

 <b>適航指令發布單</b> <b>Airworthiness Directive Issuance Form</b>			
民航局 AD 編號 AD number	CAA-2016-07-010	發布日期 Date issued	2016/7/22
適用之航空產品 Applied to (models, serial numbers or part numbers, as applicable)	MBB-BK117 A-1, MBB-BK117 A-3, MBB-BK117 A-4, MBB-BK117 B-1, MBB-BK117 B-2, MBB-BK117 C-1, MBB-BK117 C-2 and MBB-BK117 C-2e helicopters, all serial numbers (s/n), and BO105 A, BO105 C, BO105 D, BO105 S and BO105 LS A-3 (see Note 1 of this AD) helicopters, all variants, all s/n. Note 1: BO105 LS A-3, post STC 10039633 (so called "Superlifter") are affected by this AD.		
主旨摘要	Main Rotor - Swashplate Assembly - Replacement / Inspection		
民航局 CAA <input type="checkbox"/> 本國產品 Native products <input type="checkbox"/> 其他個案 Other	設計國民航主管機構 Original Authorities <input type="checkbox"/> FAA <input type="checkbox"/> Germany LBA <input checked="" type="checkbox"/> EASA <input type="checkbox"/> CAA-NL <input type="checkbox"/> Brazil <input type="checkbox"/> UK CAA <input type="checkbox"/> Transport Canada Civil Aviation <input type="checkbox"/> Japan CAB <input type="checkbox"/> DGAC <input type="checkbox"/> CAA of Israel <input type="checkbox"/> Other _____		
	設計國 AD 編號 Original AD number	2016-0142	
	1. 直接採用原 AD 之內容?(Is the original AD directly adopted?) <input checked="" type="checkbox"/> 是(Yes) <input type="checkbox"/> 否(No) _ a. 生效日期另訂為(Re-specify the effective date as) : _____ b. 執行時限另訂為(Re-specify the compliance time or period as) : _____ 2. 使用人是否需要將 AD 執行結果向民航局提出報告?(Do Users need to report the status of compliance to the CAA?) <input type="checkbox"/> 是(Yes) <input checked="" type="checkbox"/> 否(No)		
備註 Note	ATA 62. This AD supersedes EASA AD 2016-0060(CAA-2016-02-002) dated 23 March 2016. Ref. Publications: AHD ASB MBB-BK117-40A-115 original issue dated 31 March 2014, or Revision 1 dated 04 August 2014, or Revision 2 dated 30 July 2015, or Revision 3 dated 8 February 2016, or Revision 4 dated 23 May 2016. AHD ASB MBB-BK117C-2-62A-007 original issue dated 31 March 2014, or Revision 01 dated 04 August 2014, or Revision 2 dated 30 July 2015, or Revision 3 dated 8 February 2016, or Revision 4 dated 23 May 2016.		
註： 1. AD 內容後附。 2. 航空器產品使用人得向民航局提出豁免、替代符合方法、執行時限之展延之申請。 3. 如有任何問題，請聯絡交通部民用航空局初始適航科。Tel：(02)2349-6331~3, Fax：(02)2545-8464, e-mail： <a href="mailto:adcaa@mail.caa.gov.tw">adcaa@mail.caa.gov.tw</a> Note： 1. The AD text is enclosed. 2. Exemption, an alternative method of compliance or adjustment of the compliance time may be proposed to the CAA for approval. 3. For further information, please contact Civil Aeronautics Administration on Tel：(02)2349-6331~3, Fax：(02)2545-8464, e-mail： <a href="mailto:adcaa@mail.caa.gov.tw">adcaa@mail.caa.gov.tw</a>			



## Airworthiness Directive

**AD No.:** 2016-0142

**Issued:** 19 July 2016

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) 216/2008 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.

This AD is issued in accordance with Regulation (EU) 748/2012, Part 21.A.3B. In accordance with Regulation (EU) 1321/2014 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [Regulation (EU) 1321/2014 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [Regulation (EC) 216/2008, Article 14(4) exemption].

### Design Approval Holder's Name:

AIRBUS HELICOPTERS DEUTSCHLAND GmbH

### Type/Model designation(s):

MBB-BK 117 and BO105 helicopters

**Effective Date:** 02 August 2016

**TCDS Number(s):** EASA.R.010 and EASA.R.011

**Foreign AD:** Not applicable

**Revision:** This AD supersedes EASA AD 2016-0060 dated 23 March 2016.

## ATA 62 – Main Rotor – Swashplate Assembly – Replacement / Inspection

### Manufacturer(s):

Airbus Helicopters Deutschland GmbH (AHD) (formerly Eurocopter Deutschland GmbH, Eurocopter Hubschrauber GmbH, Messerschmitt-Bölkow-Blohm GmbH), Airbus Helicopters Inc. (formerly American Eurocopter LLC), Eurocopter Canada Ltd (formerly Messerschmitt-Bölkow-Blohm Helicopter Canada Ltd)

### Applicability:

MBB-BK117 A-1, MBB-BK117 A-3, MBB-BK117 A-4, MBB-BK117 B-1, MBB-BK117 B-2, MBB-BK117 C-1, MBB-BK117 C-2 and MBB-BK117 C-2e helicopters, all serial numbers (s/n), and

BO105 A, BO105 C, BO105 D, BO105 S and BO105 LS A-3 (see Note 1 of this AD) helicopters, all variants, all s/n.

Note 1: BO105 LS A-3, post STC 10039633 (so called "Superlifter") are affected by this AD.

### Reason:

During a post-flight check on a BO105 helicopter, it was detected that the lower clamp installed on the swashplate bellows was missing. Prior to this, the loose clamp had caused damage to the swashplate bearing ring. Similar cases had already been reported in the past. Investigation showed that over-torquing can cause damage to the clamp, which may have contributed to the loosening and subsequent loss of the clamp.



This condition, if not detected and corrected, could lead to further cases of lost swashplate clamps, possibly resulting in loss of control of the helicopter.

To address this unsafe condition, AHD issued Alert Service Bulletins (ASB) MBB-BK117-40A-115, MBB-BK117C-2-62A-007, BO105-40A-107 and BO105LS-40A-12 (hereafter collectively referred to as “the applicable ASB” in this AD) to provide instructions for clamp replacement and for repetitive inspections. EASA issued AD 2014-0180 (later revised) to require replacement of swash-plate clamps with cable ties, repetitive inspections of cable ties for loose fit and replacement of cable ties with serviceable parts.

Since EASA AD 2014-0180R1 was issued, several reports were received of further separations of swashplate bellows, which were installed with the new cable ties. Prompted by these findings, AHD revised the ASBs to provide instructions for removal of the swashplate bellows and accomplishment of repetitive inspections. Consequently, EASA issued AD 2015-0166, partially retaining the requirements of EASA AD 2014-0180R1, which was superseded, and requiring removal of the swashplate bellows and accomplishment of repetitive inspections and, depending on findings, corrective actions.

Since EASA AD 2015-0166 was issued, a modification was designed by AHD, allowing terminating the repetitive inspections. The existing four (4) ASBs were revised (at Revision 3) accordingly to provide modification instructions. In addition, instructions applicable to STC-modified BO105 LS A-3 (so-called “Superlifter”) helicopters, previously available in the SB applicable to the BO105 LS A-3, were included in a new SB, ASB BO105 LS A-3-STC-0654/3058-40A-2. Consequently, EASA issued AD 2016-0060, retaining the requirements of EASA AD 2015-0166, which was superseded, and requiring the installation of improved swashplate bellows Part Number (P/N) 623M20X2240 (hereafter referred to as the “new bellows” in this AD) and deflection ring P/N B623M2002210 as terminating action.

MBB-BK117 C-2 and MBB-BK117 C-2e helicopters, serial number 9751 inclusive and up, being equipped since delivery with the new bellows and deflection ring, were not affected by the repetitive inspections requirements of the AD.

Since EASA AD 2016-0060 was issued, occurrences were reported of cable ties in the lower bellows fold found dislodged on helicopters equipped with the new bellows. Investigations showed a non-conformity issue with the bellows manufacturer’s tooling of the new bellows. The applicable ASB and ASB BO105 LS A-3-STC-0654/3058-40A-2 were revised, to provide instructions for removal of the swashplate bellows, and for repetitive inspection.

The applicable ASB, now at Revision 4, and the ASB BO105 LS A-3-STC-0654/3058-40A-2 at Revision 2, are hereafter collectively referred to as “the latest ASB” in this AD.

For the reasons described above, this AD partially retains the requirements of EASA AD 2016-0060, which is superseded, and additionally requires removal of the swashplate bellows and accomplishment of repetitive inspections.

This AD is considered an interim action and further AD to implement the terminating action will follow.



**Required Action(s) and Compliance Time(s):**

Required as indicated, unless accomplished previously:

Note 2: For the purpose of this AD, the affected clamps are identified by P/N MBB100-W3-5, P/N MBB270-W3-5, P/N NSA5528-100 and P/N NSA5528-250.

- (1) Within the compliance time as defined in Table 1 of this AD, as applicable, replace each affected swashplate bellows clamp with cable ties in accordance with the instructions of the applicable ASB, at original issue or Revision 1.

Table 1 – Replacement of Swashplate Clamps

Helicopter Model(s)	Compliance Time (after 11 August 2014, the effective date of EASA AD 2014-0180 at original issue)
BO 105, all variants	Within 300 flight hours (FH) after the last periodical inspection, or during the next periodical inspection (see Note 3 of this AD), or within 6 months, whichever occurs first
MBB-BK 117 A-1, A-3, A-4, B-1, B-2 and C-1	
MBB-BK 117 C-2	During the next intermediate inspection (see Note 3 of this AD)

Note 3: For the applicable scheduled periodical inspection intervals, refer to the Aircraft Maintenance Manual (AMM) for the affected helicopter model/variant.

- (2) Do not install on any helicopter an affected swashplate bellows clamp, or any gearbox or swashplate equipped with an affected clamp, as required by paragraph (2.1) or (2.2) of this AD, as applicable.
  - (2.1) For a helicopter not equipped with affected clamps: From 11 August 2014 [the effective date of EASA AD 2014-0180 at original issue].
  - (2.2) For a helicopter equipped with affected clamps: After modification of the helicopter as required by paragraph (1) of this AD.
- (3) Within 400 FH or during the next scheduled 12 month inspection (see Note 4 of this AD), whichever occurs first after modification of a helicopter as required by paragraph (1) of this AD, and, thereafter, at intervals not to exceed 400 FH, or during each scheduled 12 month inspection (see Note 4 of this AD), whichever occurs first, inspect the cable ties for loose fit in accordance with the instructions of the applicable ASB at original issue or Revision 1.

Note 4: A non-cumulative tolerance of 10% may be applied to the compliance times specified in this AD to allow synchronization of the required inspections with other maintenance tasks for which a non-cumulative tolerance is already granted in the applicable AMM.

- (4) If, during any inspection as required by paragraph (3) of this AD, any cable tie is found loose, before next flight, replace the loose cable tie with a serviceable part in accordance with the instructions of the applicable ASB at original issue or Revision 1.



- (5) Within 50 FH, or during the next periodical inspection (see Note 3 of this AD), whichever occurs first after 25 August 2015 [the effective date of EASA AD 2015-0166], or, for a helicopter equipped with new bellows, within 400 FH (see Note 4 of this AD), after the effective date of this AD, remove the swashplate bellows and perform inspections in accordance with the instructions of section 3.B.1 of the latest ASB.
- (6) For a helicopter not equipped with new bellows, modification and inspection in accordance with the instructions of section 3.B.1 of the applicable ASB at Revision 2 is acceptable to comply with the requirements of paragraph (5) of this AD.
- (7) Removal of the swashplate bellows from a helicopter as required by paragraph (5) of this AD is an acceptable method to comply with paragraphs (1) and (4) of this AD for that helicopter.
- (8) Modification of a helicopter as required by paragraph (5) of this AD constitutes terminating action for the repetitive inspections as required by paragraph (3) of this AD for that helicopter.
- (9) Within 100 FH after modification of a helicopter as required by paragraph (5) of this AD, and, thereafter, at intervals not to exceed 100 FH (see Note 4 of this AD), inspect the swashplate in accordance with the instructions of section 3.B.2 of the latest ASB.
- (10) Inspection on a helicopter, accomplished before the effective date of this AD in accordance with the instructions of section 3.B.2 of the applicable ASB at Revision 2, are acceptable to comply with the initial requirement of paragraph (9) of this AD for that helicopter. After the effective date of this AD, the latest ASB must be used.
- (11) Within 400 FH after modification of a helicopter as required by paragraph (5) of this AD, and, thereafter, at intervals not to exceed 400 FH (see Note 4 of this AD), inspect the swashplate in accordance with the instructions of section 3.B.3 of the latest ASB.
- (12) Inspection on a helicopter, accomplished before the effective date of this AD in accordance with the instructions of section 3.B.3 of the applicable ASB at Revision 2, are acceptable to comply with the initial requirement of paragraph (11) of this AD for that helicopter. After the effective date of this AD, the latest ASB must be used.
- (13) If, during any inspection as required by paragraph (5), (9) or (11) of this AD, as applicable, discrepancies are found, before next flight, accomplish the applicable corrective action(s) in accordance with the instructions of the latest ASB.
- (14) Corrective action accomplished on a helicopter before the effective date of this AD in accordance with the instructions of the applicable ASB at Revision 2 are acceptable to comply with the initial requirement of paragraph (13) of this AD for that helicopter.
- (15) From 25 August 2015 [the effective date of EASA AD 2015-0166], do not install on any helicopter a swashplate bellows P/N 105-10113.05 or P/N 4638305043.



(16) Do not install on any helicopter swashplate bellows having a P/N listed in Appendix 1 of this AD, or any gearbox equipped with swashplate bellows having a P/N listed in Appendix 1 of this AD, as required by paragraph (16.1) or (16.2) of this AD, as applicable.

(16.1) For a helicopter with a swashplate bellows installed, having a P/N listed in Appendix 1 of this AD: After modification of that helicopter as required by paragraph (5) of this AD.

(16.2) For a helicopter that does not have a swashplate bellows installed, having a P/N listed in Appendix 1 of this AD: From the effective date of this AD.

#### **Ref. Publications:**

AHD ASB MBB-BK117-40A-115 original issue dated 31 March 2014, or Revision 1 dated 04 August 2014, or Revision 2 dated 30 July 2015, or Revision 3 dated 8 February 2016, or Revision 4 dated 23 May 2016.

AHD ASB MBB-BK117C-2-62A-007 original issue dated 31 March 2014, or Revision 01 dated 04 August 2014, or Revision 2 dated 30 July 2015, or Revision 3 dated 8 February 2016, or Revision 4 dated 23 May 2016.

AHD ASB BO105-40A-107 original issue dated 31 March 2014, or Revision 1 dated 08 September 2014, or Revision 2 dated 30 July 2015, or Revision 3 dated 8 February 2016, or Revision 4 dated 23 May 2016.

AHD ASB BO105LS-40A-12 original issue dated 31 March 2014, or Revision 1 dated 08 September 2014, or Revision 2 dated 30 July 2015, or Revision 3 dated 8 February 2016, or Revision 4 dated 23 May 2016.

AHD ASB BO105 LS A-3-STC-0654/3058-40A-2, original issue dated 8 February 2016, or Revision 1 dated 23 May 2016.

The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.

#### **Remarks:**

1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.
2. This AD was posted on 17 June 2016 as PAD 16-090 for consultation until 15 July 2016. No comments were received during the consultation period.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: [ADs@easa.europa.eu](mailto:ADs@easa.europa.eu).
4. For any question concerning the technical content of the requirements in this AD, please contact: Airbus Helicopters Deutschland GmbH, Industriestrasse 4, 86607 Donauwörth, Federal Republic of Germany  
Telephone: + 49 (0)151 1422 8976; Facsimile: + 49 (0)906 71 4111.



## Appendix 1 – Parts not to be installed on Post-mod Helicopters

Helicopter Models (Variants)	Component	P/N
BO105 LS A-3	Swashplate Bellows	105-10113.05
		4638305043
		B623M20X2240
STC-modified BO105 LS A-3 (Superlifter)	Swashplate Bellows	105-10113.05
		4638305043
		B623M20X2240
BO105 A, BO105 C (C23, CB, CB-4, CB-5), BO105 D (D, DS, DB, DBS, DB-4, DBS-4, DBS-5), and BO105 S (CS, CBS, CBS-4, CBS-5).	Swashplate Bellows	105-10113.05
		4638305043
		4619305044
		B623M20X2240
BK117, A-1, A-3, A-4, B-1, B-2 and C-1.	Swashplate Bellows	105-10113.05
		4638305043
		B623M20X2240
BK117 C-2 and C-2e	Swashplate Bellows	105-10113.05
		4638305043
		B623M20X2240

