H.10-1810-10, dated July 2001 or later ANAC approved revision.

NOTE 3

Continuing Airworthiness: The retirement times of certain parts and inspection requirements are listed in the Maintenance Manual BHT-427-MM-01, Chapter 4 - Airworthiness Limitations Schedule. These values of retirement or service life and inspections cannot be increased without TCCA and ANAC approval. In addition, information essential for proper maintenance of the helicopter is contained in the Maintenance Manual BHT-427-MM-01.

NOTE 4 The differences of the Brazilian helicopters relating to the basic TCCA type design are documents summarized in the following documents:
1. The Brazilian Helicopters Flight Manual approved by TCCA on behalf of ANAC; and
2. Marking and Placards in Portuguese language or bilingual (See Note 2).

NOTE 5 Model 427 helicopters with kit 427-706-021 (IGW to 6550 lbs) installed may be operated at a MGW of 2971 kg (6550 lbs).These helicopters must be operated in accordance with Flight Manual Supplement BHT-427-FMS-7. Maintenance instructions and life limited parts are listed in Maintenance Manual BHT-427-MMS-7.

NOTE 6 Model 427 helicopters with kit 427-704-006 (IIDS Cooling Fans) and kit 427-704-010 (Oil Blower System Plenum Removal) and IIDS Data Acquisition Unit part no. 427-375-001-105 or higher may be operated at the higher OAT limit of 51.7C (125F) in accordance with Flight Manual Supplement BHT 427-FMS-22 including Temporary Revision TR-1. Helicopters of Serial number 56036 and subsequent and 58003 and subsequent have the intent of these kits incorporated during production.

NOTE 7 Model 427 helicopters with kit 427-706-021 (IGW to 2971 kg. (6 550 lb)) and kit 427-704-006 (IIDS Cooling Fans) and kit 427-704-010 (Oil Blower System Plenum Removal) and IIDS Data Acquisition Unit part no. 427-375-001-105 or higher may be operated at the higher OAT limit of 51.7C (125F) and at a MGW of 2971 kg (6 550 lb.) in accordance with Flight Manual Supplement BHT-427-FMS-23.

Helicopters of serial number 56043 and subsequent and 58003 and subsequent have the intent of the cooling modifications installed and helicopters of serial number 56043 and subsequent and 58003 have the intent of the increase gross weight modifications installed during production and must be operated in accordance with Flight Manual Supplement BHT-427-FMS-23.

NOTE 8 This type certificate is for Day/Night VFR Normal Category Rotorcraft with engine isolation. Model 427 helicopters with kit 427-706-025 installed and operated in accordance with BHT-427-FMS-5 are approved for Category A.

NOTE 9 Certification Noise Levels are detailed in the approved Rotorcraft Flight Manual.

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