


DELIVERY NOTE WP

DELIVER TO :

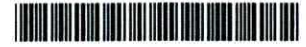
GALAXY AEROSPACE (M) SDN. BHD.
CAMO DEPARTMENT
Lot 11, MRO Centre,
Malaysia International Aerospace Centre,
Sultan Abdul Aziz Shah Airport,
47200 Subang, Selangor
Malaysia.
Attn : Zaty Nadhira binti Mohamed Zuhari

DN NUMBER : GAM/DN/SAS-21-062
OUR REFERENCE : 9M-SAS -8136
WO REFERENCE : 2021-8136
DATE COMPLETION: 24 SEPTEMBER 2021
AJL NUMBER : 000586

A/C DETAILS							
A/C TYPE	EC155B	A/C REG	9M-SAS	A/C S/N	6583		
OWNER / OPERATOR	HRH SULTAN OF PAHANG	A/C TOTAL TIME	3383:00	LANDINGS	7778		
ENGINE #1 S/N	24595	T.S.N	-	T.S.O	-		
ENGINE #2 S/N	24593	T.S.N	-	T.S.O	-		
LIST OF TASK PERFORMED	WP NUMBER	NUMBER OF PAGES					
		*WS	*PR	*ARC	*S	*SBC	*OTH
EASA AD NO.:2021-0170//EASBEC155-04A016 R3 (ERRATA CORRIGE) (PARA 3.B.2)	001	1	1	-	-	26	-
*THIS IS TO CERTIFY THAT TASKS LISTED ABOVE HAS BEEN ACCOMPLISHED AS PER PO/WORK ORDER/SERVICE ORDER NO. AS ABOVE.							
NAME	AFIQ AFFANDI	SIGNATURE		DATE	28 SEPTEMBER 2021		
VERIFIED AND ACCEPTED BY			NORSHAHEERA IDAYU BINTI MUSTAFA Senior Technical Record Galaxy Aerospace (M) Sdn Bhd (1040262-D)				
DATE			29 SEP 2021				

- | | |
|---------------------------------------|------------------------------------|
| *WS – WORKSHEET | *S – SERVICEABLE LABEL |
| *PR – PART REPORT | *SBC – SERVICE BULLETIN COMPLIANCE |
| *ARC – AUTHORISED RELEASE CERTIFICATE | *OTH – OTHERS |

WORK ORDER



To: GALAXY AEROSPACE (M) SDN. BHD.

<p>Address: Lot 11-14, MRO Centre, Malaysia International Aerospace Centre, SAAS Airport, Subang Malaysia</p> <p>Attention: Mr. Syafrul Yamani Engineering Manager syafrul@galaxyaerospace.my</p>	<p>Work Order Number: 2021-8136</p> <p>Work Pack Reference: 9M-SAS-8136</p> <p>Date Issued: 24/09/2021</p> <p>A/C Registration / SN: 9M-SAS/6583</p> <p>Sheet: 1 of 1</p>
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Description:

Item	Description/Task/Inspection	Reference	Man Hours
1	EASA AD No.: 2021-0170 // EASB EC155-04A016 R3 (ERRATA CORRIGE) (PARA 3.B.2)		1 (PLEASE ADVISE)

Remark/Notes:

1. State this Work Order reference on your Work Package. Should there is any additional job/defect (unless specified in the work package) the maintenance organization must notify GAM Continuing Airworthiness Manager prior to proceed with rectification.
2. Work must be carried out in accordance with approved data and perform by qualified personnel/ approved LAE from the maintenance organization.
3. Parts used must be written in Parts Report Form and accompanied by ARC, Serviceable Label or equivalent document.
4. Test report, parameter reading or any supporting data must be attached with the worksheet if applicable.
5. The maintenance organization shall be responsible for any damages made on the aircraft/ components during maintenance.
6. Softcopy of completed Work Package shall be submitted or as mutual agreed and GAM Continuing Airworthiness Manager must be informed once the aircraft is Release to Service.
7. Completed Work Package (original) must be submitted to GAM Continuing Airworthiness Manager office within 3 days of date of completion.

I hereby declare that an approved and up to date maintenance data has been referred for the issuance of this work order.

Thank you.
Best Regards,

Zaty Nadhira Mohamed Zuhari
Continuing Airworthiness Management Manager
Email: zaty@galaxyaerospace.my



CLIENT/OWNER: HRH SULTAN OF PAHANG AIRCRAFT TYPE: EC155 B REGISTRATION: 9M-SAS BASE/FACILITY: WMSA DATE IN: 24/9/21 OUT: 24/9/21	SERIAL NO. 6583 AIRCRAFT #1 ENGINE: 24595 #2 ENGINE: 24593	HOURS 3383:00 N/A N/A	LDG/CYCLE 7778 N/A N/A	WORKSHEET NO: 8136-001 WORK/INSP/DESC: EASA AD No.: 2021-0170 // WORKPACK REF: 9M-SAS-8136 LBE REF NO.: NOT APPLICABLE SHEET: 1 OF 1
Reason for raising: EASA AD No.: 2021-0170 // EASB EC155-04A016 R3 (ERRATA CORRIGE) (PARA 3.B.2) COMPLIANCE TO BE CARRIED OUT EASA AD No.: 2021-0170 // EASB EC155-04A016 R3 (ERRATA CORRIGE) (PARA 3.B.2)		Raised by and date: Muhammad Ihsan Masri 24/09/2021		Other requirements/information: NIL

Item	Description	Technician	* Eng. CRS	Date
1	<p>EASB EC155-04A016 R3 // EASA AD No.: 2021-0170</p> <p>TO COMPLY WITH PARAGRAPH 3.B.2.AT INTERVALS THAT DO NOT EXCEED 10 FLIGHT HOURS</p> <p>NOTES: DOUBLE BEARINGS IS REPLACED EVERY 500FH</p> <p>DOUBLE BEARINGS LAST REPLACED AT 3284:50FH (WP-SAS-20-313)</p> <p>REF: EASB EC155-04A016 R3 // EASA AD No.: 2021-0170</p> <p>REMARKS: NIL PARTICLE FOUND. CHECK FOUND SATISFACTORY.</p>	 	 	24 SEPT 2021

*The work recorded above has been carried out in accordance with the requirements of the Malaysian Civil Aviation Regulation for the time being in force and in that respect the aircraft / equipment is considered fit for release to service.

*The work recorded above has been carried out in accordance with the requirements of the _____ for the time being in force and in that respect the aircraft / equipment is considered fit for release to service.

TICK WHERE APPLICABLE

DATE	BY	ISSUES	WORK	INSTRUMENT	TOOL	ADDITIONAL WORKSHEET	INSPIRED EFFECT	PLANNING	COPY	OTHER	ALL	APPROV	WORKING	PROFFER	ISS	REWORK	REWORK
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Airworthiness Directive

AD No.: 2021-0170

Issued: 19 July 2021

Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EU) 2018/1139 on behalf of the European Union, its Member States and of the European third countries that participate in the activities of EASA under Article 129 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 (EU) 2018/1139, Article 71 exemption].

Design Approval Holder's Name: AIRBUS HELICOPTERS
Type/Model designation(s): SA 365, AS 365 and EC 155 helicopters

Effective Date: 02 August 2021

TCDS Number(s): EASA.R.105

Foreign AD: Not applicable

Supersedure: This AD supersedes EASA AD 2020-0078 dated 31 March 2020.

ATA 65 – Tail Rotor – Double Bearing – Inspection / Replacement

Manufacturer(s):

Airbus Helicopters (AH), formerly Eurocopter, Eurocopter France, Aerospatiale, Sud Aviation

Applicability:

AS 365 N2, AS 365 N3, EC 155 B, EC 155 B1 and SA 365 N1 helicopters, all serial numbers (s/n).

Definitions:

For the purpose of this AD, the following definitions apply:

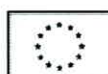
The applicable ASB: AH AS365 Emergency Alert Service Bulletin (ASB) 01.00.71 and EC155 Emergency ASB 04A016 (single publication) Revision 3, as applicable.

Affected part: Double bearings, having Part Number (P/N) 704A33-651-245 or P/N 704A33-651-246, installed on a tail rotor gearbox (TGB) P/N 365A33-6005-09.

Serviceable part: Double bearings, having P/N 704A33-651-245 or P/N 704A33-651-246, which are new (never previously installed).

Groups: Group 1 helicopters are those that have an affected part installed, which has accumulated less than 500 flight hours (FH) since first installation on a helicopter.

Group 2 helicopters are those that have an affected part installed, which has accumulated 500 FH or more since first installation on a helicopter.



Close monitoring: Close monitoring procedure in accordance with Work Card 05-53-00-201 (MET) or Aircraft Maintenance Manual (AMM) Task 05-50-01-211.

ALF: After last flight (ALF) of the day inspection.

Reason:

Following a regular TGB chip detector check on an AS 365 N2 helicopter, equipped with a TGB P/N 365A33-6005-09 (terminating action for EASA AD 2017-0125), a certain quantity of abrasion particles and non-critical scale particles was found, triggering the close monitoring procedure according to the applicable maintenance instructions. Since no anomaly was reported during the close monitoring regime, the helicopter returned to the normal inspection program, but after a few flight hours, during an unscheduled check, a large amount of critical scale particles was found on the chip detector's magnetic plug. The particles belonged to the double bearing (pitch control rod bearing) installed inside the TGB. The reported event showed a speed of degradation faster than expected.

This condition, if not detected and corrected, could lead to loss of yaw control of the helicopter.

To address this unsafe condition, AH issued the applicable ASB at original issue (later revised), providing inspection and replacement instructions, and EASA issued Emergency AD 2019-0267-E (also later revised) to require repetitive inspections of the TGB chip detector for particles and replacement of the double bearing.

After EASA AD 2019-0267R1 was issued, it was determined that the interval for the chip detector inspection needed to be reduced. AH issued the applicable ASB at Revision 2 and EASA issued AD 2020-0078, retaining the requirements of EASA AD 2019-0267R1, which was superseded, and requiring the chip detector inspection for Group 1 helicopters at reduced intervals.

Since that AD was issued, additional testing of the affected TGB concluded that the chip detector inspection interval must be further reduced to allow timely detection of an impending TGB bearing failure. AH published the applicable ASB, as defined in this AD, reflecting the new inspection interval, and amending the criteria for corrective action following particle detection.

For the reason described above, this AD retains the requirements of EASA AD 2020-0078, which is superseded, and requires inspection of the TGB chip detector (for Group 1 helicopters) at reduced intervals and, depending on findings, corrective action(s) using new criteria. This AD also introduces a calendar time limit for the first replacement of affected parts.

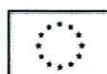
This AD is still considered an interim action and further AD action may follow.

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

Required as indicated, unless accomplished previously:

Inspection(s):

- (1) For Group 1 helicopters under close monitoring on 28 October 2019 [the effective date of the original issue of EASA AD 2019-0267]: Within the applicable compliance time as identified in the close monitoring and until completion of the close monitoring, assess any particles



collected during the close monitoring in accordance with the instructions of paragraph 3.B.2 of the applicable ASB.

- (2) For Group 1 helicopters under close monitoring on 28 October 2019 [the effective date of the original issue of EASA AD 2019-0267]: Upon completion of the close monitoring regime, or within 10 FH after the last inspection, as applicable, and thereafter at intervals not to exceed 10 FH, accomplish a TGB chip detector inspection in accordance with the instructions of paragraph 3.B.2 of the applicable ASB.
- (3) For Group 1 helicopters not under close monitoring on 28 October 2019 [the effective date of the original issue of EASA AD 2019-0267]: Within 10 FH after the last inspection and, thereafter, at intervals not to exceed 10 FH, accomplish a TGB chip detector inspection in accordance with the instructions of paragraph 3.B.2 of the applicable ASB.

Assessment / Double Bearing Washing:

- (4) For Group 2 helicopters under close monitoring on 28 October 2019 [the effective date of the original issue of EASA AD 2019-0267]: Before next flight after 19 November 2019 [the effective date of EASA AD 2019-0267R1], assess any particles collected during the close monitoring in accordance with the instructions of paragraph 3.B.2 of the applicable ASB, or accomplish a double bearing washing in accordance with the instructions of paragraph 3.B.3 of the applicable ASB.
- (5) For Group 2 helicopters: Unless already accomplished as required by paragraph (4) of this AD, within 15 FH after 28 October 2019 [the effective date of the original issue of EASA AD 2019-0267], accomplish a double bearing washing in accordance with the instructions of paragraph 3.B.3 of the applicable ASB.

Inspection(s):

- (6) For Group 2 helicopters: After accomplishment of the double bearing washing as specified in paragraph (4), or as required by paragraph (5) of this AD, as applicable, accomplish the inspections as required by paragraph (6.1) or (6.2) of this AD (see Note 2 of this AD).
 - (6.1) Inspect the TGB chip detector in accordance with the instructions of paragraph 3.B.2 of the applicable ASB at intervals not exceeding 10 FH **and** accomplish a double bearing washing in accordance with the instructions of paragraph 3.B.3 of the applicable ASB at intervals not exceeding 30 FH.
 - (6.2) Inspect the TGB chip detector in accordance with the instructions of paragraph 3.B.2 of the applicable ASB during each ALF, or at intervals not exceeding 5 FH, whichever occurs first.

Note 2: After accomplishment of a double bearing washing in accordance with the instructions of paragraph 3.B.3 of the applicable ASB, subsequent chip detector inspections can be accomplished as required by paragraph (6.1) or (6.2) of this AD.



Corrective Action(s):

- (7) If, during any action as required by paragraphs (1) to (6) of this AD, as applicable, any discrepancy, as identified in the applicable ASB, is detected, accomplish the applicable corrective action(s) in accordance with the instructions of, and within the compliance time as identified in, the applicable ASB.

Part(s) Replacement:

- (8) For all helicopters: Before an affected part exceeds 610 FH since first installation on a helicopter, or within 110 FH after 28 October 2019 [the effective date of the original issue of EASA AD 2019-0267], whichever occurs later, and, thereafter, at intervals not to exceed 500 FH, replace that affected part with a serviceable part. This can be accomplished in accordance with the instructions of the applicable AMM (see Note 3 of this AD). For Group 2 helicopters, the first replacement of the affected part must be accomplished not later than 31 December 2021.

Note 3: When an affected part installed on a Group 1 helicopter exceeds 500 FH since first installation on a helicopter, that helicopter effectively becomes Group 2, for which relevant requirements of this AD are then applicable.

Credit:

- (9) Inspections, assessment/double bearing washings and corrective actions, accomplished before the effective date of this AD in accordance with the instructions of the applicable ASB at original issue, or Revision 1, or Revision 2, are acceptable to comply with the initial requirements of this AD for that helicopter.

Terminating Action(s):

- (10) None.

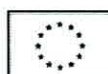
Parts Installation:

- (11) From 28 October 2019 [the effective date of the original issue of EASA AD 2019-0267], it is allowed to install on any helicopter a double bearing, provided it is a serviceable part, as defined in this AD, and that, following installation, it is inspected as required by this AD for Group 1 helicopters.
- (12) From the effective date of this AD, it is allowed to install on any helicopter a TGB P/N 365A33-6005-09, provided it is equipped with a serviceable part, as defined in this AD, and that, following installation, that serviceable part is inspected as required by this AD for Group 1 helicopters.

Ref. Publications:

AH AS365 Emergency ASB 01.00.71 original issue dated 24 October 2019, or Revision 1 dated 11 December 2019, or Revision 2 dated 25 March 2020, or Revision 3 dated 14 June 2021.

AH EC155 Emergency ASB 04A016 original issue dated 24 October 2019, or Revision 1 dated 11 December 2019, or Revision 2 dated 25 March 2020, or Revision 3 dated 14 June 2021.



The use of later approved revisions of the above-mentioned 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. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.
3. Enquiries regarding this AD should be referred to the EASA Safety Information Section, Certification Directorate. E-mail: ADs@easa.europa.eu.
4. Information about any failures, malfunctions, defects or other occurrences, which may be similar to the unsafe condition addressed by this AD, and which may occur, or have occurred on a product, part or appliance not affected by this AD, can be reported to the [EU aviation safety reporting system](#). This may include reporting on the same or similar components, other than those covered by the design to which this AD applies, if the same unsafe condition can exist or may develop on an aircraft with those components installed. Such components may be installed under an FAA Parts Manufacturer Approval (PMA), Supplemental Type Certificate (STC) or other modification.
5. For any question concerning the technical content of the requirements in this AD, please contact: Airbus Helicopters (Technical Support) – Aéroport de Marseille Provence, 13725 Marignane Cedex, France, Telephone: +33 (4) 42 85 97 97, Fax: +33 (4) 42 85 99 66, Web portal: <https://airbusworld.helicopters.airbus.com> Technical Requests Management, or E-mail: TechnicalSupport.Helicopters@airbus.com.



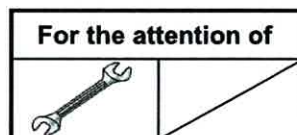


EMERGENCY ALERT SERVICE BULLETIN

PROTECTIVE MEASURE

LIMITATIONS

Tail Gear Box (TGB) P/Nos. 365A33-6005-09 and 365A33-6005-10
ATA 65



HELICOPTER(S) CONCERNED	NUMBER	Version(s)	
		Civil	Military
AS365	01.00.71	N1, N2, N3	F, Fi, K, K2
AS565	01.00.24		MA, MB, MBe, SA, SB, UB
EC155	04A016	B, B1	
SA366	01.31		GA

Revision No.	Date of issue
Revision 0	2019-10-24
Revision 1	2019-12-11
Revision 2	2020-03-25
Revision 3	2021-06-14

Summary:

Airbus Helicopters has recently been informed of a case of chip detection on a control rod double bearing of a TGB P/N 365A33-6005-09.

The examination of this bearing showed that in case of damage, the degradations spread more quickly than initially expected.

Complementary tests are ongoing to fully define the bearing degradation scenario.

Pending these results and as a precautionary measure, Airbus Helicopters introduces protective measures to reinforce the monitoring of this bearing.

Reason for last revision:

Following additional tests and their analysis, the purpose of revision 3 of this ALERT SERVICE BULLETIN is to reinforce the monitoring criteria of the double bearing.

Compliance:

Compliance with this ALERT SERVICE BULLETIN is mandatory.

1. PLANNING INFORMATION

1.A. EFFECTIVITY

1.A.1. Helicopters/installed equipment or parts

Helicopters equipped with a Tail Gear Box (TGB) P/N 365A33-6005-09 or 365A33-6005-10.

NOTE

Refer to the Log Card (FM) of the TGB.

1.A.2. Non-installed equipment or parts

Tail Gear Box (TGB) P/Nos. 365A33-6005-09 and 365A33-6005-10.

1.B. ASSOCIATED REQUIREMENTS

Not applicable.

1.C. REASON

Revision 0

Airbus Helicopters has recently been informed of a case of chip detection on a control rod double bearing of a TGB P/N 365A33-6005-09.

The examination of this bearing showed that in case of damage, the degradations spread more quickly than initially expected.

Complementary tests are ongoing to fully define the bearing degradation scenario.

Pending these results and as a precautionary measure, Airbus Helicopters introduces protective measures to reinforce the monitoring of this bearing.

Revision 1

The purpose of revision 1 is to improve the washing procedure for the double bearing of the TGB control rod and to specify the commercial conditions related to the return of the bearings in paragraph 2.D.

Revision 2

Following experience feedback (Flight Hours (FH) cumulated and chip events) which allowed Airbus Helicopters to review the global detection performances of the bearing degradation, Airbus Helicopters is reducing the interval of the chip detector inspection.

The purpose of revision 2 is to introduce this reduction of interval on the chip detector to 20 FH for bearings with less than 250 FH and 10 FH for bearing with more than 250 FHs to improve detection of the particles. This protective measure is a temporary measure.

Airbus Helicopters takes advantage of this revision to modify Appendix 4.A to mention the type of oil used and its manufacturer.

Revision 3

Following additional tests and their analysis, the purpose of revision 3 of this ALERT SERVICE BULLETIN is to reinforce the monitoring criteria of the double bearing.

1.D. DESCRIPTION

This ALERT SERVICE BULLETIN consists in:

- introducing the periodic replacement of the TGB double bearing every 500 FH,
- introducing a reduced interval for the check of the chip detector and new interpretation criteria every 10 FH,
- introducing specific maintenance for double bearings with a TSN of more than 500 FH, pending their replacement only for the first replacement of the double bearing.

1.E. COMPLIANCE

1.E.1. Compliance at H/C manufacturer level

1.E.1.a. Helicopters/installed equipment or parts:

Comply with paragraph 1.E.2.a.

1.E.1.b. Non-installed equipment or parts:

Comply with paragraph [1.E.2.b.](#)

1.E.2. Compliance in service

1.E.2.a. Helicopters/installed equipment or parts:

1) For bearings with a TSN that is strictly below 500 FH

a) For helicopters in close monitoring as per Work Card 05-53-00-201 (MET) or Task 05-50-01-211 (AMM):

- Comply with the flow chart as per paragraph [3.B.2.](#) for the particles collected before the issue of this ALERT SERVICE BULLETIN and for the particles added to the collection during the close monitoring, if any.

Then,

- At the end of the close monitoring period:
- comply with the flow chart as per paragraph 3.B.2. **at intervals that do not exceed 10 FH.**

And,

- For the first replacement of the double bearing:
 - . Comply with paragraph 1.E.2.a.2. when the double bearing **reaches 500 FH.**
- For the next replacement of the double bearing:
 - . Replace the double bearing as per Work Card 65-21-00-702 (MRM) or as per Task 65-20-01-961 (AMM) **at intervals that do not exceed 500 FH.**

b) For helicopters not in close monitoring:

- For double bearings with less than 250 FH:
 - . comply with the flow chart as per paragraph 3.B.2. **within 10 FH** from receipt of revision 3 of this ALERT SERVICE BULLETIN issued on the date indicated in the page footer without exceeding 20 FH since the last inspection of the TGB chip detector.
- For double bearings with 250 FH or more:
 - . comply with the flow chart as per paragraph [3.B.2.](#) without exceeding 10 FH since the last inspection of the TGB chip detector.

Then,

- Comply with the flow chart as per paragraph 3.B.2. **at intervals that do not exceed 10 FH.**

And,

- For the first replacement of the double bearing:
 - . Comply with paragraph [1.E.2.a.2.](#) when the double bearing **reaches 500 FH.**
- For the next replacement of the double bearing:
 - . Replace the double bearing as per Work Card 65-21-00-702 (MRM) or as per Task 65-20-01-961 (AMM) **at intervals that do not exceed 500 FH.**

2) For bearings with a TSN that is greater than or equal to 500 FH



CAUTION

**FOR HELICOPTERS IN CLOSE MONITORING AS PER WORK CARD 05-53-00-201 (MET) OR TASK 05-50-01-211 (AMM):
COMPLY WITH THE FLOW CHART AS PER PARAGRAPH [3.B.2.](#) FOR THE PARTICLES COLLECTED BEFORE THE ISSUE OF THIS ALERT SERVICE BULLETIN AND FOR THE PARTICLES ADDED TO THE COLLECTION DURING THE CLOSE MONITORING IF ANY.**

- Comply with paragraph [3.B.3.](#) **within 10 FH** from receipt of revision 3 of this ALERT SERVICE BULLETIN or from the moment the bearing has reached 500 FH, except if already complied with during revision 0 or 1 or 2.

Then,

- Replace the double bearing as per Work Card 65-21-00-702 (MRM) or as per Task 65-20-01-961 (AMM) **within 110 FH** from receipt of revision 0 of this ALERT SERVICE BULLETIN or from the moment the bearing has reached 500 FH without exceeding December 31, 2021.

And, pending the replacement of the bearing: (2 possibilities)



CAUTION

TO CHANGE FROM AN INSPECTION AS PER CHOICE 2 TO AN INSPECTION AS PER CHOICE 1, A WASHING OPERATION AS PER PARAGRAPH 3.B.3. IS MANDATORY BEFORE CONTINUING FLIGHTS.

Either (choice 1):

- . Comply with paragraph [3.B.2.](#) at intervals that do not exceed **10 FH.**
- . Comply with paragraph [3.B.3.](#) at intervals that do not exceed **30 FH.**

Or (choice 2):

- . Comply with paragraph 3.B.2. **at each ALF check without exceeding 5 FH.**

Then,

- Following the first replacement of the double bearing:
 - . Replace the double bearing as per Work Card 65-21-00-702 (MRM) or as per Task 65-20-01-961 (AMM) **at intervals that do not exceed 500 FH**

And,

- comply with paragraph [3.B.2.](#) **at intervals that do not exceed 10 FH.**

1.E.2.b. Non-installed equipment or parts

On a TGB with a double bearing with a TSN that is greater than or equal to 500 FH, replace the double bearing as per Work Card 65-21-00-702 (MRM) or as per Task 65-20-01-961 (AMM) before installing the TGB on the helicopter.

1.F. APPROVAL

Approval of modifications:

Not applicable.



Approval of this document:

The technical information contained in this ALERT SERVICE BULLETIN Revision 0 was approved on October 24, 2019 under the authority of EASA Design Organization Approval No. 21J.700 for civil version helicopters subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 0 was approved on October 24, 2019 by the Airbus Helicopters Airworthiness Department for export military versions.

The technical information contained in this ALERT SERVICE BULLETIN Revision 0 was approved on October 24, 2019 under the prerogatives of the recognition of design capability FRA21J-002-DGA for French Government helicopters.

The technical information contained in this ALERT SERVICE BULLETIN Revision 1 was approved on December 10, 2019 under the authority of EASA Design Organization Approval No. 21J.700 for civil version helicopters subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 1 was approved on December 10, 2019 by the Airbus Helicopters Airworthiness Department for export military versions.

The technical information contained in this ALERT SERVICE BULLETIN Revision 1 was approved on December 10, 2019 under the prerogatives of the recognition of design capability FRA21J-002-DGA for French Government helicopters.

The technical information contained in this ALERT SERVICE BULLETIN Revision 2 was approved on March 24, 2020 under the authority of EASA Design Organization Approval No. 21J.700 for civil version helicopters subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 2 was approved on March 24, 2020 by the Airbus Helicopters Airworthiness Department for export military versions.

The technical information contained in this ALERT SERVICE BULLETIN Revision 2 was approved on March 24, 2020 under the prerogatives of the recognition of design capability FRA21J-002-DGA for French Government helicopters.

The technical information contained in this ALERT SERVICE BULLETIN Revision 3 was approved on June 09, 2021 under the authority of EASA Design Organization Approval No. 21J.700 for civil version helicopters subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 3 was approved on June 09, 2021 by the Airbus Helicopters Airworthiness Department for export military versions.

The technical information contained in this ALERT SERVICE BULLETIN Revision 3 was approved on June 09, 2021 under the prerogatives of the recognition of design capability FRA21J-002-DGA for French Government helicopters.

1.G. MANPOWER



For compliance with this ALERT SERVICE BULLETIN, Airbus Helicopters recommends the following staff qualifications:

Qualification: 1 Mechanical Technician.



The Estimated Man-hours are indicated for reference purposes only and based on a standard helicopter configuration.

Estimated Man-hours:

- approximately 1 hour to comply with paragraph [3.B.2.](#) (excluding metallurgical analysis and if no particles are found),
- approximately 1 day to comply with paragraph [3.B.3.](#),
- approximately 2 days to replace the double bearing.

1.H. WEIGHT AND BALANCE

Not applicable.

1.I. POWER CONSUMPTION

Not applicable.

1.J. SOFTWARE UPGRADES/UPDATES

Not applicable.

1.K. REFERENCES

The following documents are required for compliance with this ALERT SERVICE BULLETIN.

For AS365 helicopters, all versions:

- Maintenance Manual (MET):
 - . 05-53-00-201 - Action to be taken after discovery of magnetic particles on the MGB magnetic plug and/or in the MGB oil filter - Following operating incidents
 - . 12-00-00-601 - Check of a magnetic component - Routine servicing
- Mechanical Repair Manual (MRM):
 - . 65-21-00-701 - Removal - Installation of control rod assy - Tail gear box
 - . 65-21-00-702 - Replacement of control rod bearing - Tail gear box
- Standard Practices Manual (MTC):
 - . 20-04-01-102 - Use of cleaning products on individual parts and on helicopters - Cleaning
 - . 20-08-01-601 - Monitoring of lubricating oil contamination on mechanical assemblies equipped with magnetic plugs - Periodical monitoring of lubricating oil checking elements

For AS565 helicopters, all versions:

- Maintenance Manual (MET):
 - . 05-53-00-201 - Action to be taken after discovery of magnetic particles on the MGB magnetic plug and/or in the MGB oil filter - Following operating incidents
 - . 12-00-00-601 - Check of a magnetic component - Routine servicing
- Mechanical Repair Manual (MRM):
 - . 65-21-00-701 - Removal - Installation of control rod assy - Tail gear box
 - . 65-21-00-702 - Removal - Installation of control rod assy - Tail gear box
- Standard Practices Manual (MTC):
 - . 20-04-01-102 - Use of cleaning products on individual parts and on helicopters - Cleaning
 - . 20-08-01-601 - Monitoring of lubricating oil contamination on mechanical assemblies equipped with magnetic plugs - Periodical monitoring of lubricating oil checking elements

For EC155 helicopters, versions B and B1:

- Aircraft Maintenance Manual (AMM):
 - . 05-50-01-211 - Steps to do when you Find Particles on the Magnetic Plugs and/or on the Oil Filter of the Gear Box
 - . 12-20-00-211 - Inspection of the magnetic plugs
 - . 65-20-01-066 - Removal / Installation - Control Shaft / Rod Assembly of the TGB
 - . 65-20-01-961 - Replacement of the Tail Rotor's Control Shaft Bearing

- Standard Practices Manual (MTC):
 - . 20-04-01-102 - Use of cleaning products on individual parts and on helicopters - Cleaning
 - . 20-08-01-601 - Monitoring of lubricating oil contamination on mechanical assemblies equipped with magnetic plugs - Periodical monitoring of lubricating oil checking elements

For SA366 helicopters, version GA:

- Maintenance Manual (MET):
 - . 05-53-00-201 - Action to be taken after discovery of magnetic particles on the MGB magnetic plug and/or in the MGB oil filter - Following operating incidents
 - . 12-00-00-601 - Check of a magnetic component - Routine servicing
- Mechanical Repair Manual (MRM):
 - . 65-21-00-701 - Removal - Installation of control rod assy - Tail gear box
 - . 65-21-00-702 - Removal - Installation of control rod assy - Tail gear box
- Standard Practices Manual (MTC):
 - . 20-04-01-102 - Use of cleaning products on individual parts and on helicopters - Cleaning
 - . 20-08-01-601 - Monitoring of lubricating oil contamination on mechanical assemblies equipped with magnetic plugs - Periodical monitoring of lubricating oil checking elements

For all helicopters, all versions:

- Information Notice (IN):
 - . 3481-I-00: The Marketplace: an AirbusWorld eOrdering service
 - . 3643-I-00: Introduction of the digital Service Bulletin reporting R-Tex

1.L. OTHER AFFECTED PUBLICATIONS

Not applicable.

1.M. PART INTERCHANGEABILITY OR MIXABILITY

Not applicable.

2. EQUIPMENT OR PARTS INFORMATION

2.A. EQUIPMENT OR PARTS: PRICE - AVAILABILITY - PROCUREMENT

Price

For any information on the price of modification kits and/or components or for assistance, contact the Airbus Helicopters Network Sales and Customer Relations Department.

Availability

Delivery lead times will be indicated by the Sales and Customer Relations Department on the operator's request.

Procurement

Order the required quantity from the Airbus Helicopters Network Sales and Customer Relations Department:

Airbus Helicopters
Etablissement de Marignane
Direction Ventes et Relations Client
13725 MARIIGNANE CEDEX
FRANCE

NOTE 1

On the purchase order, please specify the mode of transport, the destination and the serial numbers of the helicopters to be modified.

NOTE 2

*For ALERT SERVICE BULLETINS, order by:
Telex: HELICOP 410 969F
Fax: +33 (0)4.42.85.99.96.*

2.B. LOGISTIC INFORMATION

For any information concerning modification kits and/or components or for assistance, contact the Airbus Helicopters Network Sales and Customer Relations Department.

2.C. EQUIPMENT OR PARTS REQUIRED PER HELICOPTER/COMPONENT

Kits to be ordered for one helicopter or one assembly:

Designation	Qty	New P/N	Item	Old P/N →	Instruction
Double bearing (FAG) Or Double bearing (SNR)	1	704A33-651-245	1	/	Replace
	1	704A33-651-246	1	/	Replace

Consumables to be ordered separately:

As per the Work Cards and Tasks indicated in this ALERT SERVICE BULLETIN and the list below:

<u>Designation</u>	<u>Qty</u>	<u>Consumable P/N</u>	<u>CM</u>	<u>Item</u>
Cleaning agent (White Spirit)	A/R	DCSEA 602/B	CM 208	2

You can order the consumables from the AirbusWorld Marketplace through e-ordering (IN No. 3481-I-00).

If you cannot get access to e-ordering, please contact your Logistic Focal Point.

2.D. EQUIPMENT OR PARTS TO BE RETURNED

- Place the double bearing into a package.
- Send the package to the following address:

Airbus Helicopters
Aéroport Marseille Provence
RETEX Factory - roulement double de BTA
MAH09MGA2 - B1 - LES BORIES
SOUS SOL - ARRIVEE
13725 Marignane CEDEX
FRANCE

Add a label (format A4) on the package, which specifies:

**UNSERVICABLE FOR EXPERTISE
-ESETM-**

Recipient: RETEX FACTORY
Contact: support.technical-dyncomp.ah@airbus.com

NOTE 3

The expenses related to the return of the bearing to Airbus Helicopters are supported by Airbus Helicopters.

And,

- Send APPENDIX 4. to the Airbus Helicopters Technical Support:

Fax: +33 (0)4.42.85.99.66

E-mail: support.technical-dyncomp.ah@airbus.com

3. ACCOMPLISHMENT INSTRUCTIONS

3.A. GENERAL

Not applicable.

3.B. WORK STEPS

3.B.1. Preliminary steps

Not applicable.

3.B.2. Check of the manual chip detector or chip detector with electrical indicating of the TGB



CAUTION

IN THE FLOW CHART, THE ABRASION PARTICLES (CLASS g AS PER MTC) MUST BE TAKEN INTO ACCOUNT IN ADDITION TO THE PARTICLE TYPES USUALLY TAKEN INTO ACCOUNT.

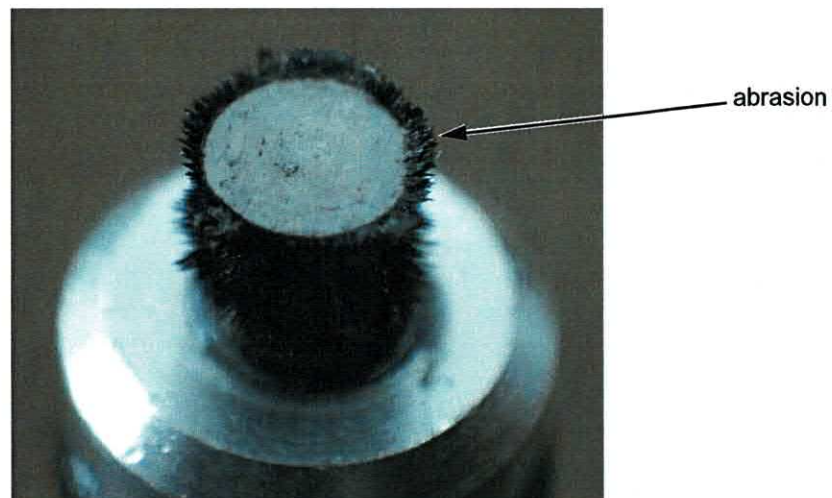
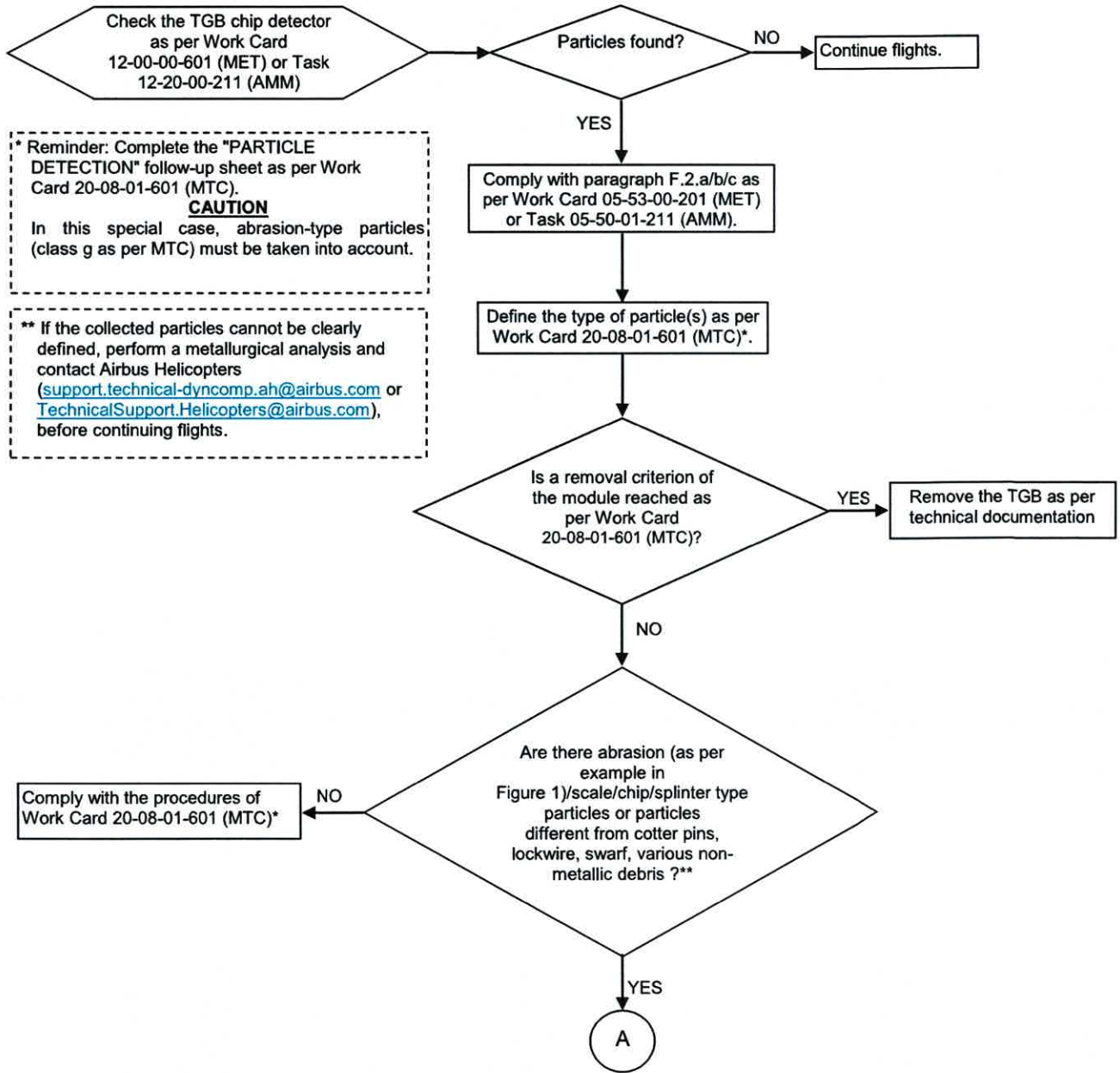
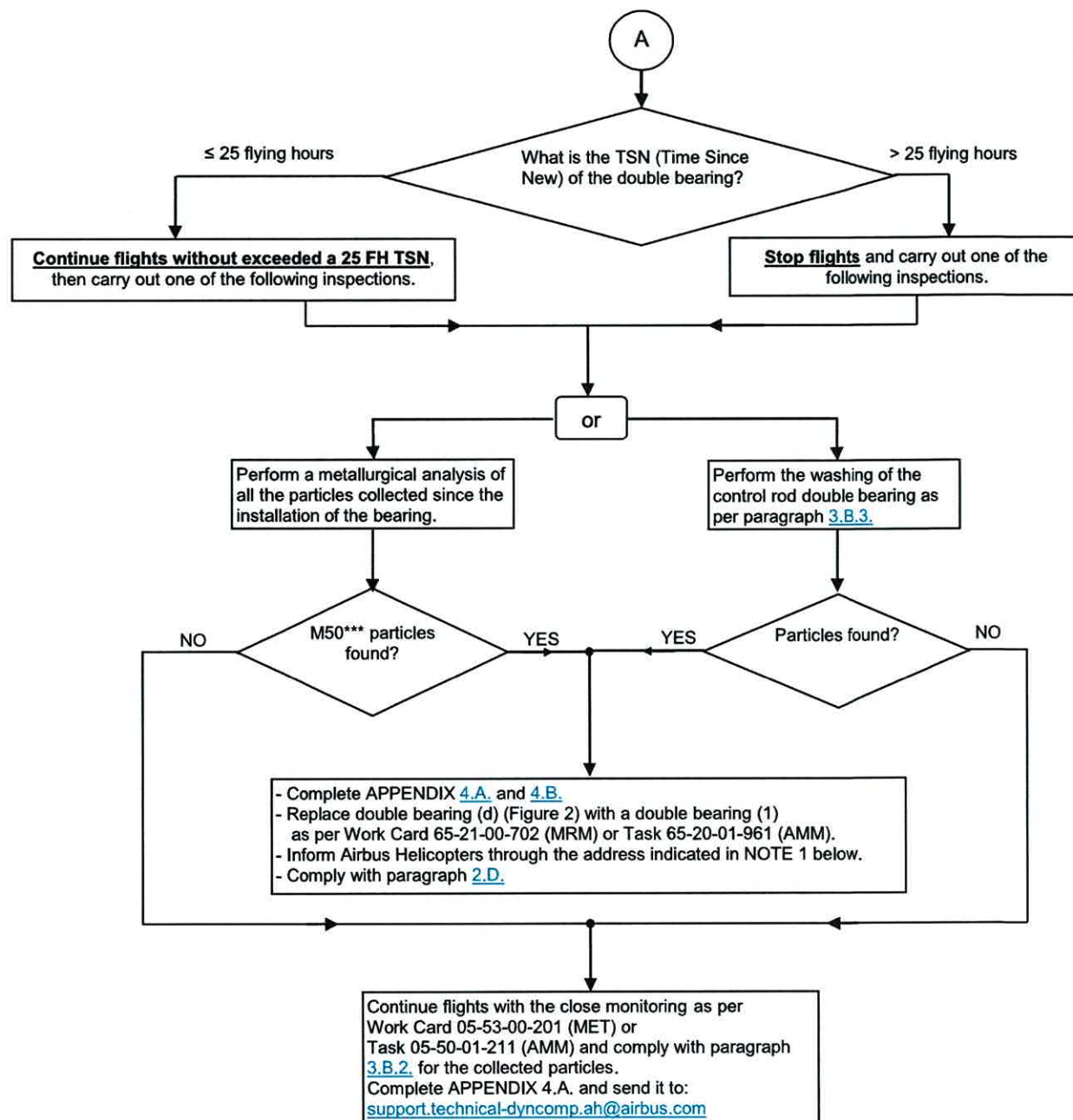


Figure 1: Example of abrasion on the chip detector





*** Other designations for material M50:
 - AMS6490
 - 80DCV40

NOTE 1

Airbus Helicopters Technical Support:
 Fax: + 33(0)4.42.85.99.66
 E-mail: support.technical-dyncomp.ah@airbus.com
 or
TechnicalSupport.Helicopters@airbus.com
 Keyceptor: Technical Request Management

3.B.3. Washing of the control rod double bearing (Figure 2)

- Remove the control shaft/rod assembly as per paragraph [3.B.4.a.](#)
- Be very careful when performing the particle detection and collection in the two areas defined as per Figure 2.
- Clean the control shaft/rod assembly using WHITE SPIRIT (2) as per Work Card 20-04-01-102 (MTC):
 - . Hold the shaft (b) in the vertical position pointing upward.

- 1) Insert WHITE SPIRIT (2) under pressure (for example using a can) in the hole (a) of the control shaft (b). **(See [DETAIL A Figure 2](#)).**
 - . Manually turn the control rod (c) several times to wash the double bearing (d) by draining the WHITE SPIRIT (2) through the bearing. **(See [Detail A Figure 2](#))**
 - . Collect the WHITE SPIRIT (2) on an absorbent paper (e.g. blotting paper):
 - .. Pass a magnet over the absorbent paper to collect the magnetic particles.
- 2) Insert WHITE SPIRIT (2) (for example using a can) in the area of the control shaft (b) that must be cleaned. **(See [DETAIL B Figure 2](#)).**
 - . Manually turn the control rod (c) several times to wash the double bearing (d) by draining the WHITE SPIRIT (2).
 - . Collect the WHITE SPIRIT (2) on an absorbent paper (e.g. blotting paper):
 - .. Pass a magnet over the absorbent paper to collect the magnetic particles.

NOTE 2

Make sure that the area pointed out in [DETAIL B Figure 2](#) is clean.

- 3) Repeat operation No. 1).

NOTE 3

As the double bearing (d) is "pre-stressed" by definition, friction points can be felt when turning the double bearing (d): they are not critical.

. If there are no magnetic particles or magnetic abrasion dust:

- Lubricate the double bearing (d) with service oil.
- Install the control shaft/rod assembly as per paragraph [3.B.4.b.](#)

. If there are magnetic particles or magnetic abrasion dust:

- . Complete [APPENDIX 4.A.](#) and [4.B.](#)
- . Replace double bearing (d) with a double bearing (1) as per Work Card 65-21-00-702 (MRM) or as per Task 65-20-01-961 (AMM).
- . Install the control shaft/rod assembly as per paragraph 3.B.4.b.
- . **Inform the Technical Support Department of the Airbus Helicopters Customer Service as per paragraph [2.B.](#)**
- . **Comply with paragraph [2.D.](#)**

3.B.4. Removal / Installation of the TGB control shaft/rod assembly

3.B.4.a. Removal of the TGB control shaft/rod assembly



CAUTION

BEFORE PERFORMING ANY OPERATION ON THE TAIL ROTOR HUB (TRH) ASSEMBLY, LOCK THE DRIVE SYSTEM WITH THE ROTOR BRAKE.

Remove the TGB control shaft/rod assembly as per Work Card 65-21-00-701 (MRM) or Task 65-20-01-066 (AMM).

NOTE 4

Work Card 65-21-00-701 (MRM) or Task 65-20-01-066 (AMM) refers to the double bearing removal procedure (if necessary) as per Work Card 65-21-00-702 (MRM) or Task 65-20-01-961 (AMM). The double bearing must only be removed if there is doubt on its integrity.

NOTE 5

Work Card 65-21-00-701 (MRM) or Task 65-20-01-066 (AMM) describes the check of the interchangeability dimension of the pitch control plate. Reminder: this operation must only be performed if the pitch control plate is replaced.

3.B.4.b. Installation of the TGB control shaft/rod assembly



CAUTION

TO PREVENT CONTAMINATION, BE VERY CAREFUL WHEN CLEANING AND INSTALLING THE COMPONENTS.

- Check that there are no particles in the lubrication hole of the TGB cover (Area No. 11, [Figure 3](#) of APPENDIX 4.B.).
- Install the TGB control shaft/rod assembly as per Work Card 65-21-00-701 (MRM) or as per Task 65-20-01-066 (AMM).

3.B.5. Final steps

Not applicable.

3.C. RECORD OF COMPLIANCE

Compliance with this document:

- Record the first compliance with paragraph [3.B.2.](#) of this ALERT SERVICE BULLETIN in the Log Card (FM) of the TGB.
- If necessary, record the first compliance with paragraph [3.B.3.](#) of this ALERT SERVICE BULLETIN in the Log Card (FM) of the TGB.
- Record compliance with this ALERT SERVICE BULLETIN (see IN 3643-I-00 for instructions):
QR-Code or hypertext link



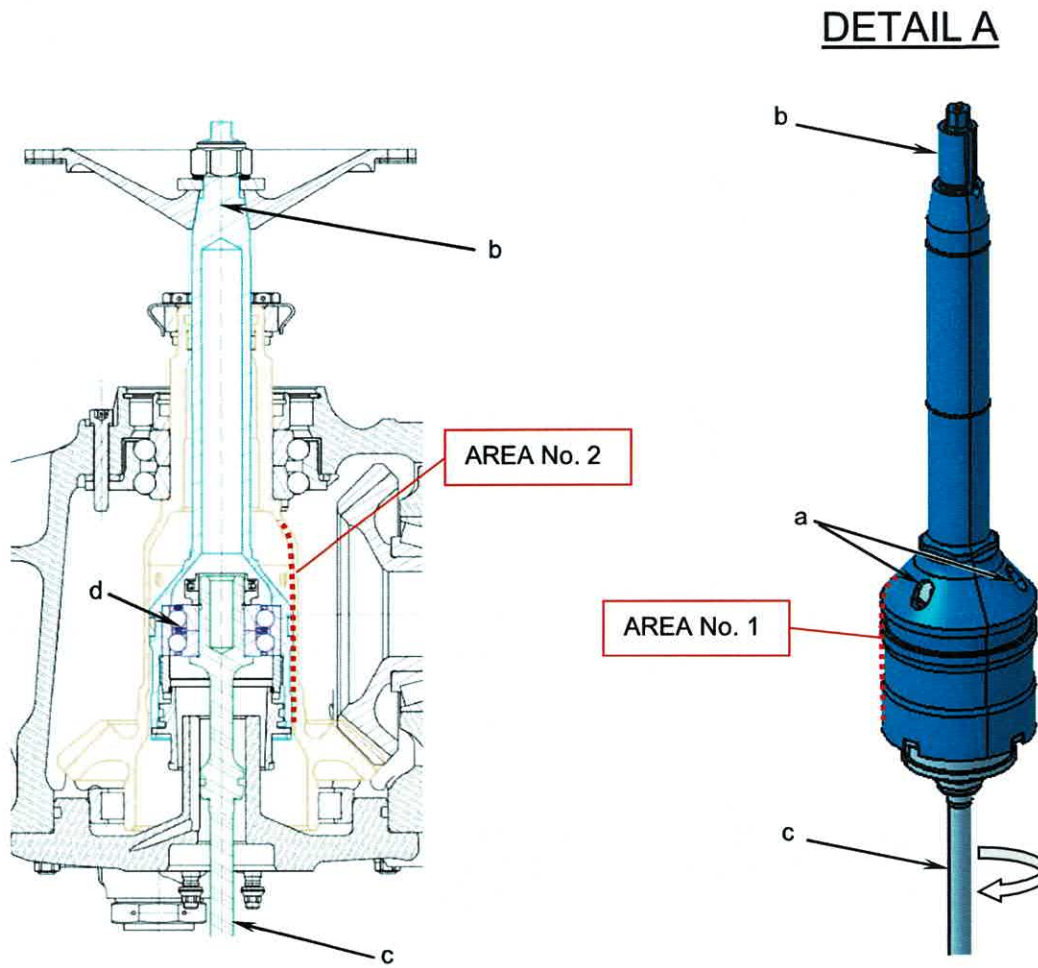
NOTE 6

The recording of compliance with ALERT SERVICE BULLETINS in the R-Text tool does not replace the recording in the helicopter documents.

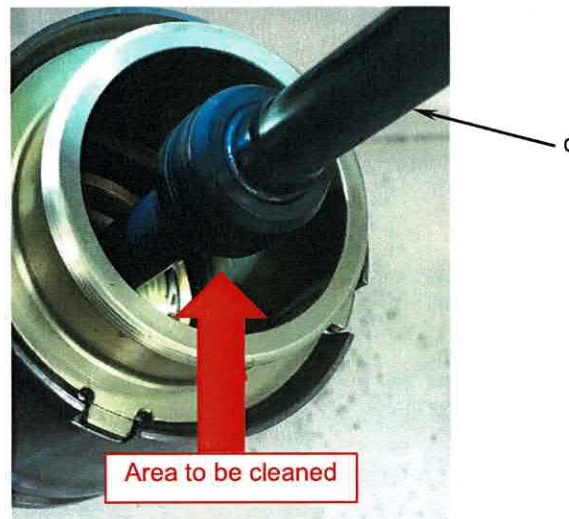
[ASB EC155-04A016](#)

3.D. OPERATING AND MAINTENANCE INSTRUCTIONS

Not applicable.



DETAIL B



Return to paragraph [3.B.3.](#)

Figure 2 (Washing of the double bearing)

4. APPENDIX

4.A. APPENDIX 1: Bearing behavior follow-up sheet to be completed and returned

Operator's name

Enclose a copy of the particle detection follow-up sheet of MTC 20-08-01-601

Helicopter	
Helicopter type and version	
Helicopter S/N	
FH	
Mission type	

TGB	
P/N	
S/N	
TSN/TSO	
Oil	Brand :
	Reference:
Chip detector	Manual
	Electrical

Enclose a copy of the Log Card

TGB control rod bearing	
P/N	
S/N	
FH	
Reason for removal	Periodic replacement or Particles

4.B. APPENDIX 2: to be completed if particles are found

Complete APPENDIX 2 (see [Figure 3](#))

Enclose a copy of the particle detection follow-up sheet of MTC 20-08-01-601

TGB cover

AREA No.	Description	Particles collected		Material of particles	Type of particles (as per MTC 20-08-01-601)	Number of particles	Surface of collected particles (mm ²)
		YES	NO				
11	Lubrication duct of the cover						
8	Area between the cover and the bearing						
7	Area between the cover and the control rod						

Control rod

AREA No.	Description	Particles collected		Material of particles	Type of particles (as per MTC 20-08-01-601)	Number of particles	Surface of collected particles (mm ²)
		YES	NO				
1	External face of the control rod						
4	Internal face of the Shur-Lok nut and the spacer						
3	Internal face of the control rod						

4.B. APPENDIX 2: to be completed if particles are found (continued)

TGB

AREA No.	Description	Particles collected		Material of particles	Type of particles (as per MTC 20-08-01-601)	Number of particles	Surface of collected particles (mm ²)
		YES	NO				
9	TGB main housing near the chip detector						
6	Internal face of the rotor mast, toothed wheel side						
2	Internal face of the rotor mast, center area of the mast						
5	Internal face of the rotor mast, rotor side						
10	Lubrication duct of the housing						
9a	TGB main housing near the chip detector						

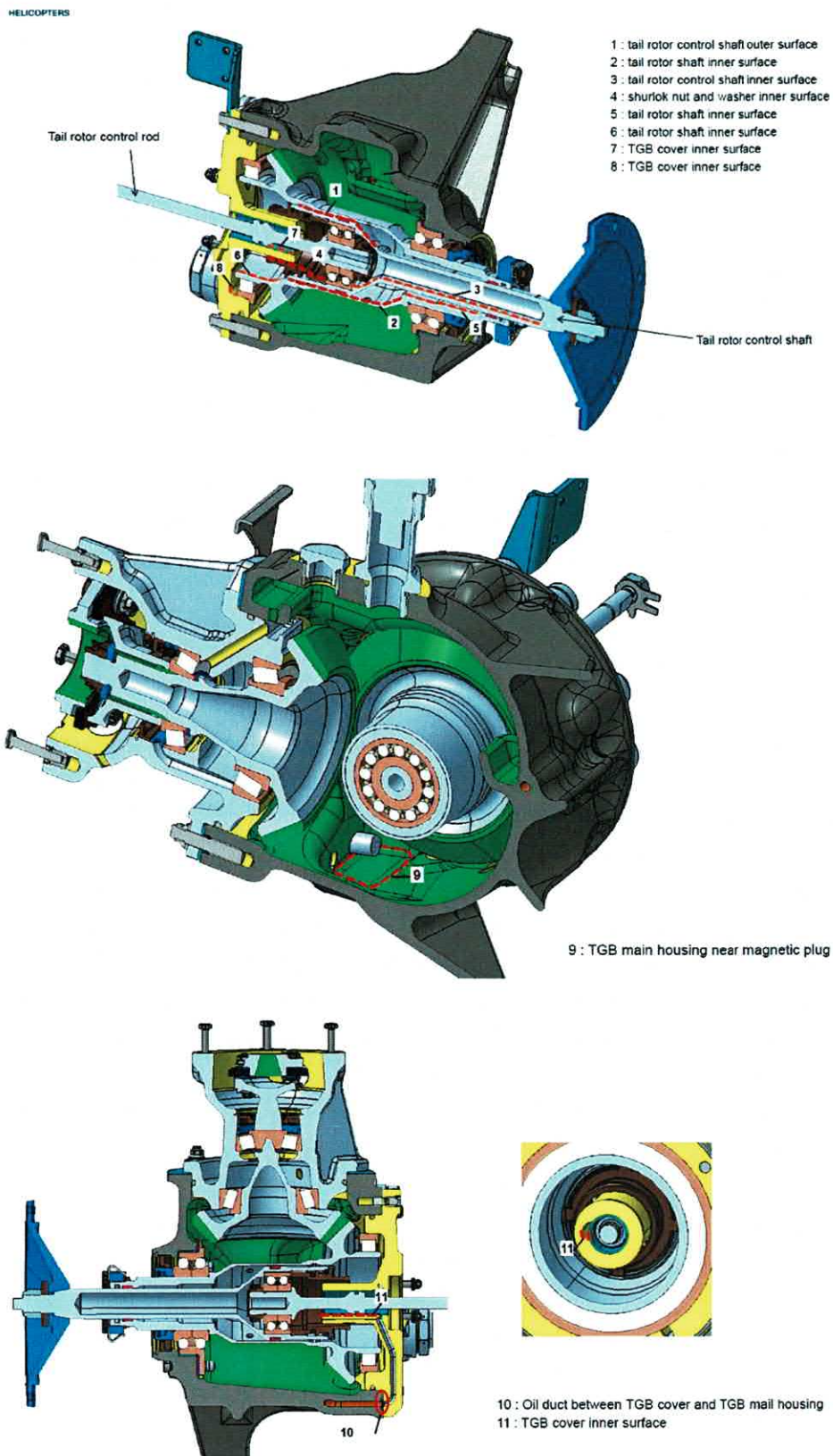


Figure 3