EUROPEAN AVIATION SAFETY AGENCY

EXPERT DEPARTMENT / CERTIFICATION DIRECTORATE

Operational Evaluation Board Report

Original Report

Dated : 05 07 2012

Manufacturer: Bell Helicopter

Bell 429

European Aviation Safety Agency
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Bell 429

Revision Record

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Contents

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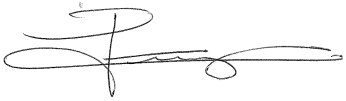

Bell Helicopter Experts involved in the process

Name	Position	Office/Branch	Remarks
Barbara Lewis	Manager of Flight Training	Bell Helicopter Customer Training Academy	
Chad Oakley	Chief of Flight Training	Bell Helicopter Customer Training Academy	
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Executive Summary

1. Manufacturer Application

Bell Helicopter Manufacturer has made a formal application to EASA, Certification Directorate for an OEB for the evaluation of the Bell 429 helicopter to cover:

- Initial Pilot Type Rating Training syllabus,
- Compliance Check List to JAR-OPS 3 -Subparts K & L,
- Master Minimum Equipment List,
- SET for a FTD Level 2 qualification.

2. OEB recommendations

The OEB recommends the following for approval by NAAs regarding the Bell 429:

- Initial Pilot Type Rating Training syllabus
- Type Rating List / Licence Endorsement
- The standard offered which is in compliance with JAR-OPS 3 Subparts K & L (Appendix 4)

3. Procedures, requirements and associated AMC references

EASA representatives have conducted this OEB in accordance with JAR-OPS 3, Part-FCL and JAR-FSTD 1H requirements. This evaluation was based on the JOEB Handbook and Common procedures Document (CPD) and the processes detailed in the JAA Administrative and Guidance Material, Section One, Part Two, Chapter 5 and Part-FCL including associated appendices, AMC and GM.

Note on references and reference texts:
Where references are made to requirements and where extracts of reference texts are provided, these are at the amendment state at the date of publication of the report. Readers should take note that it is impractical to update these references to take account of subsequent amendments to the source documents.

François FABRE
EASA – Deputy Head of Expert Department
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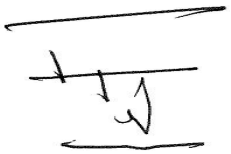


Acronyms

AMC	Acceptable Means of Compliance
AEO	All Engine Operative
AOC	Air Operator Certificate
ASU	Ancillary System Unit
ATPL (H)	Airline Transport Pilot Licence (Helicopter)
ATO	Approved Training Organisation
ATR	Additional Type Rating
BHTCL	Bell Helicopter Textron Canada Limited
BHTA	Bell Helicopter Training Academy
CPL	Commercial Pilot Licence
CWP	Caution and Warning Panel
DC	Direct Current (electrical)
DECU	Digital Engine Control Unit
DU	Display Unit
EASA	European Aviation Safety Agency
ECU	Engine Control Unit
EMB	Electrical Master Box
FADEC	Full Authority digital Engine Control
FTD	Flight Training Device
FSTD	Flight Simulation Training Device
FTO	Flight Training Organisation
IEM	Interpretative and Explanatory Material
IFR	Instrument Flight Rules
IR	Instrument Rating
ITR	Initial Type Rating
JAA	Joint Aviation Authorities
Part-FCL	EASA Regulation Aircrew
JAR-OPS 3	Joint Aviation Requirements Operations 3 (Commercial Transport Helicopters)
JOEB	Joint Operational Evaluation Board
MDR	Master Difference Requirements
MEL	Minimum Equipment List
MGB	Main Gear Box
MMEL	Master Minimum Equipment List
MPH	Multi Pilot Helicopter
NAA	National Aviation Authority
N/A	Not Applicable
ODR	Operator Differences Requirements
OEI	One Engine Inoperative
OEB	Operational Evaluation Board
PPL (H)	Private Pilot Licence (Helicopter)
RFM	Rotorcraft Flight Manual
SCU	System Control Unit
SEP (H)	Single Engine Piston (Helicopter)
SET (H)	Single Engine Turbine (Helicopter)
SET	Simulator Evaluation Team
SPH	Single Pilot Helicopter
TGB	Tail Gear Box
TRI	Type Rating Instructor
TRE	Type Rating Examiner
T/R	Tail Rotor
TRTC	Type Rating Training Course
TRTO	Type Rating Training Organisation
VFR	Visual Flight Rules

I. Purpose and applicability

Bell Helicopter is submitting data in support of the Bell 429 OEB process.

This report is the result of an EASA Operational evaluation, which has been based on the **Pilot Initial Type Rating Training syllabus for** the Bell 429 provided by the Bell Helicopter Training Academy (See Appendix 3).

This document:

- Provides a general description of the Bell 429
- Updates the Type Rating List by including the Bell 429
- Makes recommendations for minimum training syllabus to:
  - initial type rating (ITR)
  - Instrument Rating Extension
  - Training Areas of Specific Emphasis (TASE)

In addition the evaluation of the Bell 429 helicopter has also shown that the standard equipment offered is in compliance with JAR-OPS 3 Subparts K & L .

Master Minimum Equipment List (MMEL)

As part of the OEB process a review of the MMEL was conducted in parallel with the OPS/FCL evaluation. The MMEL is a stand alone document and as such not attached to this report. Please refer to the EASA Certification Directorate website for details regarding the latest status of the MMEL document.

Simulator Evaluation Team (SET)

As part of the OEB process, a Simulator Evaluation Team (SET) has made a formal evaluation of the Bell 429 Flight Training Device. The report is available on EASA website at the date when this report is published.

Note:
The Bell 429 helicopter Type Certificate Data Sheet has been delivered by EASA under TCDS- NO. EASA.IM.R.506 Issue 1- (See Appendix 1), and the Type Certificate Data Sheet has been delivered by Transport Canada under TCDS- H-107

The Airworthiness Requirements are based on: CS27, Change 1 dated 30 November 2007, including Appendix B for IFR and Appendix C for Category A CS27 Appendix C – Criteria for Category A – specifies certain sections of CS29 – Transport Category Rotorcraft.

2. General Description of Bell 429

General

The Bell 429 is a twin engine, rotorcraft, designed to takeoff and land on any reasonably level terrain with a maximum internal gross weight of 3175 Kg (7000 lbs). It is capable of carrying up to 7 passengers plus a pilot. The basic configuration will be Category A certified and capable of Single Pilot IFR operation.

Airframe

The Bell 429 airframe is made up of composite and aluminum structure. It provides crashworthy seats for the crew of two and the six passengers. There is one large entry/exit door on either side of the rotorcraft for passenger access and one forward crew door on each side of the rotorcraft. These also act as emergency exit locations. A large windscreen and skylight, and a chin-bubble provide crew visibility for the pilot and copilot.

The airframe consists of three main sections: the Forward Section which extends from the cabin nose to the bulkhead aft of the passenger compartment, the Intermediate Section which extends from the bulkhead aft of the passenger compartment to the tailboom, and the Tailboom Section.

Cowlings and fairings enclose the various roof and tail boom mounted assemblies. Access doors and inspection windows are provided for preflight and inspections. Cowlings are manufactured from composite or aluminum materials and are easily removed for maintenance access.

The fuselage provides the majority of the accommodations for the electronic equipment associated with the rotorcraft systems..

Seating / Standard configuration

The standard interior comes with two crew, and six passenger seats. The passenger seats come in widths of 15.5 or 18.5 inches. Both of these seat widths can be arranged into the airline configuration; two rows of three facing forward, or club configuration; two rows of three facing each other. This interior includes cover panels made of durable plastic for aesthetics and ease of cleaning.

Landing Gear

The landing gear is a skid-type assembly consisting of two main longitudinal tubes connected by two arched crosstubes. Each longitudinal (skid) tube is fitted with replaceable wear shoes along the bottom of the skid tubes and connection bolts for the ground handling wheels.

The skid landing gear assembly is fabricated of formed aluminum alloy tubing. The left and right skid tube assemblies are attached to the ends of two arched crosstube assemblies by saddles. The two crosstube assemblies are attached to the fuselage with two forward clamp assemblies and one aft clamp assembly. Each skid tube is fitted with a saddle fitting to secure both the forward and aft crosstube assemblies, four skid tube shoe assemblies, two ground handling wheel support bolts assemblies, one forward cap, and one end plug.

Main Rotor

The main rotor system is the primary lift, thrust, and control mechanism for the helicopter. The system is a composite flexbeam configuration consisting of two fiberglass/epoxy yokes assembled in a stacked arrangement. The yoke is installed on the mast with a 5° forward tilt. The main rotor system consists of a rotor hub assembly, four high performance composite blades, a drive hub assembly, a swashplate and support assembly, and four pitch link assemblies. The rotor system rotates at 395 RPM at 100% NR.
Each main rotor blade is connected to a main rotor blade grip assembly by two blade bolts. An expandable blade bolt is installed in the inboard position of the grip assembly and a fixed diameter blade bolt is used in the outboard position for blade folding purposes. The main rotor blades are a hybrid carbon/fiberglass/epoxy structure. They are designed with cambered airfoils and feature a hyperbolic swept blade tip for increased performance and reduced noise.

Tail Rotor

The tail rotor drive system consists of two drive shafts. The first shaft has a crown-tooth coupling at the transmission end, and the remaining shaft is connected at each end by flexible (Thomas type) couplings. The system is supported by 2 hanger bearings and 2 shaft guides.

Drive System

The drivetrain system provides a means of transmitting power from the engine to the main and tail rotor assemblies. The drive system consists of:

- Main Driveshaft
- Main Transmission
- Tail Rotor Drive System

Main driveshaft
Power is transmitted from each engine to the transmission through a KAFLEX input driveshaft, which contains flexible plate couplings to accommodate pylon motions. Rotational Speed (100%) RPM

Transmission
The transmission assembly transmits the 550 SHp (410 kW) output power at 6000 RPM from each engine to the integral mast assembly at 395 RPM, and to the tail rotor driveshaft at 6000 RPM. The transmission assembly also provides powers to the hydraulic system.

Tail Rotor Drive System
The tail rotor drive system consists of two drive shafts. The first shaft has a crown-tooth coupling at the transmission end, and the remaining shaft is connected at each end by flexible (Thomas type) couplings. The system is supported by 2 hanger bearings and 2 shaft guides.

Flight controls

Main rotor and tail rotor flight control systems, consisting of cyclic, collective and anti-torque controls are used to regulate the helicopter attitude, altitude and direction of flight. The flight controls are hydraulically boosted to reduce pilot effort and to counteract control feedback forces.

Collective Controls:
The collective control system components are responsible for the vertical movement of the swashplate, which transmits collective control to the main rotor to allow the helicopter to ascend, descend or remain at constant altitude. An adjustable friction clamp mounted on the collective

jackshaft allows the pilot to adjust the friction to suit personal preference. A minimum friction adjustment, located on the left side of the jackshaft ensures the collective stick always has a preset minimum friction. Two collective transducers are attached to the collective jackshaft below the co-pilot seat. The EEC (Engine Electronic Control) receives collective position and rate of change information from these transducers in order to compute fuel scheduling.

Cyclic Controls:
The cyclic control system components are responsible for the angular positioning of the main rotor disc that allow the helicopter to move forward, aft or sideways in association with the cyclic control stick assemblies movement. Lateral and longitudinal pitch control to the main rotor is regulated by the cyclic control sticks through two manually-actuated hydraulic servo assemblies. The control linkages are routed from under the pilot's and co-pilot's seat, through the right-hand door side-post to the helicopter roof and then to the main rotor. An adjustable friction device is incorporated into the pilot's cyclic stick assembly. A stick centering sensor is attached to the cyclic stick bellcrank. When the aircraft is on the ground, this sensor causes the CYCLIC CTR annunciation to display on the DU when the stick is not centered.

Directional Controls:
The directional control system is composed of many components that transmit the movement of the pilot and co-pilot pedals to the tail rotor blades. The operation of the pilot and copilot pedals causes a power-assisted pitch change of the tail rotor blades to offset main rotor torque and control the directional heading of the helicopter. Directional Servo Control Actuator

Hydraulic system

The Bell 429 Hydraulics System consists of two separate systems rated at 1500 psi, (Hydraulic 1 and Hydraulic 2). The Hydraulics Systems provide dual, parallel power to the 3 Main Rotor Actuators (MRA), for cyclic and collective control, and the Tail Rotor Actuator (TRA) for directional control.
Each system is powered by a single transmission driven pump, which supplies pressurized fluid to the Integrated Hydraulic Module (IHM) for filtration and distribution to the flight control actuators.

Engines

The Bell 429 helicopter is powered by two Pratt & Whitney PW207D turbo-shaft engines. This engine is a lightweight, free turbine, turbo-shaft powerplant that incorporates a single stage centrifugal compressor driven by a single stage compressor turbine and a single stage power turbine. The power turbine also drives a reduction gearbox. Metered fuel from the Fuel Management Module (FMM) is sprayed into a reverse flow annular combustion chamber through twelve (12) individual fuel nozzles installed around the exterior of the gas generator case. A high voltage ignition unit, with dual spark igniters, is used to start combustion. To ensure accurate engine output speed control and fast response to power demand inputs, an electrical torque motor in the FMM works in conjunction with the Electronic Engine Control (EEC). Inlet air enters the engine through a radial inlet plenum chamber on the compressor inlet case. The inlet air is directed rearward to a centrifugal impeller. The high-pressure air from the impeller passes through diffuser tubes which turn the air through 90 degrees, and converts velocity to static pressure. This high pressure air surrounds the combustion chamber liner.

Fuel system

The fuel tanks consist of three bladder type cells installed in compartments under the cabin floor. These cells are contained and supported by the surrounding structures.

The combined usable capacity is approximately 215 US gallons: 71.9 US gallons in forward tank, 26.5 US gallons in forward feed tank, 60.6 US gallons in aft feed tank and 56.0 US gallons in aft tank. An auxiliary tank kit of 40 US gallons capacity can be installed above the aft fuel tank inside the baggage area.

The forward feed tank is connected to the forward tank and the aft feed tank to the aft tank. Both feed tanks are separated by a cell divider (baffle) to ensure engine isolation. An interconnect valve is provided to connect both feed tanks when required e.g. for refuelling or OEI operation.

The fuel cells are constructed of a highly puncture resistant material. The fuel cell wall consists of an external fabric and inner liner. The helicopters are designed to operate on standard aviation jet fuels.

Electrical system

General:
The 28 volt DC power system consists of a 24 volt, 27 amp/hr battery and two starter-generators. During flight, the primary source of electrical power is provided by two 30-volt, 150-amp, starter/generators, one mounted on each engine. A generator control unit controls the output voltage of each generator and supplies over voltage, low voltage, reverse current, and ground fault protection.

A Ground Power Unit (GPU) can be connected to the helicopter via the external power receptacle.

Battery System :
The battery supplies electrical power to start the engines and provides backup power when the generators are not in operation. The battery also supplements the operating generator when used during a cross-start, a term that refers to starting an engine using power from the operating generator and the battery. GEN 2 is primarily responsible for charging the battery. If GEN 2 is not in operation, GEN 1 is capable of charging the battery but only if the Bus Interconnect switch is momentarily placed in the OVRD ON position.

With the battery switch in the ON position, the battery supplies power to both emergency buses only. Battery power may be applied to both essential buses by momentarily placing the bus interconnect switch in the OVRD ON position.

During flight, ram air is collected and distributed to the battery case by way of an air inlet tube. Air is circulated through the battery case to provide for cooling and ventilation. The air is then evacuated overboard through a vent tube below the battery compartment.

Instrument panel and console

Integrated Avionics System :
The Bell BasiX-Pro® Avionics System has been specifically designed to meet the requirements of twin engine helicopters. The system takes advantage of the latest in display, computer processing, and digital data bus technology to provide a high degree of redundancy, reliability, and flexibility.

The primary components of the Bell BasiX-Pro® Avionics System in the Bell-429 include the following:

Two Multi-Function Display Units (DUs) with 6 x 8 inch high resolution displays.
One Dual Channel Aircraft Data Interface Unit (ADIU)
One Dual Digital Automatic Flight Control System (AFCS)
One Dual Channel Air Data Attitude Heading Reference System (ADAHRS)
Course/Heading/Flight Director Panel (CHFD).

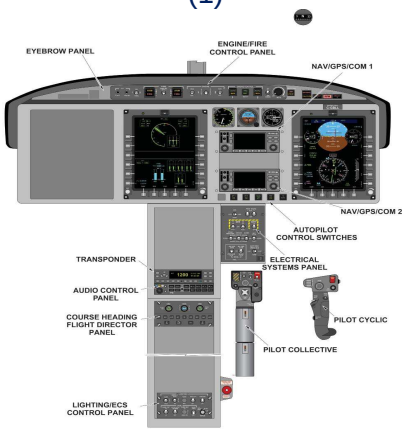
The standard configuration provides single-pilot IFR capability with 3-axis stability and control augmentation (SCAS) and a coupled flight director capability. All Engine Indication and Crew Alerting System (EICAS) display functions are provided through the Bell BasiX-Pro® Avionics System. The system works in conjunction with the electronic engine control units (EECs) for the dual Pratt & Whitney electronically controlled PW-207D1 engines. Other aircraft systems interfaces, warnings, cautions, aural alerts, and automated performance features are provided through the remotely located Aircraft Data Interface Unit (ADIU).

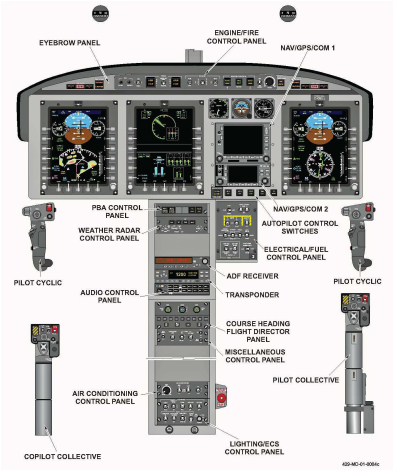
Bell BasiX-Pro® system options for the Bell 429 include a third Display Unit for the co-pilot position, and the addition of a 4th-axis actuator kit providing coupled collective operation.

For the Bell 429, the standard configuration for Communications Navigation and Surveillance (CNS) consists of dual Garmin GNS-430W NAV/COM/WAAS GPS systems with a kit option to replace one of these with a GNS-530W. The standard system also includes a GTX-330 Mode S transponder and a Audio/Intercom Panel with VOX and Integrated Mark Beacon.

Standard Configuration /Single Pilot IFR (1) and Multi Pilot IFR (2)

(1)





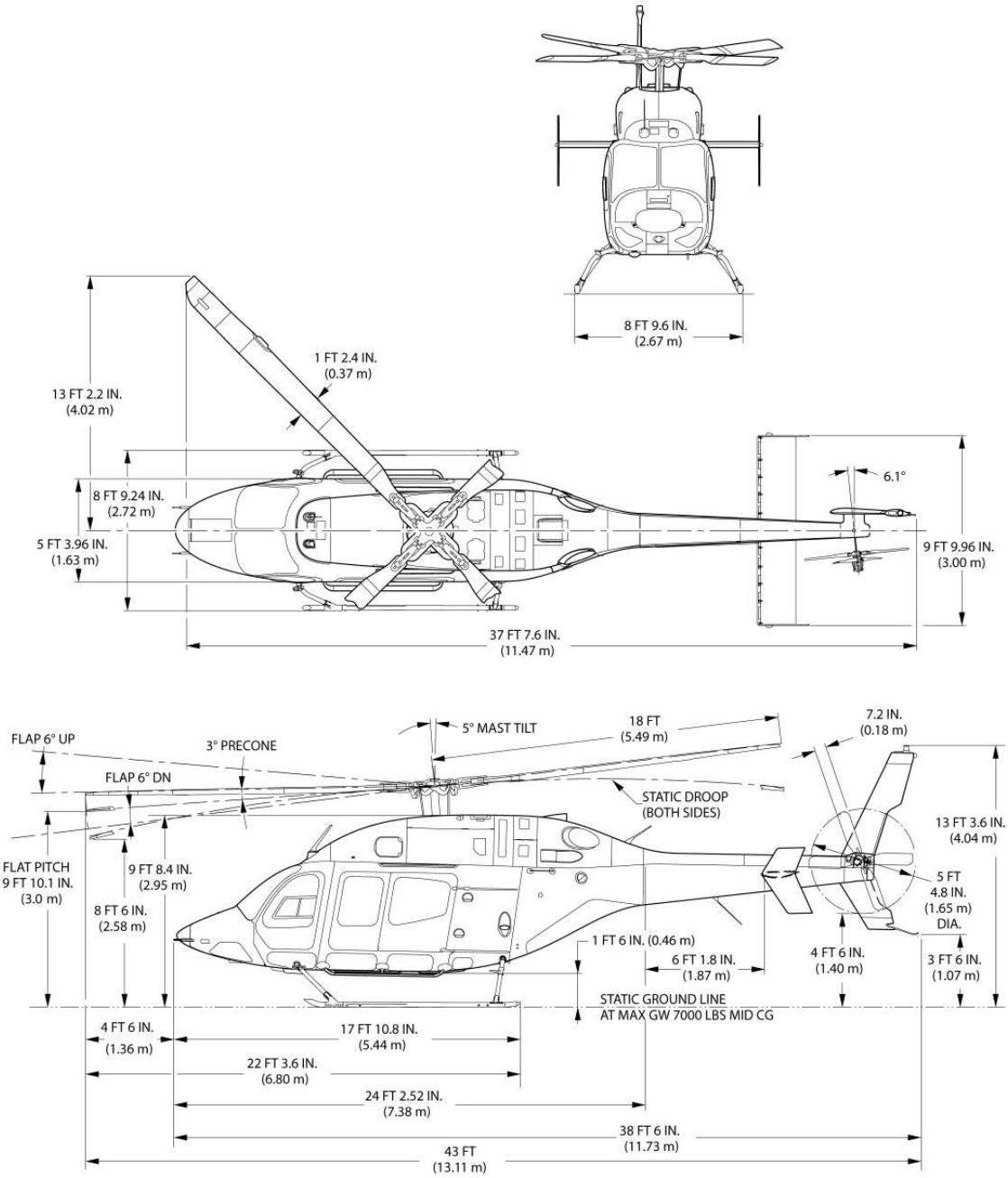
(2)

3. Helicopter main characteristics

3.1 Sum up of main characteristics of the Bell 429

Bell 429			
Dimensions	Fuselage	Length	11.68m
		Width	1.63m
		Height	3.23m
	Main Rotor	Diameter	10.97m
	Tail Rotor		1.65m
Number of Main Rotor Blades			4
Number of Tail Rotor Blades			4
Engines			2 Pratt & Whitney Canada PW207D1 or D2
Engines Control System			FADEC
Fuel Cells	Number of Cells (In Standard)		3
	Usable Capacity		215 U.S. gallons
Air Speed	Power ON	Absolute V_{NE}	155 kt
	Power OFF		100 kt
Rotor Speed	Power ON		99 - 100% and Max CAT/ 104%
	Power OFF		85 – 107 %
Max Operating Pressure Altitude			20,000 ft
MTOW with Internal Load			7000 lbs (3175 kg)
MTOW with External Load			-

3.2 Exterior Dimensions of the Bell 429



4. Operator Difference Requirement (ODR) Tables

Not Applicable: Bell 429 is a new type of helicopter.

5. Optional specific equipment:

No optional specific equipment is provided requiring specific training.

6. Master Differences Requirements (MDR) Tables

Not Applicable: Bell 429 is a new type of helicopter.

7. Type Rating List

The proposal of this OEB is to up dated the Type Rating List (Helicopters) as follows:
Table 9 / Type Rating List (Helicopters)

1 Manufacturer	2 Helicopter	3	4 Licence endorsement
Bell Helicopter			
- SE Turbine -	Bell 206 L Bell 206 L- 1 Bell 206 L- 3 Bell 206 L- 4		Bell 206
	Bell 407	(D)	Bell 407
	Bell 407GX		
- ME Turbine -	Bell 412 EP		Bell 212/412
	Bell 429		Bell 429

This table 9 matrix contains only Helicopters that have been evaluated through a JOEB, an OEB or a Catch-Up process. Associated reports are published on the EASA –Expert Department / Certification Directorate Website and Pilot Training courses are available from the Manufacturers

8. Specification for Training

8.1 Training Courses

The assessment is based on the Pilot Type Rating Training syllabus proposed by the Bell Helicopter Training Academy. Following the EASA Evaluation Bell Helicopter has reviewed the minimum syllabus to be in line with European Regulation (“Part-FCL”). The OEB recommends approval of the Bell 429 Pilot Type Rating training syllabus.
This syllabus is divided into the following phases for approval in Approved Training Organisations(ATO).

- Theoretical knowledge instruction syllabus and test summary
- Flight Training Device courses
- Helicopter flight training courses
- Skill test

The Type Rating Training course proposed fulfils the minimum requirements of Part- FCL/ Subpart H/ Section 1 & 3. (See Appendix 3).

8.2 Course pre-entry requirements

For the issue of a first type rating for a single-pilot multi-engine helicopter, all students must fulfil the pre-entry requirements of the Part –FCL.720.H(c):

- before starting flight training:
- have passed the ATPL(H) theoretical knowledge examinations; or
- hold a certificate of completion of a pre-entry course conducted by an ATO.The course shall cover the following subjects of the ATPL(H) theoretical knowledge course:
Aircraft General Knowledge: airframe/systems/power plant, and instrument/electronics,
Flight Performance and Planning: mass and balance, performance;

- in the case of applicants who have not completed an ATP(H)/IR, ATP(H), or CPL(H)/IR integrated training course, have completed at least 70 hours as PIC on helicopters.

8.3 Licensing requirements

AMC2 FCL.725 (a) of Part –FCL requires for an Initial issue of a SPH, MET (H) CS and FAR 27 and 29, an approved flight instruction of at least **8** flight hours in the helicopter or when using FTD 2/3, at least 4 hours in helicopter and at least 10 hours in total excluding skill test. (See Appendix 2).

Note:
These requirements have to be considered as the bare minimum, additional training could be necessary depending on:
- *complexity of the aircraft type, handling caracteristics, level of technology*
- *previous experience of the applicant*
- *the availability of FSTDs*

8.4 Initial Type rating training minimum syllabus summary

ITR : Initial or first type rating for a single-pilot multi-engine helicopter VFR and VFR + IR extension

Bell 429	**Initial Type Rating (ITR) VFR**	**Initial Type Rating (ITR /IR) VFR + IR extension**
Theoretical course (Including Theoretical exam)	**23h00**	**25h00**
Flight Training Device (FTD)	3h00	5h00
Helicopter	7h00	7h00
Total FTD and Helicopter	**10h00**	**12h00**
+ Skill test	Required	

Additional FTD sessions could be necessary at the discretion of the instructor if the trainee has not successfully demonstrated the ability to perform all maneuvers with a high degree of proficiency.

8.5 Theoretical knowledge syllabus and test summary

Theoretical instruction should be provided in accordance with AMC1 FCL.725 (a) Paragraph II of Part-FCL. The following sections present a summary of the material for an Initial Type Rating training program should consider. Whilst based on the Bell Helicopter Training Academy syllabus. Training providers should ensure their type specific courses cover the pertinent material.

Type Rating theoretical knowledge syllabus	Bell 429
Helicopter structure, transmissions, rotors and equipment, normal and abnormal and emergency operation of the systems (*): • Enrolment, General Description • Airframe • Crew Compartment • Integrated Avionics System • Electrical System • Fuel System • Power plant • Drivetrain & Rotors • Flight Controls & Hydraulics • Automatic Flight Control System • Garmin usage	17h00
• Weight and Balance • Performance, flight planning and monitoring • Limitations • Pre-flight	4h00
IR Theoretical Syllabus extension • IR procedures for instrument rated pilots • AFCS and 429 Instrument usage • Instrument Garmin usage for instrument rated pilots	2h00
Final Theoretical Exam	2h00
Total Theoretical Knowledge Syllabus : VFR	**23h00**
Total Theoretical Knowledge Syllabus : VFR+ IR extension	**25h00**
Optional equipment	In addition

(*) General Theoretical instruction elements are covered during the ground training course, in addition before or after each flight, ground training briefing of 0.5 to 1 hour will enhance the knowledge of the trainee.

On completion of the theoretical phase, the trainee is assessed via a multiple-choice questionnaire (*a minimum of 50 questions is recommended*) covering the entire program. To obtain the type rating, the threshold for passing is 75% of correct answers in the written examination on a range of multiple-choice or computerized questions.

8.5 Flight training course and skill test

8.5.1 Initial VFR Type Rating (ITR)

Bell 429			
	Initial VFR Type Rating (ITR)	**FTD**	**Helicopter**
FTD-1	Checklist, systems, and normal procedures.	1h00	-
FTD-2	Systems use, normal and emergency procedures.	1h00	-
FTD-3	Systems use, normal and emergency procedures.	1h00	-
HEL -1	Familiarization: Pre-flight, cockpit, engine start, Shut down, General Handling, Hovering Maneuvers,Basic air work, Power Assurance Check,	-	1h00
HEL-2	Review Normal Flight Maneuvers (HEL-1) . Systems Integration and Display, Navigation, FMS, System Malfunction, Emergency procedures. Hydraulic failure, Manual Control of engine power, Straight in Autorotation	-	1h00
HEL-3	Review (HEL-1) Garmin usage-Emergency procedures. AFCS malfuction	-	1h00
HEL-4	CAT B. Abnormal and Emergency Procedures. Engine failures. Simulated Engine failure, Hydraulic failure, Manual Control of engine power	-	1h00
HEL-5	CAT A take-off and landing AEO and OEI training procedures.	-	1h30
HEL-6	Review and practice procedures and maneuvers from all Flight Previous periods.	-	1h30
Total VFR Flight Training		**3h00**	**7h00**
Skill Test (In accordance with Part-FCL - Appendix 9).		-	Required

Notes:

During the flight "1", the Type Rating Instructor will evaluate the trainee level.

The flight training course corresponds to the basic aircraft certification and satisfies the conditions of Part-FCL, taking into account the type of license held and the experience of the candidate.

Each flight session could be extended or reduced by 15 minutes at the discretion of the instructor.

Additional flight could be necessary at the discretion of the instructor if the trainee has not successfully demonstrated the ability to perform all maneuvers with a high degree of proficiency.

Depending on the configuration of the aircraft used and on customer's request, additional flights may also be performed to enhance basic initial type rating training (minimum syllabus).

8.5.2 Initial VFR+ IR extension Type Rating (ITR / IR)

Bell 429			
	Initial VFR + IR extension Type Rating (ITR)	**FTD**	**Helicopter**
FTD-1	Checklist, systems, and normal procedures.	1h00	-
FTD-2	Systems use, normal and emergency procedures.	1h00	-
FTD-3	Systems use, normal and emergency procedures.	1h00	-
FTD-4	Systems use, normal and emergency procedures.	1h00	-
FTD-5	Systems use, normal and emergency procedures.	1h00	-
HEL -1	Familiarization: Pre-flight, cockpit, engine start, Shut down, General Handling, Hovering Maneuvers,Basic air work, Power Assurance Check,	-	1h00
HEL-2	Review Normal Flight Maneuvers (HEL-1) Systems Integration and Display, Navigation, FMS, System Malfunction, Emergency procedures. Hydraulic failure, Manual Control of engine power, Straight in Autorotation	-	1h00
HEL-3	CAT B. Abnormal and Emergency Procedures. Engine failures. Simulated Engine failure, Hydraulic failure, Manual Control of engine power	-	1h00
HEL-4	CAT A take-off and landing AEO and OEI training procedures.	-	1h00
HEL-5	Introduction of Instrument Flight and Approach Procedures	-	1h30
HEL-6	Review and practice instrument Approach Procedures and introduce AFCS malfuctions	-	1h30
Total VFR Flight Training		**5h00**	**7h00**
Skill Test (In accordance with Part-FCL - Appendix 9).		-	Required

8.6 Training Areas of Specific Emphasis (TASE)

The OEB recommends the Training Organisations to put particular emphasis for training:

in FTD

- Electrical Fire
- ECU manual mode (OEI Torque limitations in AEO flight).

in the helicopter

- OEI Training mode

The bell 429 is equipped with a training system, which enables OEI procedures to be practiced using non-damaging power levels, with aircraft weights reduced accordingly.

Familiarization in using the OEI training mode is necessary before training flights.

Refer to FM section 2-9-A OEI TRAINING MODE.

Beware of the following:
CAUTION: EXITING OEI TRAINING MODE BY NR/NP DROOP BELOW 90% REQUIRES MONITORING OF ENGINE PARAMETERS DUE TO RAPID INCREASE IN TORQUE VALUES.

9. Specification for Testing, Checking.

9.1 Skill test

As required by Part-FCL - Appendix 9

9.2 Proficiency Checks

As required by Part-FCL - Appendix 9

10. Specification for Flight Simulation Training Devices

Following the Bell 429 FTD evaluation, the SET, recommends qualifying the evaluated training device as a Flight Training Device level 2 (FTD 2).

11. Application of OEB report

This OEB report applies to commercial operations. However, the OEB also recommends private or corporate operations to follow the findings of this report.

12. Appendices

- Appendix 0: Bell 429- Cover
- Appendix 1: TCDS- NO. EASA.IM.R.506
- Appendix 2: PART-FCL- AMC2 FCL.725 (a) Type rating requirements
- Appendix 3: The BTHA / Bell 429 Pilot Ground and Flght Procedures Transition Training.

Notes:
Appendices are available for NAA's by request to EASA Expert department / Certification Directorate or to Bell Helicopter Manufacturer.