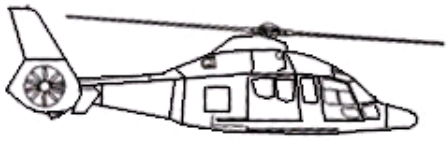


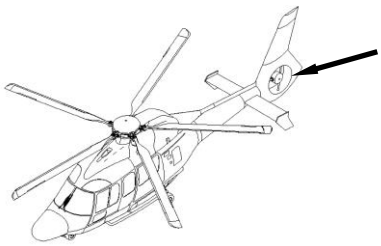
Civil version(s): B, B1

ALERT SERVICE BULLETIN

SUBJECT: LIMITATIONS - Control rod double bearing

Tail Gearbox (TGB)
ATA: 65

For the attention of	
	



Revision No.	Date of issue
Revision 0	2016-05-04
Revision 1	2016-06-03
Revision 2	2016-10-28
Revision 3	2017-07-20

Summary:

- Periodic replacement of the TGB control rod double bearing on PRE MOD 07 65B63 TGBs.
- Pending the next replacement of the control rod double bearing, reducing the inspection interval for the TGB magnetic plug to ensure that there are no particles, and removing the control shaft/rod assembly once or twice (depending on the case) to inspect the double bearing.
- Maintaining the TGB operating oil at the maximum level.

Compliance with this ALERT SERVICE BULLETIN supersedes the instructions specified in EC155 ALERT SERVICE BULLETIN No. 05A022.

Reason for last Revision:

The purpose of Revision 3 of this ALERT SERVICE BULLETIN is:
- to reduce the interval for the inspection of the electrical magnetic plug to 25 flying hours as per paragraph 1.E.2.a.2.,
- to modify the procedure after particle detection at the TGB magnetic plug in order to identify quickly and more efficiently a double bearing degradation,
- introduce a calendar limitation for TGB retrofit into POST MOD 07 65B63 TGB.

Compliance:

Airbus Helicopters renders compliance with this ALERT SERVICE BULLETIN mandatory.

1. PLANNING INFORMATION

1.A. EFFECTIVITY

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

On PRE MOD 07 65B63 Tail Gearboxes (TGB).

NOTE 1

Series modification 07 65B63 creates a new TGB Part Number 365A33-6005-09 enabling the instructions of this ALERT SERVICE BULLETIN to be canceled.
Helicopters which embody MOD 07 65B63 are not concerned by the instructions given in this ALERT SERVICE BULLETIN.

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

On PRE MOD 07 65B63 TGBs.
On PRE MOD 07 65B57 double bearings.

1.B. ASSOCIATED REQUIREMENTS

Not applicable.

1.C. REASON

Revision 0:
Airbus Helicopters has recently participated in investigations following an accident that was due to the loss of yaw control on an AS365 N3 helicopter.
This helicopter had been subject to periodic checks carried out in accordance with the instructions given in Revision 4 of ALERT SERVICE BULLETIN No. 05A022.
The preliminary examination of the TGB revealed that the control rod double bearing was damaged.
Investigations are ongoing to determine the cause of this damage and the reasons for its non-detection.
In order to prevent the risk of undetected double bearing damage, Airbus Helicopters makes compliance with the instructions given in this ALERT SERVICE BULLETIN mandatory, the purpose of which is:
- to ensure that the TGB lubricating oil level is at the "max" level,
- to periodically replace the control rod double bearing on TGBs that do not embody the latest modifications,
- pending the next replacement of the control rod double bearing, to check more frequently that there are no particles at the TGB magnetic plug, and to remove the control shaft/rod assembly once or twice (depending on the case) for inspection of the double bearing,
- and to cancel compliance with ALERT SERVICE BULLETIN No. 05A022.

Revision 1:
Following the issue of Revision 0 of this ALERT SERVICE BULLETIN, Airbus Helicopters would like to add some details to paragraph 1.E.2.a.2. concerning the check of the magnetic plug.
Furthermore, in order to analyze the possibility of increasing the interval between periodic replacements of POST MOD 07 65B57 bearings, Airbus Helicopters requests the return of some bearings.
A bearing monitoring sheet has therefore been added in appendix paragraph 4.B. It must be filled in and returned to Airbus Helicopters during the next replacement following the issue of this ALERT SERVICE BULLETIN.
In addition, a flow chart has been added to paragraph 2.D. This flow chart explains the process for returning bearings and the monitoring sheet given in Appendix 4.B. to Airbus Helicopters.

Revision 2:
Following the issue of Revisions 0 and 1 of this ALERT SERVICE BULLETIN, Airbus Helicopters wishes to clarify paragraph 1.E.2. concerning the embodiment of MOD 07 65B56 or 07 65B58.

These MODs improve the sliding action of the control rod assembly in the TGB, by installing new guide rings.
MOD 07 65B56 is embodied on all new TGBs and during Overhaul (RG).
MOD 07 65B58 may be embodied through EC155 Service Bulletin No. 65-006 or during repair (RE). Airbus Helicopters reminds you that it was mandatory to embody MOD 07 65B58 before September 30, 2011, following the issue of EC155 ALERT SERVICE BULLETIN No. 05A022 Revision 1 dated July 13, 2011.

Airbus Helicopters requests that you check for the presence of new guide rings when replacing the double bearing.

Revision 3:
Since the issue of Revision 2, complementary tests have been performed on particle detection in the TGB.

In order to ensure an earlier detection of a potential degradation of the double bearing Airbus Helicopters revised the current inspection and close monitoring procedure for PRE MOD 07 65B63 TGBs:
- the inspection interval for the electrical magnetic plug is changed from 100 flying hours to 25 flying hours, as for the manual magnetic plug,
- modification of the procedure after detection of particles as scale, flake, splinter or abrasion at the TGB magnetic plug in order to identify quickly and more efficiently a double bearing degradation. Now, when detection of these types of particles in the TGB, a metallurgical analysis or a complete cleaning of the TGB is required.

In addition, a calendar limitation is introduced in order to ensure that POST MOD 07 65B63 will be the standard on all TGB after 01/01/2024.

Revision 3 does not affect compliance with the previous revisions of this ALERT SERVICE BULLETIN.

Airbus Helicopters renders compliance with this ALERT SERVICE BULLETIN mandatory.

1.D. DESCRIPTION

The purpose of this ALERT SERVICE BULLETIN is to periodically replace the double bearing of the TGB control rod.

1.E. COMPLIANCE

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

Not applicable.

1.E.2. Compliance in service

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

NOTE 2

A flow chart which describes the maintenance operations required by this ALERT SERVICE BULLETIN is also available in Appendix 4.A.

1.E.2.a.1. Check of the TGB oil level

- Comply with paragraph 3.B.1. during each flight-related check (15 hours or 7 days).

1.E.2.a.2. Check of the TGB manual magnetic plug or magnetic plug with electrical indicating

- Check if there are particles at the TGB magnetic plug as per AMM Task 12-20-00-211 and comply with paragraph 3.B.2. after each last flight of the day, **pending the next replacement of the double bearing** following the issue of Revision 0 of this ALERT SERVICE BULLETIN on May 4, 2016.

- Then, after replacement of the double bearing,

. For the manual magnetic plug:

.. Check if there are particles at the TGB magnetic plug as per AMM Task 12-20-00-211 and comply with the flow chart in paragraph 3.B.2. during scheduled inspections of the magnetic plug.

. For the magnetic plug with electrical indicating:

.. Check if there are particles at the TGB magnetic plug as per AMM Task 12-20-00-211 and comply with the flow chart in paragraph 3.B.2. within 25 flying hours following the issue of this ALERT SERVICE BULLETIN Revision 3, without exceeding 100 flying hours since the latest inspection of the magnetic plug.

.. Then, make sure there are no particles as per AMM Task 12-20-00-211 and comply with the flow chart in paragraph 3.B.2. at intervals which do not exceed 25 flying hours.

1.E.2.a.3. For all TGBs

- For all helicopters which comply with Revision 0 or 1 of this ALERT SERVICE BULLETIN:
  . check for the MOD 07 65B56 or 07 65B58 indication on the TGB Log Card (FM):
    - if one of these MODs is indicated, leave as is,
    - if neither of these MODs is indicated, comply with EC155 Service Bulletin No. 65-006.

- For helicopters which do not comply with Revision 0 or 1 of this ALERT SERVICE BULLETIN:

CAUTION

WE REMIND YOU THAT IT IS MANDATORY TO COMPLY WITH THE INSTALLATION INSTRUCTIONS AND TO USE THE SPECIFIC TOOLS FOR THE DOUBLE BEARING REPLACEMENT.

CAUTION

WHEN REPLACING THE DOUBLE BEARING, ENSURE THAT EMBODIMENT OF MOD 0765B56 OR 0765B58 HAS BEEN RECORDED ON THE TGB LOG CARD (FM).

a) For **PRE MOD 07 65B57** double bearings of the control shaft/rod assembly

NOTE 3

MOD 07 65B57 consists in introducing a new double bearing (MP/N 704A33-651-245 or 704A33-651-246 depending on the manufacturer).
This new double bearing:
- *has an optimized design which favors the evacuation of particles,*
- *has a reinforced structure,*
- *is interchangeable with a PRE MOD 07 65B57 double bearing (MP/N 704A33-651-093 or 704A33-651-104 depending on the manufacturer).*

1) For new double bearings or double bearings which have logged less than 335 flying hours

. At the latest when 350 flying hours are reached, replace the PRE MOD 07 65B57 double bearing with a POST MOD 07 65B57 double bearing as per EC155 Service Bulletin No. 65-007:
.. When replacing the bearing, comply with paragraph 2.D.

. Then comply with paragraph 1.E.2.a.3.b)1).

2) For double bearings which have logged 335 or more flying hours

. Replace the PRE MOD 07 65B57 double bearing with a POST MOD 07 65B57 double bearing as per EC155 Service Bulletin No. 65-007 within 110 flying hours following receipt of this ALERT SERVICE BULLETIN Revision 0, issued on the date indicated at the bottom of the page:

.. **Pending the replacement of the double bearing,** comply with paragraph 3.B.3. within 15 flying hours following receipt of this ALERT SERVICE BULLETIN Revision 0, issued on the date indicated at the bottom of the page,

Then,

.. Comply with paragraph 3.B.3. every 55 flying hours maximum until the double bearing is replaced.

.. When replacing the bearing, comply with paragraph 2.D.

. Then comply with paragraph 1.E.2.a.3.b)1).

b) For **POST MOD 07 65B57** double bearings of the control shaft/rod assembly

NOTE 4

MOD 07 65B57 consists in introducing a new double bearing (MP/N 704A33-651-245 or 704A33-651-246 depending on the manufacturer).
This new double bearing:
- *has an optimized design which favors the evacuation of particles,*
- *has a reinforced structure,*
- *is interchangeable with a PRE MOD 07 65B57 double bearing (MP/N 704A33-651-093 or 704A33-651-104 depending on the manufacturer).*

1) For new double bearings or double bearings which have logged less than 485 flying hours

. At the latest when 500 flying hours are reached, replace the double bearing as per Aircraft Maintenance Manual (AMM) Task 65-20-01-961.

.. When replacing the bearing, comply with paragraph 2.D.

. Then, replace the double bearing every 500 flying hours as per AMM Task 65-20-01-961.

2) For double bearings which have logged more than 485 flying hours

. Replace the double bearing within 110 flying hours following receipt of this ALERT SERVICE BULLETIN Revision 0, issued on the date indicated at the bottom of the page:

.. **Pending the replacement of the double bearing**, comply only once with paragraph 3.B.3. within 15 flying hours following receipt of this ALERT SERVICE BULLETIN Revision 0, issued on the date indicated at the bottom of the page,

.. When replacing the bearing, comply with paragraph 2.D.

. Then, replace the double bearing every 500 flying hours as per AMM Task 65-20-01-961.

1.E.2.a.4. Helicopters equipped with a TGB PRE MOD 07 65B63 will be unfit for flight from January 01, 2024.

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

CAUTION

WHEN REPLACING THE DOUBLE BEARING, ENSURE THAT EMBODIMENT OF MOD 0765B56 OR 0765B58 HAS BEEN RECORDED ON THE TGB LOG CARD (FM).

- It is prohibited to install **PRE MOD 07 65B57** double bearings on TGBs from receipt of this ALERT SERVICE BULLETIN issued on the date indicated at the bottom of the page.

- On TGBs equipped with a **PRE MOD 07 65B57** double bearing:
  Before installation on the helicopter, replace the control rod double bearing with a POST MOD 07 65B57 double bearing as per EC155 Service Bulletin No. 65-007.

- On TGBs equipped with a **POST MOD 07 65B57** double bearing:
  Comply with the instructions given in paragraph 1.E.2.a.3.b)

- Do not install TGB PRE MOD 07 07 65B63 after January 01, 2024.

1.F. APPROVAL

Approval of modifications:

The information or instructions related to modification 07 65B57 were approved on April 18, 2012 by the EASA for helicopters of civil versions subject to an Airworthiness Certificate.

Approval of this document:

The technical information contained in this ALERT SERVICE BULLETIN Revision 0 was approved on May 04, 2016 under the authority of EASA Design Organization Approval No. 21J.056 for helicopters of civil versions subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 1 was approved on June 03, 2016 under the authority of EASA Design Organization Approval No. 21J.056 for helicopters of civil versions subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 2 was approved on October 28, 2016 under the authority of EASA Design Organization Approval No. 21J.700 for helicopters of civil versions subject to an Airworthiness Certificate.

The technical information contained in this ALERT SERVICE BULLETIN Revision 3 was approved on July 19, 2017 under the authority of EASA Design Organization Approval No. 21J.700 for civil version helicopters subject to an Airworthiness Certificate.

1.G. MANPOWER

Qualification:
- 1 Mechanical Engineering Technician
Or,
- 1 Pilot with the appropriate training and certification for compliance with paragraph 3.B.1.

For compliance with paragraphs 3.B.2. and 3.B.3., the mechanical engineering technician qualification is mandatory.

Time for the operations:
For compliance with paragraph 3.B.1.: approximately 30 minutes.
For compliance with paragraph 3.B.2.: approximately 1 hour (excluding metallurgical analysis).
For compliance with paragraph 3.B.3.: approximately 1 day.

Approximately 2 days to replace the double bearing.

Downtime:
The helicopter downtime is approximately 2 days.

1.H. WEIGHT AND BALANCE

Not applicable.

1.I. POWER CONSUMPTION

Not applicable.

1.J. SOFTWARE UPGRADES/UPDATES

Not applicable.

1.K. REFERENCES

Aircraft Maintenance Manual (AMM) Tasks:

05-50-01-211 - 12-20-00-211 - 65-20-01-061 - 65-20-01-066 - 65-20-01-611 - 65-20-01-961

Standard Practices Manual (MTC) Work Cards:

20.04.01.102 - 20.08.01.601

SIN No. 3095-S-63

EC155 Service Bulletin No. 65-006

EC155 Service Bulletin No. 65-007

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

The bearings will be supplied free of charge by the Airbus Helicopters Programs Department.
Specify the helicopter serial number when placing your order.

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

Order as required from:

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

NOTE 1

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

NOTE 2

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

2.B. LOGISTIC INFORMATION

For any information concerning components or assistance, contact Sales and Customer Relation Department.

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

Kits or components to be ordered for one helicopter or one assembly:

Designation	Qty	New P/N	Item	Former P/N →	Instruction
Double bearing ((FAG) POST MOD 07 65B57)	1	704A33-651-245	1	/	To be replaced
Or					
Double bearing ((SNR) POST MOD 07 65B57)	1	704A33-651-246	1	/	To be replaced

Consumables to be ordered separately:

Refer to the Work Cards and Tasks specified in this ALERT SERVICE BULLETIN and the list below:

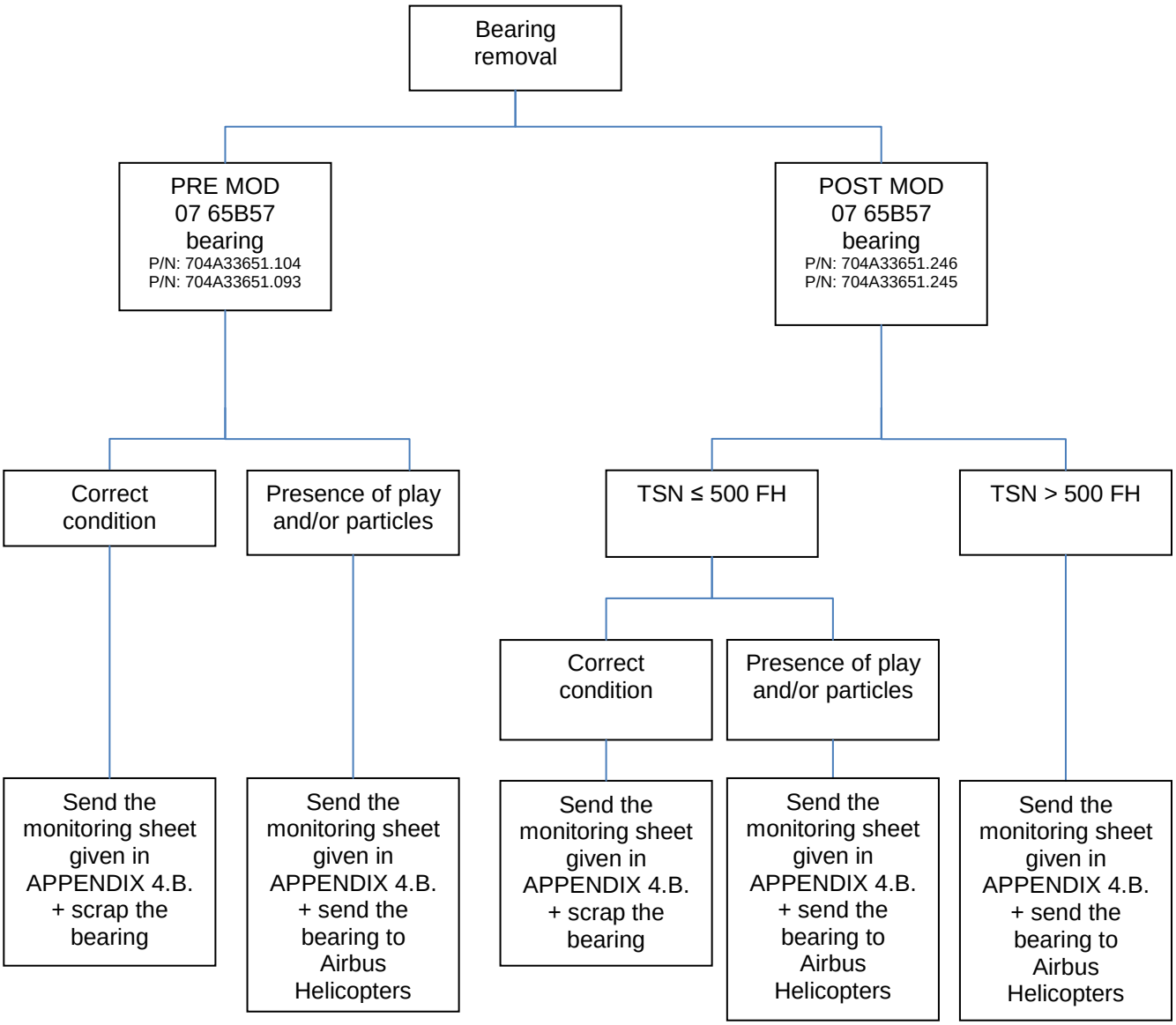
Designation	Qty	Consumable P/N	CM	Item
WHITE SPIRIT	A/R	Off the shelf	/	2

The consumables can be ordered separately from the KLX AEROSPACE SOLUTIONS company:
Website: https://www.klxaerospace.com/klxaero/
Telephone: +1.305.925.2600
AOG: +1.305.471.8888

2.D. EQUIPMENT OR PARTS TO BE RETURNED

- Return the bearing monitoring sheet given in APPENDIX 4.B. to the 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)

- In accordance with the flow chart below, return the double bearing to the Airbus Helicopters Technical Support at the following address:
  For the attention of Mr. PORCHER
  Service ESEEM Airbus Helicopters
  Bat R7 Rez de chaussée haut
  13725 Marignane cedex
  FRANCE



Flow chart for the bearing return process

3. ACCOMPLISHMENT INSTRUCTIONS

3.A. GENERAL

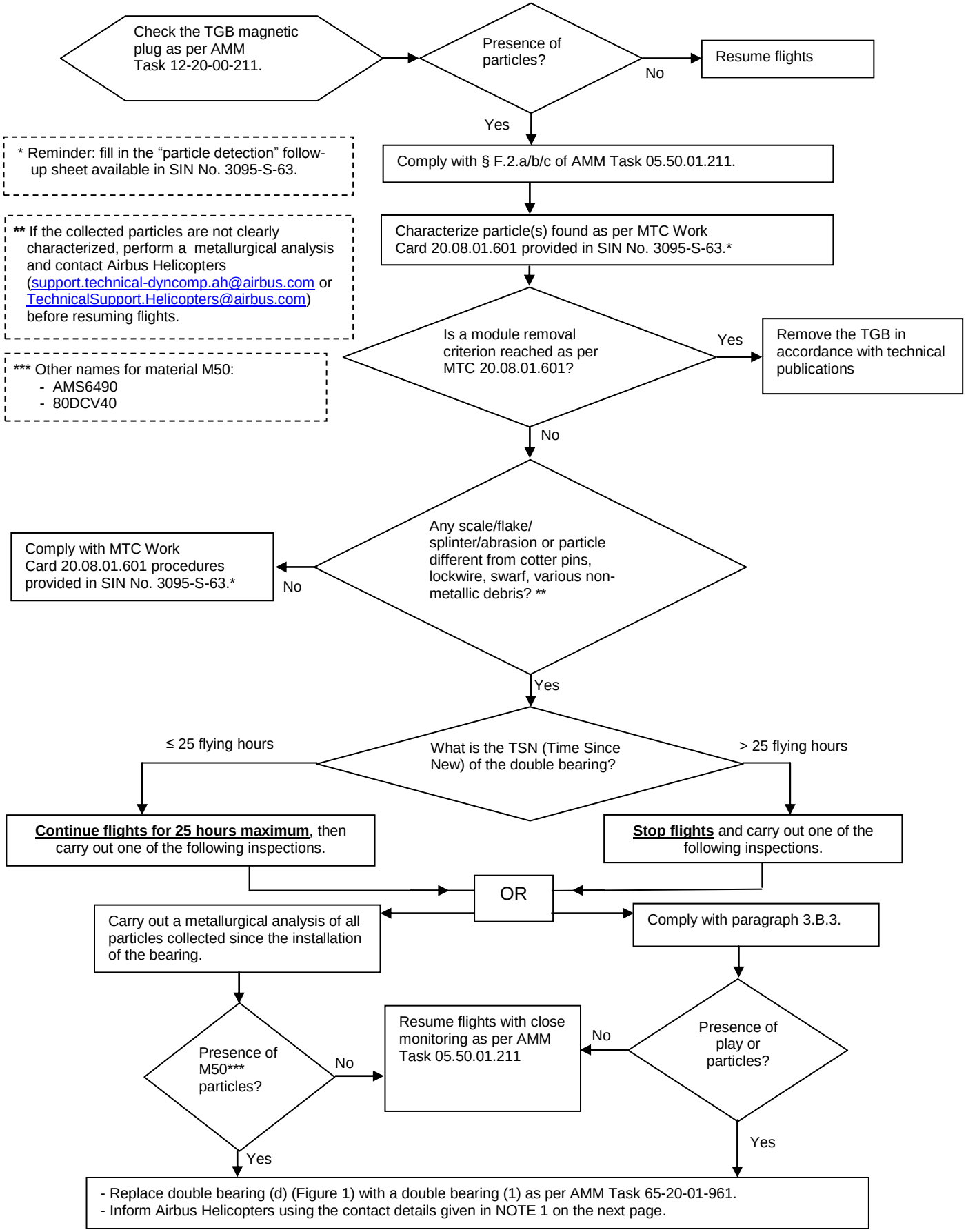
Not applicable.

3.B. WORK STEPS

3.B.1. Checking the TGB oil level

- Make sure that the TGB oil level is at the "max" level,
  Otherwise,
  . Top up the TGB oil level to the "max" level before resuming flights, as per AMM Task 65-20-01-611.

3.B.2. Checking the TGB manual magnetic plug or magnetic plug with electrical indicating



NOTE 1

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

3.B.3. Checking the play in the double bearing of the TGB control shaft/rod assembly (Figure 1)

- Remove the control shaft/rod assembly as per paragraph 3.B.4.a.
- Carry out a tactile check to ensure that there is no axial play in double bearing (d) (Figure 1):
  . Apply an alternating manual axial load to control rod (c) whilst turning control shaft (b) **(See DETAIL A Figure 1)**.

3.B.3.a. If no play is felt:

- Clean the control shaft/rod assembly using WHITE SPIRIT (2) as per MTC Work Card 20.04.01.102:
  . Inject WHITE SPIRIT (2) under pressure (for example using a can) into hole (a) of control shaft (b). **(See Detail B Figure 1)**.
  . Hold shaft (b) in the vertical position pointing upwards.
  . Manually turn control rod (c) several times to rinse double bearing (d) by draining the WHITE SPIRIT (2) through the bearing. **(See Detail B Figure 1).**
  . Collect the WHITE SPIRIT (2) on absorbent paper (e.g.: blotting paper):
    - Pass a magnet over the absorbent paper to collect the magnetic particles.

NOTE 2

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

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

  - Install the control shaft/rod assembly as per paragraph 3.B.4.b.

. **If there are magnetic particles or magnetic abrasion dust:**

  . Replace double bearing (d) with a double bearing (1) as per AMM Task 65-20-01-961.
  . Install the control shaft/rod assembly as per paragraph 3.B.4.b.
  . Inform the Airbus Helicopters Customer Service Technical Support Department in accordance with paragraph 2.B.
  . Comply with paragraph 2.D.

3.B.3.b. If play is felt:

- Replace double bearing (d) (Figure 1) with a double bearing (1) as per AMM Task 65-20-01-961.
- Install the control shaft/rod assembly as per paragraph 3.B.4.b.:
  . Inform the Airbus Helicopters Customer Service Technical Support Department in accordance with 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 AMM Task 65-20-01-066.

NOTE 3

AMM Task 65-20-01-066 refers to the procedure for removing (if necessary) the double bearing as per AMM Task 65-20-01-961. Only remove the double bearing if there are doubts concerning its integrity.

NOTE 4

AMM Task 65-20-01-066 describes the procedure for checking the pitch-change spider interchangeability dimension. Reminder: this procedure is only required if the pitch-change spider is replaced.

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

CAUTION

PARTICULAR CARE MUST BE TAKEN WHEN CLEANING AND INSTALLING PARTS IN ORDER TO PREVENT CREATING ANY CONTAMINATION.

- Check that there are no particles in the TGB cover lubrication hole.
- Install the TGB control shaft/rod assembly as per AMM Task 65-20-01-066.

3.C. COMPLIANCE CONFIRMATION

Compliance with this document:

- Record first compliance with paragraph 3.B.1. of this ALERT SERVICE BULLETIN in the helicopter documents.

- Record first compliance with paragraph 3.B.2. of this ALERT SERVICE BULLETIN on the TGB Log Card (FM).

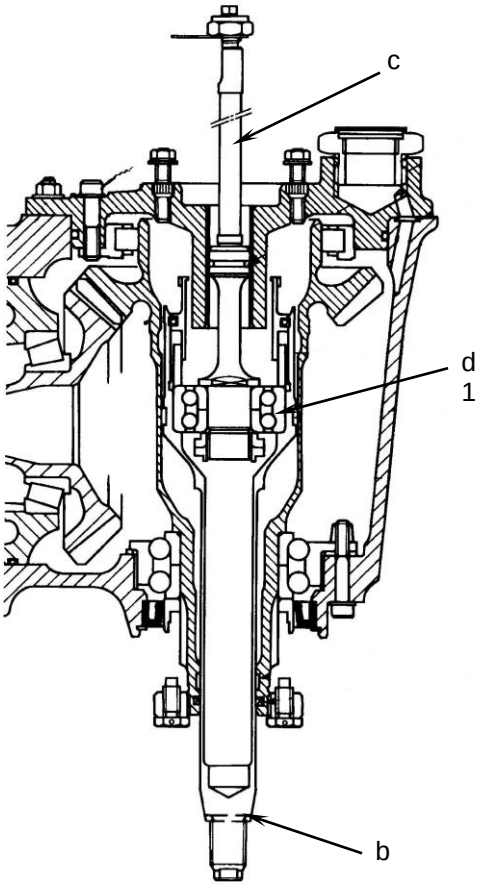
- If necessary, record first compliance with paragraph 3.B.3. of this ALERT SERVICE BULLETIN on the TGB Log Card (FM).

Tracking of modifications in the documentation:

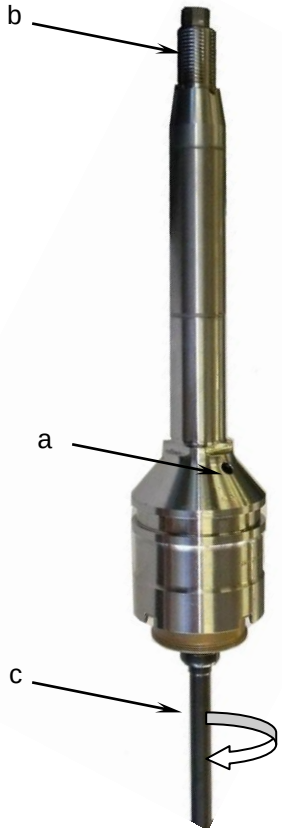
- When replacing the PRE MOD 07 65B57 double bearing with a POST MOD 07 65B57 double bearing, record the embodiment of MOD 07 65B57 on the TGB Log Card (FM).

3.D. OPERATING AND MAINTENANCE INSTRUCTIONS

Not applicable.



DETAIL B



DETAIL A

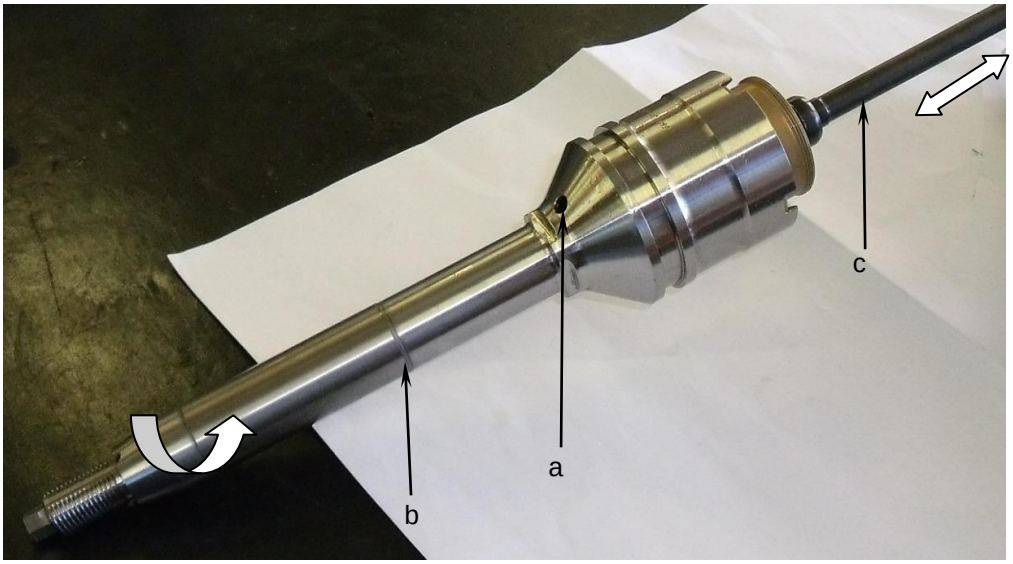
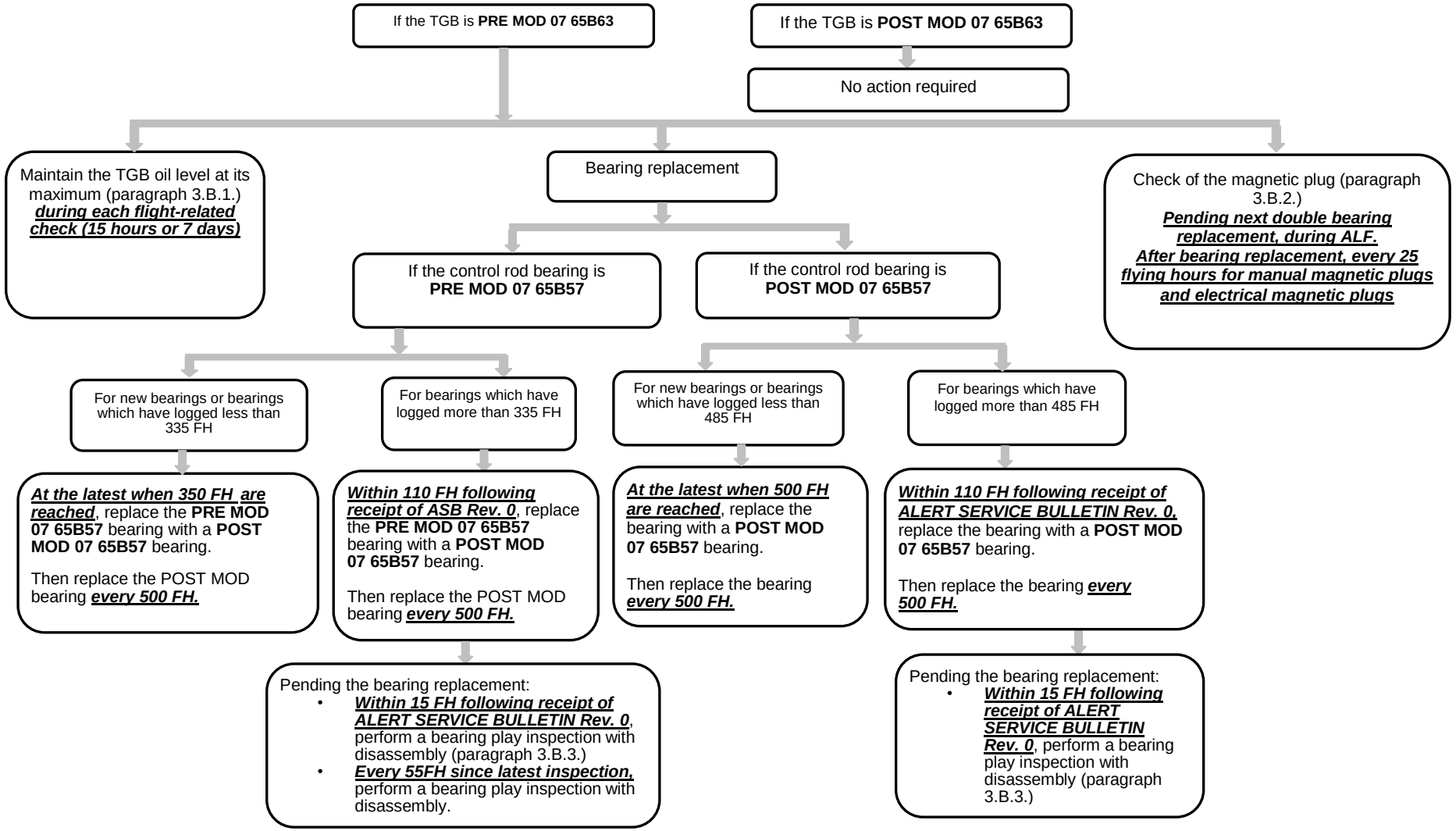


Figure 1

4. APPENDIX

4.A. Process for compliance with paragraph 1.E.2.a.



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4.B. Bearing behavior monitoring sheet to be filled in and returned

Behavior monitoring sheet					
Customer: ……..	Helicopter	Version: S/N: Type of mission:	TGB	P/N: S/N: TSN /TSO: Please enclose the TGB Log Card.	TGB control rod bearing Date of removal: P/N: S/N: Flying hours:
Condition of the bearing					**Decision**
Correct condition: Yes☐ / No ☐	Presence of axial play: Yes☐ / No ☐	Presence of particles: Yes☐ / No ☐			Bearing to be sent to AH Yes☐ / No ☐