
Type Acceptance Report

TAR 7/21B/10 – Revision 8

AIRBUS HELICOPTERS MBB-BK117 Series

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Executive Summary

New Zealand Type Acceptance has been granted to the Airbus Helicopters MBB-BK117 Series based on validation of EASA Type Certificate number R.010. There are no special requirements for import.

Applicability is currently limited to the Models and/or serial numbers detailed in Section 2, which are now eligible for the issue of an Airworthiness Certificate in the Standard Category in accordance with NZCAR §21.177, subject to any outstanding New Zealand operational requirements being met. (See Section 5 of this report for a review of compliance of the basic type design with the operating Rules.) Additional variants or serial numbers approved under the foreign type certificate can become type accepted after supply of the applicable documentation, in accordance with the provisions of NZCAR §21.43(b).

NOTE: The information in this report was correct as at the date of issue. The report is generally only updated when an application is received to revise the Type Acceptance Certificate. For details on the current type certificate holder and any specific technical data, refer to the latest revision of the State-of-Design Type Certificate Data Sheet referenced herein.

1. Introduction

This report details the basis on which Type Acceptance Certificate No. 7/21B/10 was granted in the Standard Category in accordance with NZCAR Part 21 Subpart B.

Specifically, the report aims to:

- (a) Specify the foreign type certificate and associated airworthiness design standard used for type acceptance of the model(s) in New Zealand; and
- (b) Identify any special conditions for import applicable to any model(s) covered by the Type Acceptance Certificate; and
- (c) Identify any additional requirements which must be complied with prior to the issue of a NZ Airworthiness Certificate or for any subsequent operations.

The report notes the status of all models included under the State-of-Design type certificate which have been granted type acceptance in New Zealand, which are listed in Section 2. The history of the MBB-BK117 Series type acceptance in New Zealand under type certificate EASA.R.010 is listed in Appendix 1.

2. Aircraft Certification Details

(a) State-of-Design Type and Production Certificates:

Manufacturer: Airbus Helicopters

TC Holder: Airbus Helicopters Deutschland GmbH
Eurocopter Deutschland GmbH (until 7 January 2014)
Eurocopter Hubschrauber GmbH (until 5 May 1992)
Messerschmitt-Bölkow-Blohm GmbH (until 1 April 1992)

Type Certificate: Number R.010
Issued by: European Aviation Safety Agency

Production Approval: EASA.21G.0070 (since 1 February 2018)
AHD-DE.21G.0013

NOTE: Airbus Helicopters has had a common Design Organisation Approval (DOA) Certificate EASA.21J.700 since 16 June 2016, and a common Production Organisation Approval (POA) Certificate since 1st February 2018. However the type certificates for the BO105, MBB-BK117 and EC135 Series continue to be held by the original German company.

(b) Models Covered by the Part 21B Type Acceptance Certificate:

(i) **Model:** MBB-BK117 A-3, MBB-BK117 A-4

MCTOW: 3200 kg [7055 lb]

Max. No. of Seats: 8 (1 crew, maximum 7 passengers) Standard
11 (1 crew, maximum 10 passengers) with high density seating kit per Flight Manual Supplement FMS 10-8

Noise Standard: German Noise Prevention Requirement for Aircraft (Lärmschutzforderrungen für Luftfahrzeuge LSL) dated 01.08.85 [ICAO Annex 16, Volume 1, Chapter 8]

Engine: Honeywell LTS101-650B-1
Type Certificate: Number E5NE
Issued by: Federal Aviation Administration

- (ii) **Model:** MBB-BK117 B-1, MBB-BK117 B-2
- MCTOW: 3200 kg [7055 lb] MBB-BK117 B-1
3350 kg [7385 lb] MBB-BK117 B-2
- Max. No. of Seats: 8 (1 crew, maximum 7 passengers) Standard
11 (1 crew, maximum 10 passengers) with kit FMS 10-8
- Noise Standard: LSL dated August 1st, 1985 – MBB-BK117 B-1
LSL Chapter VIII dated January 1st 1991 – MBB-BK117 B-2
[ICAO Annex 16, Volume 1, Chapter 8]
- Engine:** Honeywell LTS101-750B-1
Type Certificate: Number E5NE
Issued by: Federal Aviation Administration
- (iii) **Model:** MBB-BK117 C-1
- MCTOW: 3350 kg [7385 lb]
- Max. No. of Seats: 8 (1 crew, maximum 7 passengers) Standard
11 (1 crew, maximum 10 passengers) with kit FMS 10-8
- Noise Standard: LSL Chapter VIII dated January 1st 1991
[ICAO Annex 16, Volume 1, Chapter 8]
- Engine:** Turboméca Arriel 1E2
Type Certificate: Number E.073
Issued by: European Aviation Safety Agency
- (iv) **Model:** MBB-BK117 C-2
- MCTOW: 3585 kg [7904 lb]
- Max. No. of Seats: 10 (1 crew, maximum 9 passengers) Standard
11 (1 crew, maximum 10 passengers) with kit FMS 9.2-27
- Noise Standard: LSL Kapitel 8 dated January 1, 1991
[ICAO Annex 16, Volume 1, Chapter 8]
- Engine:** Turboméca Arriel 1E2
Type Certificate: Number E.073
Issued by: European Aviation Safety Agency

(v) **Model:** MBB-BK117 D-2, MBB-BK117 D-3

MCTOW: 3650 kg [8047 lb] – MBB-BK117 D-2
3700 kg [8157 lb] – with Major Change E-3811
3800 kg [8377 lb] – with Major Change E-4449

3800 kg [8377 lb] – MBB-BK117 D-3

Max. No. of Seats: 10 (1 crew, maximum 9 passengers)

Noise Standard: CS36/ICAO Annex 16

Engine: Turboméca Arriel 2E
Type Certificate: Number E.001
Issued by: European Aviation Safety Agency

NOTE: Because the MBB-BK117 Series has a maximum certificated passenger seating configuration of 10 seats or more on the TCDS, under the provisions of NZCAR §43.54(a)(1)(i) it must be maintained by a Part 145 Maintenance Organisation when the helicopter is operated under a Part 119 certificate.

3. Application Details and Background Information

The application for New Zealand type acceptance of the MBB-BK117C-2 was from the manufacturer, Eurocopter Deutschland, dated 27 September 2006. This was forwarded through EASA under Project number P-EASA.CSV.R.01052. The first-of-type example was serial number 9110, registered ZK-IGT. The MBB-BK117 is a twin-turbine multi-purpose helicopter in the 3-4 tonne class with clam-shell rear loading doors which uses a four-blade hingeless main-rotor system with CFB blades and conventional tail rotor.

Type Acceptance Certificate Number 7/21B/10 was granted on 10 May 2007 to the MBB-BK117C-2 based on validation of EASA Type Certificate R.010. Specific applicability is limited to the coverage provided by the operating documentation supplied. There are no special requirements for import into New Zealand.

The report was raised to Revision 1 to include the earlier MBB-BK117 A-3 through C-1 variants. The applicant was the type certificate holder Eurocopter Deutschland GmbH (ECD). The first-of-type example was MBB-BK117 A-3 serial number 7095, registered as ZK-HQD. Type acceptance was granted on 30 August 2012.

The BK117 was developed under a joint collaborative effort between MBB of Germany (subsequently part of Eurocopter) and Kawasaki of Japan, resulting in production lines in both countries. The BK117 program replaced the independently developed MBB BO107 and Kawasaki KH7 design studies. The BK117 retains the former's overall configuration with Eurocopter responsible for the helicopter's rotor system (which uses a scaled-up version of the BO105's four blade rigid main rotor), tail unit, hydraulic system and power controls, while Kawasaki has responsibility for the fuselage, transmission and undercarriage. Parts produced by one partner are shipped to the other factory for incorporation in their product, as no major parts are produced by both companies. The Eurocopter and Kawasaki versions are essentially identical, except for minor variations in the electrical system and available options. However Eurocopter advises that technically parts are interchangeable.

The initial production MBB-BK117 with LTS 101-650B-1 engines has subsequently been upgraded to the MBB-BK117 A-3/4 variants, with progressively increased engine power and take-off weight, and then the MBB-BK117 B-1/2 fitted with the more-powerful LTS 101-750B-1 engines. (Variants can be converted by incorporation of Service Bulletins.) The last variant of the original Series was the MBB-BK117 C-1, which differed by the installation of Turboméca Arriel 1E2 engines.

The MBB-BK117 C-2, which is marketed by Eurocopter as the Model EC145, is based on the latest BK117 C-1 mechanically. The modifications include an enlarged fuselage with redesigned nose similar to the EC135; increased MAUW; EC135 style fuel and hydraulic systems; the centrepost is removed; and use of the MEGHAS cockpit display system (also known as Avionique Nouvelle) with CPDS (Central Panel Display System). There are also detail improvements such as crashworthy seats, modernised electrical system and aerodynamically improved main rotor blades. The MBB-BK117 C-2 is approved for single-pilot VFR day and night operations as a Category B rotorcraft, including Category A engine isolation. With additional equipment as prescribed in the flight manual supplement, it is also approved for IFR operations.

This report was raised to Revision 2 to add the latest MBB-BK117 D-2 variant, which is known commercially as the EC145T2. The applicant was the manufacturer, now known as Airbus Helicopters Deutschland (AHD). As part of the Type Acceptance process a team from the CAA Aircraft Certification Unit visited AHD for a validation visit. (See Minutes of Meeting ETYC-0761/14) Type Acceptance was granted on 29 August 2014. The first-of-type example was serial number 20020, registered ZK-ITF. The Turboméca Arriel 2E engine is covered by Type Acceptance Certificate no. 14/21B/14.

The MBB-BK117 D-2 is a development of the MBB-BK117 C-2. The main difference is the use of a fenestron tail rotor, and the introduction of the new CIGALHE (Cockpit Integrated Global Avionics for Light-medium HELicopters) display system, which is also known as the “Helionix” avionics suite. Other changes include the use of a more powerful Arriel 2E engine; upgraded main gearbox with 30-minute dry-run capability; additional 30 kg fuel capacity; and a new composite tailboom with stabiliser assembly.

STC’s – The certification basis for the MBB-BK117 Series under FAA Type Certificate H13EU and EASA Type Certificate R.010 are equivalent. AHD has confirmed the type design for each model is identical under both type certificates. Therefore, in accordance with CAR 21.503(a), FAA STC’s approved for the MBB-BK117 Series are deemed to be acceptable technical data for New Zealand registered MBB-BK117 Series helicopters.

Revision 3 was issued to standardise with the Kawasaki BK117 Series some NZCAR compliance issues following assessment by the CAA Rules Issue Panel, and to update to the latest report format. Revision 4 further revises the operational rule compliance table after the issue of an exemption.

Revision 5 was raised to add the Helionix Step 2 avionics software configuration, which is embodied under Major Change E-3475 and has an updated certification basis and new Flight Manual. This report revision also includes the standard weight increase to 3700 kg, and some new equivalent safety findings. A further increase to 3800 kg is available as an option covered under a Flight Manual Supplement, which includes limitations in respect of CG position, V_{NE} and bank angle to reduce flight loads. With this modification embodied the helicopter is only eligible for Category B operations and requires Helionix Step 3. (The latter is standard from serial number 20210 on.)

Revision 6 was issued to add the latest MBB-BK117 D-3 version, which is marketed as the H145. The application was from the type certificate holder and was forwarded by EASA under Project number 0060074133. The first-of-type example was serial number 21002 registered ZK-ITF. Type Acceptance was granted on 29 September 2020.

The MBB-BK117 D-3 is essentially the D-2 with a 5-blade main rotor system. There are some associated control system changes, including an elongated rotor mast with integrated flanges for blade attachment, and re-designed upper controls with 5-arm swashplate and adapted kinematics. The D-2 can be converted to a D-3 by application of customized Service Bulletin SB MBB-BK117 D-2-00-003/0x “Upgrade of SN xxxx to D-3”, along with some other pre-requisite changes.

Revision 7 was added to document acceptance of EASA major change approval number 10077593 dated 03 November 2021 for the installation of the E-6506 Collins "Population 2" Hoist System on the MBB-BK117 D-3 helicopter. The certification basis of this modification included a deviation from EASA. This deviation was reviewed and accepted by CAA. Type acceptance was granted on 11 March 2022.

Revision 8 was raised to add the new Flight Manuals introduced by Helionix Software Version 10, and also a new ELOS related to Category A operations. The V10 software upgrade mainly enlarges existing Integrated Modular Avionics functions (new AFCS Take-off Modes; Tactical Mode), plus addresses some existing PR (Problem Reports), updates the software of the Digital Monitoring Acquisition Unit, and other minor system improvements. Helionix Software Version 10.1 subsequently introduces dual IRS hardware and capability to provide the position data reliability probability required by CS ACNS and FAR 29 for RNP AR operations. The first-of-type example with this FLM was serial number 21337 registered ZK-IXN. Type Acceptance of these changes was granted on 7 January 2025.

4. NZCAR §21.43 Data Requirements

The type data requirements of NZCAR Part 21B Para §21.43 have been satisfied by supply of the following documents, or were already held by the CAA:

(1) ICAO Type certificate:

EASA Type Certificate Number R.010

EASA Type Certificate Data Sheet no. R.010 at Issue 21 dated 24 November 2023

- Model MBB-BK117 A-3 approved 15 March 1985
- Model MBB-BK117 A-4 approved 29 July 1986
- Model MBB-BK117 B-1 approved 10 December 1987
- Model MBB-BK117 B-2 approved 17 January 1992
- Model MBB-BK117 C-1 approved 2 October 1992
- Model MBB-BK117 C-2 approved 20 December 2000
- Model MBB-BK117 D-2 approved 16 April 2014
- Model MBB-BK117 D-3 approved 19 June 2020

Supersedes:

LBA Musterzulassungsschein (Type Certificate) Nr. 3049

LBA Type Certificate Data Sheet number 3049 at Issue 5 dated 01.04.2003

(2) Airworthiness design requirements:

(i) *Airworthiness Design Standards:*

The certification basis of the original MBB-BK117 A-3, A-4 and B-1 models was FAR 29 effective February 1, 1965, including Amendments 29-1 through 29-16. Five Special Conditions were imposed and three Equivalent Safety Findings (ESF) made. These have been reviewed and accepted by CAANZ.

The certification basis of the MBB-BK117 B-2 and C-1 models was the same FAR 29 effective February 1, 1965, including Amendments 29-1 through 29-16, but with several individual paragraphs at a later amendment date and two requirements from JAR 29 (First Issue), as specified on the TCDS. The same five Special Conditions and two Equivalent Safety Findings were carried over.

For the MBB-BK117 C-2 model the certification basis was updated to FAR Part 29 effective February 1, 1965, including Amendments 29-1 through 29-40, except for reversion to an earlier Amendment date for certain paragraphs, as specified on the TCDS. (This was applied where there was no design change to the components or systems from the previous type certificated model. See the applicable CRI for details.) There were three Special Conditions, five Exemptions and four Equivalent Safety Findings made. These have been reviewed and accepted by CAANZ.

The MBB-BK117 D-2 certification basis was changed to CS-29 Amendment 2 for significantly changed areas or requirements (see the TCDS for specified paragraphs); with reversion back to FAR Part 29 Amendment 40 for unaffected areas of the C-2 and FAR Part 29 Amendment 16 for unaffected areas of the C-1; plus FAR Part 29 Amendment 47 for paragraph §29.865 (External Loads). Three

Special Conditions were applied, and two deviations carried over from previous models. One new ESF was made. One Special Condition and four ESF have subsequently been granted as part of specific operational or modification approvals for the BK117 D-2 model.

The MBB-BK117 D-3 certification basis was updated to CS-29 Amendment 4 for significantly affected areas (CS §29.571 and CS §29.573) relative to the D-2, and other Amendments for the remaining areas, systems, parts or appliances, as specified on the TCDS. The HIRF Special Condition was removed (included in the certification basis) and a Special Condition for cybersecurity was applied.

For the installation of the COLLINS “Population 2” Hoist System installation on the MBB-BK117 D-3/D-3m the certification basis is CS 29 Amendment 8 for the affected area and the requirements contributing materially to the level of safety.

This is an acceptable certification basis in accordance with NZCAR Part 21 Subpart B paragraph §21.41, because FAR 29 is the basic standard for Transport Category Rotorcraft called up under Part 21 Appendix C, and CS-29 is an acceptable alternative standard under Advisory Circular 21-1. There are no non-compliances and no additional special conditions have been prescribed by the Director under §21.23.

(ii) Special Conditions:

MBB-BK117 A-3, A-4, B-1, B-2, C-1:

Special Condition No.1: Check Procedures – A means must be provided to permit the pilot to determine that each engine is capable of developing the power used in establishing the applicable performance data prescribed in Section 29.51 through 29.79.

Special Condition No.2: Engine Failure Warning System – Unless a clear and prompt indication of engine power loss is provided to the pilot in all flight regimes, an engine failure warning system must be installed to warn the pilot of the failure of an engine and to identify the engine that has failed. The warning must be clear and distinguishable from all other warnings.

Special Condition No.4: One Engine Inoperative Maximum Continuous Power – For the use of an unlimited one engine inoperative MCP which is lower than the 30 min. power but higher than the proportional all engines operating MCP, an additional test required that each engine in sequence must be inoperative and the remaining engine must be run at this one engine inoperative MCP for a total of at least 25 hours.

Special Condition No.5: Lightning Protection of Structure and Occupants – The helicopter must be protected against catastrophic effects from lightning. For metallic components, this must be shown by either bonding the components or designing them so that a strike will not endanger the helicopter. For non-metallic components, this must be shown similarly by designing them to minimize the effect of a strike: or incorporating acceptable means of diverting the resulting electrical current so as not to endanger the helicopter.

MBB-BK117 A-3, A-4, B-1, B-2, C-1, C-2:

Special Condition No.3: Turbine Engine Bleed Air System – No hazard may result from duct rupture or failure; the effect on helicopter and engine performance must be detailed in the FM; and no reasonably probable failure may cause hazardous contamination of the cabin air systems.

MBB-BK117 C-2:

Special Condition No.6: Protection from the Effects of HIRF – JAA Administrative and Guidance Material Section 3 Certification – Part 3 Interim Policies and Temporary Guidance Material – Policy Paper INT/POL/27&29/1

Special Condition No.7: Primary Structures Designed with Composite Material – The principal structural elements, the failure of which could result in catastrophic loss of the rotorcraft, must be evaluated to specified damage tolerance criteria, unless shown to be impractical.

MBB-BK117 D-2:

CRI F-01 – High-Intensity Radiated Fields (HIRF) Protection: JAA INT/POL/27 & 29/1, Issue 3 – EASA required compliance with the Interim JAA policy, instead of the proposed FAR §29.1317 at Amendment 51 and Advisory Circular 20-158.

MBB-BK117 D-3:

CRI F-40 – Cybersecurity – Airborne systems and network may introduce the potential for unauthorised access, which could lead to the introduction of malware or corruption of critical data. This Special Condition required that equipment, systems and networks, considered separately and in relation to other systems, must be protected from intentional unauthorised electronic interactions that may result in catastrophic or hazardous/severe major effects on the safety of the rotorcraft. Security risks must be identified, assessed and mitigated as necessary. AHD assessed interactions through downloading of software and wireless exchanges.

MBB-BK117 D-2/D-3:

CRI E-05 – 30 min Extended Power Rating – The Arriel 2E engine will have 30-minute Extended Power (EP) and Maximum Continuous Power (MCP) ratings, suitable for missions that require increased rotorcraft hovering capability and duration. AHD proposed substantiating the following aspects for this EP rating: powerplant cooling; operational limitations; showing of compliance with fatigue, rotor drive system endurance and Instructions for Continued Airworthiness requirements.

CRI F-09 – Lithium Battery Installations – The MBB-BK117 D-2/3 uses lithium batteries for Emergency Power Supply. These have significantly different operational and failure characteristics and maintenance requirements to conventional Ni-Cad or lead-acid types. EASA established detailed criteria to demonstrate there was no hazard due to overcharging, over-discharging, or fuel cell flammability, and to ensure availability of electrical power when needed.

MBB-BK117 C-2/D-2/D-3:

CRI F-35 – Non-rechargeable Lithium Battery Installations – Recent events in some ELTs had identified some unanticipated failure modes, including over-discharging, cell imbalance, external and internal short circuits and flammability of cell components. EASA proposed these special conditions to prevent such known potential hazards and failure modes.

(iii) *Equivalent Safety Findings:*

MBB-BK117 A-3, A-4, B-1:

Equivalent Safety Finding FAR §29.175(b) – Static Longitudinal Stability* – The BK117 can only comply with this requirement for the cruise condition over the entire certified OAT range if the Stick Position Augmentation System (SPAS) is used. However for VFR operations up to a minimum OAT of -35°C the required static longitudinal stability can also be sustained if the certified V_{NE} is not utilised. Outside this temperature range or for IFR an SPAS must be fitted.

MBB-BK117 A-3, A-4, B-1, B-2, C-1:

Equivalent Safety Finding FAR §29.811(h)(1) – Emergency Exit Marking – Instead of a 2-inch wide coloured band around the whole exit, outlining just around the mechanism for emergency release of the sliding doors and opening handles for the cockpit doors was accepted. (These markings are as effective due to the relatively compact size of the BK 117 airframe.)

MBB-BK117 C-2:

Equivalent Safety Finding FAR 29.1303(a),(j) – CRI No. F-3 – V_{NE}/V_{NE} Overlimit Indication – An ESF was granted for the existing design to FAR 29 Amendment 16 where the overspeed warning is displayed on the VEMD screen, which is not compliant with respect to display position or availability, and does not have a dissimilar aural warning tone.

Equivalent Safety Finding FAR 29.1457 (c)(1),(2) – CRI F-13 – CVR Separate channel recording for DH audio signal – Because the audio tone associated with the Decision Height during approaches was not being recorded AHD proposed a technically similar functionality for the CVFDR recording capabilities based on substitution by a discrete signal.

MBB-BK117 C-2/D-2:

Equivalent Safety Finding FAR §29.601, 603, 605(a), 865(a), 1301(d) – CRI D-08 – Hoist Installation – The overload clutch of the hoists claimed for certification is subject to EASA Airworthiness Directive 2014-0201 stemming from investigation of an in-service event where failure of the rescue hoist slip clutch resulted in the cable paying-out in an uncontrolled manner. Parts and assemblies for use with Human External Cargo (HEC) must be designed according to the criticality of their failure effect. AHD used two different populations for hoists to satisfy the ESF to show control of sub-suppliers and the management of Hoist Critical Parts.

MBB-BK117 C-2/D-2/D-3:

Equivalent Safety Finding FAR §29.807(a)(4) – CRI No.D-1 [C-2] and D-01/D-07 [D-2] – Passenger Emergency Exits – The EC145 uses the EC135cjectionable sliding door window design, which does not meet the 26" minimum height requirement of Part 29 Amendment 40. However it was accepted on the basis it is wider, with nearly double the required area, and has a 200mm lower step-up than the minimum. An evacuation demonstration was also performed.

Equivalent Safety Finding FAR §29.1545(b)(4), §29.1549(b) – CRI No. G-1 [C-2] and F-29 [D-2] – Installation of VEMD Vehicle and Engine Management Display – Normal engine parameter operating ranges are not displayed as a green arc or range on the instrument, but instead non-normal ranges have special attention-getting devices, which has been verified as satisfactory by flight test.

MBB-BK117 D-2/D-3:

Equivalent Safety Finding FAR §29.1305, FAR §29.1321(e), FAR §29.1351(b)(6), FAR §29.1435(a)(3) – CRI F-29 – Part Time Display of Vehicle Parameters – The BK117D-2 Integrated Modular Avionics (IMA) system does not have dedicated instruments displaying all required parameters permanently. Information necessary for flight is presented on the Flight Navigation Display (FND). AHD uses the philosophy of the "Dark Cockpit" so that some system and engine parameters are only displayed under certain conditions. Compensating factors include: Full time monitoring of all the parameters by the IMA system, with annunciation of abnormal behaviour; limits exceeding monitoring triggers appropriate FND master list warning messages; all parameters can be manually selected; and on cold start up the VMD format is displayed on the central MFD by default.

Equivalent Safety Finding FAR §29.1305, §29.1309, §29.1549 – CRI G-01 – OEI Training Mode – Under the training mode the power output of both engines is symmetrically reduced in order to simulate an OEI condition. AHD proposed a dedicated display of powerplant instruments in this training mode, to provide the crew sufficient realistic cues of what would be displayed in a real OEI flight condition. The ESF specified requirements to ensure the pilot could recognise and cope with an actual engine failure in this mode, including human factors aspects.

Equivalent Safety Finding CS §29.1457(a), (c) – CRI F-10 – CVR Communication during Winch Operation – The winch operator headset is hardwired in parallel to the co-pilot, so is not on a separate channel and mixing of audio signals is possible. AHD had to demonstrate this still meets the objective of CS 29.1457(a) and would not pose a limitation when retrieving the signal for accident investigation. AHD showed compliance by design features, dedicated tests and inflight experience.

Equivalent Safety Finding CS/FAR §29.1555(c)(1) – CRI G-04 – Usable Fuel Capacity Marking – The auxiliary fuel tank does not have usable fuel capacity placards. This was accepted because the digital gauge is more accurate and has graphical and numerical indications. There is also a placard stating the total fuel capacity near the filler port of the tank.

Equivalent Safety Finding CS §29.1587(a)(6) Amdt. 2 – CRI G-06 – Alternative Category A continued take-off and balked landing procedures – The Category A OEI emergency take-off (or balked landing) path must reach a height of 1000 ft above the take-off surface (ATS) through 2 climb segments, which transition at 200 ft. Between them a level flight or positive RoC acceleration phase is used to reach V_Y for the second segment. Airbus proposed an alternate procedure, for better obstacle clearance (such as for oil rig operations). This new method consists in the extension of Segment I (climb at VTOSS with OEI 2min power) to utilize more of the available OEI 2min power. The transition from VTOSS to V_Y is then performed within the remaining OEI 2min power time and the climb is continued at V_Y with OEI maximum continuous power. This new procedure is applicable to rearward, extended rearward, vertical, and helideck operations. This was accepted by EASA after AHD demonstrated the alternate procedures provided the same level of safety and were fully documented in the Flight Manual.

MBB-BK117 A-3, A-4, B-1, B-2, C-1, C-2:

Equivalent Safety Finding §29.1151(b) – Rotor Brake Controls – The BK117 C-2 is equipped with the same warning device for the rotor brake system as its predecessors BK117A-1 through C-1. Compliance against §29.1151(b) was shown on the basis of Equivalent Level of Safety during the certification of MBB-BK117A-1. [See CR Option 1151B-KF3 – FAR §29.1151(b)]. This requires warning devices to alert the crew if the brake has not been completely released. Under AC 29.1151, inadvertent or undetected application of the rotor brake is expected to result in excessive heat and possible fire in the rotor brake area, which could be extremely hazardous. The existing warning device, which is an indication of the rotor brake lever position, was therefore regarded as not sufficient in terms of fulfilling literally the requirement, and an ELOS Finding was required by the LBA. Eurocopter advise the design has proven to be safe and reliable over 25 years of service.

(iv) Exemptions:

MBB-BK117 C-2:

Exemption from FAR §29.610(d)(4) – CRI D-4 – Lightning and Static Electricity Protection – Under Amendment 40 the helicopter must be protected against catastrophic effects from lightning. Essential or critical equipment must be tested according to DO160D Section 22. Off the shelf or unchanged essential equipment was exempted.

Exemption from FAR §29.1337(e) and FAR 29.1305(a)(23) – These mandate the installation of chip detectors and indicators for rotor drive system transmissions and gearboxes using ferromagnetic materials, which again was only introduced at Amendment 26. Since these

systems are unchanged from the BK117C-1 the requirement was exempted. However a chip detector has subsequently been introduced by Eurocopter as a product improvement. [See Certification Records 31852 - FAR §29.1305(a)(2) and CR 31859 - FAR §29.1337(e)(i)]

Exemption FAR §29.1305(a)(21) – The same argument was used for this requirement, for an individual fuel pressure indicator for each engine, which did not exist when the BK117C-1 was type certificated, and the design is unchanged. [See Certification Record 02252 – There is only a low fuel pressure caution light, because the fuel is fed by a suction pump in the engine.]

Exemption from FAR §29.1027 – This requirement for independence of the engine and rotor drive oil systems to ensure operation with any engine inoperative and during autorotation was only introduced at FAR Part 29 Amendment 26. The BK117C-2 uses the same oil system in the rotor drive transmission/gearboxes as the BK117C-1, which was certificated to Amendment 16. [See Certification Record 1011B12-KF1 – FAR §29.1011(b)]

MBB-BK117 D-3:

EASA Major Change 1077593:

CRI D-16 Deviation CS §29.865(a), CS §29.1301(d), CS §29.1309(a)(b) – The Collins “Pop 2” hoist, previously approved for the D-2, is now subject to EASA Airworthiness Directive 2015-0226R5 stemming from an in-service failure of the rescue hoist slip clutch which allowed the cable to reel-out in an uncontrolled manner. Showing full compliance with all requirements for Human External Cargo (HEC) operations is not possible with the current design, and a new or revised fully compliant design is not achievable in the needed timescale. This deviation was granted to support mainly HEMS and SAR operations pending a new or revised hoist being available. Any deviation must be identified and justified by proposing specific compensating features and mitigating factors that allow demonstration of compliance with the following *Essential Requirements for Airworthiness* of Annex II to Regulation (EU) 2018/1139: The aircraft shall have no hazardous design features; Required aircraft systems and equipment must function as intended under all foreseeable operating conditions; No extremely improbable single failure of aircraft systems and equipment can lead to a catastrophic failure. The required applicant’s actions were defined in CRI D-16 Appendix A. The Deviation is valid for a maximum of 75 new manufacture helicopters, and is not valid for helicopters delivered after 31/01/2023.

(v) Elect to Comply Requirements:

MBB-BK117 C-2/D-2:

FAR §29.631 Amendment 40 – Bird Strike – Originally granted as an Exemption for the BK117C-2 (See CRI No. D-2), this was changed to an elect to comply for the BK117D-2 and retrospectively for the BK117C-2. In the justification for the exemption ECD/KHI stated that compliance with this new requirement would result in heavy thick windows which would be difficult to manufacture and have a negative effect on visibility. It was also pointed out that there had been no catastrophic bird strikes on the entire B0105/BK117 fleet. Further the centre beam of the cabin frame was designed such that a bird strike in the area of the flexball controls routing or the overhead panel would have no hazardous effect.

MBB-BK117 D-2:

CS §29.1465 Amendment 5, when configured with DMAU with part numbers as specified on the TCDS and Helionix Step 2 or Maintenance Release 1 EIS.

(vi) Airworthiness Limitations:

BK117 A-3, A-4, B-1, B-2: See the Airworthiness Limitations section in Appendix A of the Maintenance Manual MBB-BK117 A/B.

BK117 C-1: See Appendix A of the Maintenance Manual MBB-BK 117 C-1.

BK117 C-2: See Airworthiness Limitations Section Chapter 04 – MSM.

BK117 D-2/D-3: See Chapter 04 – Airworthiness Limitations Section (ALS).

(3) Aircraft Noise and Engine Emission Standards:

(i) *Environmental Standard:*

The MBB-BK117 Series has been certificated for noise levels against the requirements of ICAO Annex 16 Volume 1

The MBB-BK117 D-2/D-3 is also certificated for fuel venting against CS34.

(ii) *Compliance Listing:*

EASA Type Certificate Data Sheet for Noise Number R.010:

MBB-BK117 A-3: Noise Level Results for a MTOW of 3200 kg:

Takeoff: 90.7 EPNL Overflight: 92.9 EPNL Approach: 91.8 EPNL

MBB-BK117 A-4: Noise Level Results for a MTOW of 3200 kg:

Takeoff: 89.9 EPNL Overflight: 92.6 EPNL Approach: 91.8 EPNL

MBB-BK117 B-1: Noise Level Results for a MTOW of 3200 kg

Takeoff: 89.8 EPNL Overflight: 91.3 EPNL Approach: 95.8 EPNL

MBB-BK117 B-2: Noise Level Results for a MTOW of 3350 kg

Takeoff: 89.9 EPNL Overflight: 91.3 EPNL Approach: 95.8 EPNL

MBB-BK117 C-1: Noise Level Results for a MTOW of 3350 kg

Takeoff: 90.0 EPNL Overflight: 90.1 EPNL Approach: 95.8 EPNL

MBB-BK117 C-2: Noise Level Results for a MTOW of 3585 kg

Takeoff: 88.0 EPNL Overflight: 87.2 EPNL Approach: 91.3 EPNL

MBB-BK117 D-2: Noise Level Results for a MTOW of 3650 kg

Takeoff: 86.5 EPNL Overflight: 84.7 EPNL Approach: 90.3 EPNL

MBB-BK117 D-3: Noise Level Results for a MTOW of 3800 kg

Takeoff: 88.8 EPNL Overflight: 85.7 EPNL Approach: 91.4 EPNL

(4) Certification Compliance Listing:

STI Report 40 – Supplemental Type Investigation MBB-BK117A-3
(Includes Type Certification Document List and Compliance Checklist.)

STI Report 58 – Supplemental Type Investigation MBB-BK117A-4

STI Report 66 – Supplemental Type Investigation MBB-BK117B-1 Cat B

STI Report 88 – Supplemental Type Investigation MBB-BK117B-2 Cat B

STI Report 89 – Supplemental Type Investigation MBB-BK117C-1

Certification Program MBB-BK117 C-2 – CP117-1.0.800

Certification Program CAT A Operation for MBB-BK117 C-2

Supplementary Type Investigation Report STI-120 (BK117C-2 type certification)

Supplementary Type Investigation Report STI-138 (BK117C-2 Cat A Operation)
(Both reports include at the back a List of Compliance Documents)

Certification Review Item No. A-1 – Type Certification Basis. Because of the extensive design changes the LBA/JCAB determined that substantial investigation of compliance was required, and therefore requested compliance with the design standards at the date of application (FAR 29 at Amendment 40). However it was agreed this would not apply where the original substantiation had not been invalidated, if it was impractical, or if the level of safety would not materially increase, and reversion to earlier Amendments would be permitted for those paragraphs.

CRI No. C-1 – Definition of Certification Basis for Fatigue Evaluation – The latest flaw tolerant safe-life and fail-safe evaluation (residual strength after crack growth) methods called up by §29.571 Amendment 40 are only applied to new parts and not to existing parts, even if the loads have changed.

CRI No. D-3 – FAR §29.723/5/7 Limit Drop Test – Skid landing gear was permitted to be substantiated by analysis instead of by limit drop test, based on previous experience with similar undercarriage types.

CRI No. D-5 – FAR §29.865 External Loads / Dual Actuation Device for PQRS and BQRS – This paper summarised ECD's concept for a Primary and Backup Quick Release Device for a Human Double Hook (Y-rope) Configuration.

CRI No. D-6 – FAR §29.863 Flammable Fluid Fire Protection – The MGB / hydraulic compartment was accepted as an unchanged area not subject to latest provisions of Amendment 40, which requires means to minimise probability of ignition or any resultant hazards.

CRI No. D-7 – FAR §29.807 Passenger Emergency Exits – An ELOS was granted for the exits in the half-open position which are not the minimum size. This is because the shape and size ensure easy egress, and the mounting mechanism makes jamming in a crash unlikely.

CRI No. E-1 – FAR §29.952(a)(4) Fuel System Crash Resistance – Compliance for the critical tanks was shown by analysis based on the EC135 instead of the required drop tests including the surrounding structure. The forward main (bladder tank) was drop tested alone.

CRI No. E-2 – FAR §29.923/7 Rotor Drive System and Control Mechanisms Tests, Endurance Test and Additional Tests – No additional tie-down or bench tests were required because no design changes were applied to the rotor drive system components and the effects of the changes on the Main Rotor blades and upper control system BK117C-1 compliance to earlier Amendments are very small.

CRI No. E-3 – JAR §21.35 Function and Reliability Flight Tests – Certification requires demonstration that the aircraft, its parts and appliances are reliable and function properly. Because of similarity with existing proven components it was accepted that some of the 150 hours reliability flying could be counted by development and other flight testing, with suitable factoring.

CRI No. E-4 – FAR §29.901/3 Powerplant Installation and Engines – Amendment 40, which requires protection against engine rotor burst, is only applied to changed systems. ECD analysed the probability of this and its influence on changed systems and showed reasonable design considerations and precautions had been taken to minimise hazards. Further it was shown no single failure or malfunction would jeopardise the safe operation of the helicopter and that engine isolation is not affected by any changes.

CRI No. F-1 – HIRF Requirement – The BK117C-2 will be certificated in accordance with the User Guide AC/AMJ 20-1317 applicable to INT/POL/27 & 29/1 dated June 01, 1997. Tests were performed by criticality and relationship to existing systems for the BK117C-1 or EC135.

CRI No. F-2 – § 29.1309 Equipment, Systems, and Installations – A Functional Hazard Analysis was performed for all systems. This identifies them as new and changed where the latest Amdt 40 applies, or old or minor changed where the earlier Amendments 16 or 26 may be satisfied.

CRI No. F-4 – FAR §29.1309 VARTOM System – The Variable Rotor Speed and Torque Matching system is basically similar to the BK117C-1 and certification was accepted to Amdt 16.

CRI No. F-5 – FAR §29.1301/21/22 Liquid Crystal Displays – LCD are used in lieu of Cathode Ray Tubes and there are no published approval criteria. Substantiation was based on EC155 type certification requirements, such as for readability, backlighting and image retention.

CRI No. F-6 – HIRF Requirement – This details the HIRF test qualification process per JAA Administrative and Guidance Material and defines the configuration for S/N 9003 under test.

CRD Reference: CRD BK117/2009/E-1702 – Compliance Record Document for Civil Modification No. CR-M-250000 – Model BK117 D-2

CRI No. A-01 – Certification Basis for Derivative Model BK117 D-2 – Issue 2
(Includes a list of all CRI as Annex 1)

CRI No. C-02 – Primary Structures Designed with Composite Materials – Replacement of LBA Special Condition No.7 – Issue 5 – For the BK117D-2 compliance with SC7 was substituted by EASA AMC 20-29 for affected airframe composite structure.

CRD D0000M347501 – Compliance Record Document for Civil Modification No: CR-M-250830 B, CR-M-251047 B, CR-M-251475 B, CR-M-251501 B, CR-M-251558 D, CR-M-251900 A, CR-M-251901 A, CR-M-251902 C, CR-M-251903 A, CR-M-251937 B, CR-M-251938 B, CR-M-251939 B, CR-M-251940 B, CR-M-252024 A – Title: HELIONIX Follow-on Installation – 03 Dec 2015

CRD D0000M381103 – Compliance Record Document for Civil Modification No: CR-M-251732A – Title: BK117 D-2 Upgrade of MTOW to 3700kg – 18 Nov 2015

CRD D0000M444903 – Compliance Record Document for Civil Modification No: CR-M-252367A – Title: BK117 D-2 / D-2m MTOW to 3,8t – 14 Feb 2017

CRD D0000M460401 – Compliance Record Document for Civil Modification No: ECP-M-252435B, ECP-M-252598B, ECP-M-252599B – Title: HELIONIX Maintenance Release 1 – 15 Dec 2017

CRD D0000M505304 – Compliance Record Document – Title: BK117 D-3/D-3m, GRC1 5-bladed BMR Integration – Revision C – 19 June 2020

CS D1503M505303 – Compliance Record – Flight Test Results for OSD FCD Evaluation for BK117 D-3 – Revision A – 21 December 2019

AAA D2597M650604 – Affected Area Assessment for COLLINS “Pop 2” Hoist System Installation on BK117 D-3/D-3m – Issue D

Compliance Record Document – For Civil Modification No: ECP-M-253931D, ECP-M-254155B, ECP-M-254801A – Collins „Population 2“ Hoist System Installation on BK117 D-3/D-3m

EASA Major Change Approval 10082539 Rev. 1: Model: MBB-BK117 D-3, MBB-BK117 D-3m – Introduction of the HELIONIX Software (SW) V10 (ref. Civil Modifications ECP-M-254175/G, ECP-M-254219/B, ECP-M-254436/D, ECP-M-254459/A, ECP-M-254648/C and ECP-M-254689/A).

STC Project E-7033: Compliance Record Document CRD D4600M703302 – MBB-BK117 D-3(m) HELIONIX Step 3.4/V10 – Revision B

EASA Major Change Approval 10084328: Model: MBB-BK117 D-2 – Introduction of the HELIONIX Software (SW) V10 (ref. Civil Modifications ECP-M-254433/A, ECP-M-254614/D, ECP-M-254649/E and ECP-M-254669/C).

STC Project E-7176: Compliance Record Document CRD D4600M717602 – MBB-BK117 D-2 HELIONIX V10.0 (step 3.4) – Revision C

EASA Major Change Approval 10085860: Model: MBB-BK117 D-3, MBB-BK117 D-2 – This Major change (E-8063) includes the installation of the Thales TOPAxyz IMU, the LITEF LCR110 IRS, associated SW modifications of the Garmin GTN 750Xi FMS, and the installation of HELIONIX V10.1.

STC Project E-7176: Compliance Record Document CRD D3420M806303 – Installation of THALES IRS as AHRS3, Back-up Litef LCR110 and HLX V10.1.

- (5) Flight Manual: EASA-Approved Rotorcraft Flight Manual BK117 A-3
CAA Accepted as AIR 3227
- EASA-Approved Rotorcraft Flight Manual BK117 A-4
CAA Accepted as AIR 3228
- EASA-Approved Rotorcraft Flight Manual BK117 B-1
CAA Accepted as AIR 3229
- EASA-Approved Rotorcraft Flight Manual BK117 B-2
CAA Accepted as AIR 3230
- EASA-Approved Rotorcraft Flight Manual BK117 C-1
CAA Accepted as AIR 3231
- EASA-Approved Rotorcraft Flight Manual BK117 C-2
CAA Accepted as AIR 2984
- EASA-Approved Rotorcraft Flight Manual BK117 D-2
CAA Accepted as AIR 3225
- EASA-Approved Rotorcraft Flight Manual BK117 D-2 (Helionix Step 2) – CAA Accepted as AIR 3294
- EASA-Approved Rotorcraft Flight Manual BK117 D-2 Helionix SW V10 – CAA Accepted as AIR 3993
- EASA-Approved Rotorcraft Flight Manual BK117 D-3
CAA Accepted as AIR 3971
- EASA-Approved Rotorcraft Flight Manual BK117 D-3 Helionix SW V10 – CAA Accepted as AIR 3992

(6) Operating Data for Aircraft and Engine:

(i) *Maintenance Manual:*

Maintenance Manual MBB-BK117 A/B

Maintenance Manual MBB-BK117 C-1

Wiring Diagram Manual MBB-BK117

Aircraft Maintenance Manual (AMM) – MBB-BK117 C-2

System Description Section (SDS) – MBB-BK117 C-2

Master Servicing Manual (MSM) – MBB-BK117 C-2

Wiring Diagram Manual (WDM) – MBB-BK117 C-2

Aircraft Maintenance Manual (AMM) – MBB-BK117 D-2/D-3

System Description Section (SDS) – MBB-BK117 D-2/D-3

Chapter 04 – Airworthiness Limitations Section (ALS) – MBB-BK117 D-2

Chapter 05 – Master Servicing Manual (MSM) – MBB-BK117 D-2

Wiring Diagram Manual (WDM) – MBB-BK117 D-2/D-3

Chapter 04 – Airworthiness Limitations Section (ALS) – MBB-BK117 D-3

Chapter 05 – Master Servicing Manual (MSM) – MBB-BK117 D-3

Structural Repair Manual (SRM) – MBB-BK117 All versions

Corrosion and Erosion Control Guide EC145

(ii) *Current service Information:*

MBB-BK 117 Series – Service Information and Service Bulletins

(iii) *Illustrated Parts Catalogue:*

Illustrated Parts Catalogue MBB-BK117

Illustrated Parts Catalogue MBB-BK117 C-2

Illustrated Parts Catalogue MBB-BK117 D-2

Illustrated Parts Catalogue MBB-BK117 D-3

(7) Agreement from manufacturer to supply updates of data in (5), and (6):

MBB-BK117 A-3, A-4, B-1, B-2, C-1:

See Form CAA 2171 completed by the International Certification Manager of Eurocopter Deutschland, dated 9 July 2012. Note access is also provided through the Eurocopter T.I.P.I. website <http://www.eurocopter.com/techpub>

MBB-BK117 C-2:

See letter from Eurocopter Ref: ETYAC-0425/06-Sur dated 2006-09-27 and access through the portal at <https://Keycopter.airbus.com>

MBB-BK117 D-2/D-3:

AIRBUS HELICOPTERS now provides access through the customer platform at: <https://airbusworld.helicopters.airbus.com>

(8) Other information:

Document B 240 M 0088 E01 – Electrical Load Analysis BK117 C-2 s/n 9088

Document 145.04.102.01E – EC145 Type Specification

Eurocopter Presentation EX145 / B. Osswaldl / Evolution & Differences BK117 KHI vs. MBB / 1,v.0 / /10/07/2012

Document 145 T2 14.101.01 E – EC145 T2 Technical Data 2014

Report D 240 M 0000 E01 – BK117 D-2 / D-3 Electrical Load and Power Source Capacity Analysis – General Part

Report D 240 M 0000 E02 – BK117 D-2 Basic Electrical Load and Power Source Capacity Analysis – Specific Part (S/N 20007, change status 0081 – sample)

Report D 240 M 1001 E01 – BK117 D-3 S/N 21001 Electrical Load and Power Source Capacity Analysis – Specific Part

CS D2460M505301 – ELA for BK117 with GRC1 – BK 117 D-3, BK 117 D-3m

Master Minimum Equipment List – Airbus Helicopters Deutschland GmbH
BK117 D-2 / BK117 D-2M – Series and BK117 D-3 / BK117 D-3M – Series

OSD_L0000M410901 – EASA Operational Suitability Data (OSD) – Flight Crew
EC 145 (BK 117) – Revision 3.0, July 2020

Appendix 1 to EASA OSD – Flight Crew – Operator Difference Requirements
(ODR) Tables, Master Difference Requirements (MDR) Table – EC145 (BK117)

SP D000M0903E01 – Technical Specification – BK117 D-3 Basic Helicopter

5. New Zealand Operational Rule Compliance

Compliance with the retrospective airworthiness requirements of NZCAR Part 26 is a prerequisite for the grant of a type acceptance certificate.

Civil Aviation Rules Part 26

Subpart B – Additional Airworthiness Requirements

Appendix B - All Aircraft

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
B.1	Marking of Doors and Emergency Exits	<i>To be determined on an individual aircraft basis</i>
B.2	Crew Protection Requirements – CAM 8 Appdx. B # .35	Not Applicable – Agricultural Aircraft only

Appendix E - Helicopters

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
E.1	Doors and Exits	FAR §29.783(c) and (e)
E.2.1	Emergency Exit Marking	FAR §29.811(b) and (f)

Compliance with the following additional NZ operating requirements has been reviewed (for the MBB-BK117C-2) and were found to be covered by either the original certification requirements or the basic build standard of the aircraft, except as noted:

Civil Aviation Rules Part 91

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
91.505	Seating and Restraints – Safety belt/Shoulder Harness	FAR §29.785(c)
91.507	Pax Information Signs - Smoking, safety belts fastened	Not Applicable – Less than 10 passenger seats
91.509 Min. VFR	(1) ASI FAR §29.1303(a) – Fitted as standard – See TS §3.13.1.1 N/A (2) Machmeter FAR §29.1303(b) – Fitted as standard – See TS §3.13.1.2 (3) Altimeter FAR §29.1303(c) – Fitted as standard – See TS §3.13.2 (4) Magnetic Compass FAR §29.1305(a)(3) (5) Fuel Contents FAR §29.1305(a)(13) (6) Engine RPM	(7) Oil Pressure FAR §29.1305(a)(6) (8) Coolant Temp N/A – Turbine engine (9) Oil Temperature FAR §29.1305(a)(9) (10) Manifold Pressure N/A – Turbine engine (11) Cylinder Head Temp. N/A – Turbine engine (12) Flap Position N/A – Helicopter (13) U/c Position N/A – Fixed skids (14) Ammeter/Voltmeter FAR §29.1351(b)(6)
	Flight/navigation indications are presented on EFIS displays, part of the MEGHAS Avionics Suite (MBB-BK117 C-2)	
	Flight/navigation indications are presented on EFIS displays, part of the CIGALHE Avionics Suite (MBB-BK117 D-2/3)	
91.511 Night	(1) Turn and Slip Artificial Horizon fitted as Std – See Type Spec §3.13.1.4 (2) Position Lights Fitted as Std – See TS §3.11.1	(3) Anti-collision Lights Fitted as Std – See TS §3.11.2 (4) Instrument Lighting Fitted as Std – See TS §3.12.2
91.517	IFR Instruments and Equipment	Operational Requirement – Compliance as applicable
91.519	IFR Communication and Navigation Equipment	Operational Requirement – Compliance as applicable
91.523	Emergency Equipment (a) More Than 9 pax – First Aid Kits per Table 7 – Fire Extinguishers per Table 8 (b) More than 20 pax – Axe readily accessible to crew (c) More than 61 pax – Portable Megaphones per Table 9	Operational Requirement – Compliance as applicable Fitted as standard – See Type Specification §3.3.1.5 Not Applicable – Less than 20 passenger seats Not Applicable – Less than 61 passenger seats
91.529	ELT – TSO C91a or C126 after 1/4/97 (or replacement)	Operational Requirement – Compliance as applicable
91.531	Oxygen Indicators – Volume/Pressure/Delivery	Operational Requirement – Compliance as applicable
91.533	Oxygen for Non-Pressurised Aircraft >30 min above FL100 – Supplemental for crew, 10% Pax – Therapeutic for 3% of Pax Above FL100 – Supplemental for all Crew, Pax – Therapeutic for 1% Pax, – 120l PBE each crew member	Not fitted as standard Not listed in the optional equipment Supplements in the Flight Manual Maximum operating altitude is 18,000 ft. PA.
91.541	SSR Transponder and Altitude Reporting Equipment	Operational Requirement – Compliance as applicable
91.543	Altitude Alerting Device – Turbojet or Turbofan	Not Applicable – Not turbo jet or turbofan powered
91.545	Assigned Altitude Indicator	Operational Requirement – Compliance as applicable
A.15	ELT Installation Requirements	<i>To be determined on an individual aircraft basis</i>

Civil Aviation Rules Part 135

Subpart F – Instrument and Equipment Requirements

PARA:	REQUIREMENT:	MEANS OF COMPLIANCE:
135.355	Seating and Restraints – Shoulder harness flight-crew seats	Crew seats are equipped with 4-point seat-belt system with inertial-reel locking for the shoulder belts – See TS §3.3.1.1
135.357	Additional Instruments (Powerplant and Propeller)	FAR §29.1305
135.359	Night Flight	Landing light, pax compartment
135.361	IFR Operations	Speed, Alt, spare bulbs/fuses
135.363	Emergency Equipment (Part 91.523 (a) and (b))	Operational Requirement – Compliance as applicable
135.367	Cockpit Voice Recorder	Operational Requirement – Compliance as applicable – Applies when the helicopter's flight manual requires two or more flight crew members; <u>and</u> it has a certificated seating capacity of 10 seats or more excluding any required pilot seat. NOTES: 1. All MBB-BK117 models, except the BK117D-2/3, have a high density 10 passenger seat option specified on the TCDS. 2. There are other options available. e.g. FAA STC No. SR01906LA approves an up to 10-seat utility troop seating system in the BK117D-2.
135.369	Flight Data Recorder	Operational Requirement – Compliance as applicable Applies to helicopters with a certificated seating capacity of ten seats or more excluding any crew member seat. (See note above.) NOTES: 1. A factory FDR option was only available for the Model EC145 on. 2. Exemption 17/EXE/28 has been issued to not require an FDR on the BK117 Series, subject to specified conditions
135.371	Additional Attitude Indicator	Not Applicable – Not turbo jet or turbofan powered
135.373	Weather Radar	Not Applicable – MCTOW less than 5700 kg.
135.375	Ground Proximity Warning System	Not Applicable – MCTOW less than 5700 kg.

- NOTES: 1. A Design Rule reference in the Means of Compliance column indicates the Design Rule was directly equivalent to the CAR requirement, and compliance is achieved for the basic aircraft type design by certification against the original Design Rule.
2. The CAR Compliance Tables above were correct at the time of issue of the Type Acceptance Report. The Rules may have changed since that date and should be checked individually.
3. Some means of compliance above are specific to a particular model/configuration. Compliance with Part 91/119 operating requirements should be checked in each case, particularly oxygen system capacity and emergency equipment.

Attachments

The following documents form attachments to this report:

Copy of EASA Type Certificate Data Sheet Number EASA.R.010

Sign off




David Gill
Team Leader Aircraft Inspection

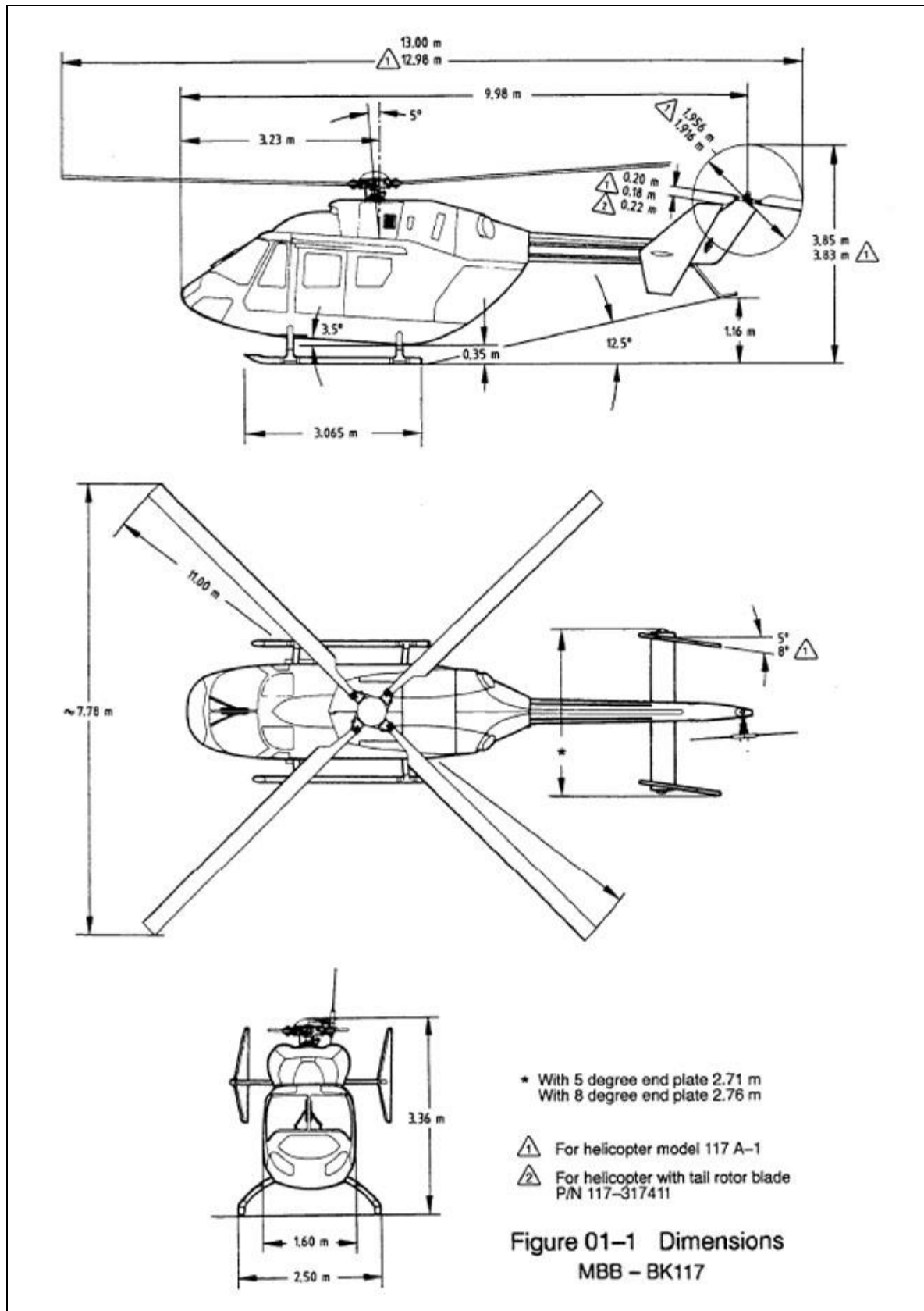



Checked – Mark Price
Airworthiness Inspector

Appendix 1

List of Type Accepted Variants:

<i>Model:</i>	<i>Applicant:</i>	<i>CAA Work Request:</i>	<i>Date Granted:</i>
MBB-BK117 C-2	Eurocopter Deutschland GmbH	7/21B/10	10 May 2007
MBB-BK117 A-3	Eurocopter Deutschland GmbH	12/21B/19	30 August 2012
MBB-BK117 A-4	Eurocopter Deutschland GmbH	12/21B/19	30 August 2012
MBB-BK117 B-1	Eurocopter Deutschland GmbH	12/21B/19	30 August 2012
MBB-BK117 B-2	Eurocopter Deutschland GmbH	12/21B/19	30 August 2012
MBB-BK117 C-1	Eurocopter Deutschland GmbH	12/21B/19	30 August 2012
MBB-BK117 D-2	Airbus Helicopters Deutschland GmbH	14/21B/15	29 August 2014
Helionix Step 2	Airbus Australia Pacific (NZ) Pty Ltd	19/21B/31	17 December 2019
MBB-BK117 D-3	Airbus Helicopters Deutschland GmbH	20/21B/22	29 September 2020
Mod. 10077593	Airbus Helicopters Deutschland GmbH	22/21B/9	11 March 2022
Helionix SW V10	Airbus New Zealand	Project 4484	7 January 2025

Attachment 1:**3-View Drawing MBB-BK117 A/B Series**

Attachment 2:

3-View Drawing MBB-BK117 D-3 Series

