



**Airworthiness  
Directive  
1999-290/3**

**Luftfahrt-Bundesamt**  
Airworthiness Directive Section  
Hermann-Blenk-Str. 26  
38108 Braunschweig  
Federal Republic of Germany

**Eurocopter Deutschland**

Effective Date: April 05, 2001

**Affected:**

Kind of aeronautical product: Helicopter  
Manufacturer: Eurocopter Deutschland, München, Germany  
Type: BO 105  
Models affected: BO 105 LS A-3  
- Variant: BO 105 LS A-3 „SUPER LIFTER“  
Serial numbers affected: All  
German Type Certificate No.: 3058, EMZ-No. 0654/3058

**Subject:**

Main Rotor System – Inspection and Replacement of Tension-Torsion-Strap

**Affected components:**

Main Rotor Head: P/N 105-141081, -141041, -141061, -141071 or -141045  
Tension-Torsion Strap: P/N 2604067 and J17322-1

**Reason:**

The reason for this Airworthiness Directive was a main rotor blade separation with total loss of the helicopter in the USA on July this year.

The cause of the blade separation was a tension-torsion strap rupture in the main rotor head. The investigation is still going on but the reason for the rupture is presently not fully cleared up.

Depending on inspection results of tension-torsion straps in service, further instructions will be given by the national authority. At present time the following actions must be performed in order to prevent further blade failures in flight.

Reason for the revision of this AD: This AD specifies the Compliance more precisely in order to prevent misunderstanding and unites criterions determining a replacement of the tension-torsion strap in part 2.B. "Work-Procedure" of the Alert Service Bulletin (ASB).

**Action / Compliance:**

Before next flight: find out the total time of installation and the total number of flights completed by the tension-torsion straps up to now and replace or inspect them.

*Note:*

If the number of flights is unknown, carry out the following conversion to service life: 5 flights correspond to 1 flight hour.

If the tension-torsion straps have previously been used at any time in BO 105 helicopters other than BO 105 CB-5, BO 105 CBS-5, BO 105 CBS-5 KLH, BO 105 DBS-5 or BO 105 LS A-3 „SUPER LIFTER“, the number of flights or installation time of these tension-torsion straps in these other helicopter configurations need only be calculated with a factor of 62,5 % (in comparison to the values for the BO 105 CB-5, BO 105 CBS-5, BO 105 DBS-5 or BO 105 LS A-3 „SUPER LIFTER“) which is to be added to the number of flights or installation time of BO 105 CB-5, BO 105 CBS-5, BO 105 CBS-5 KLH, BO 105 DBS-5 or BO 105 LS A-3 „SUPER LIFTER“.

1. Tension-torsion-straps which have completed less than 10 years installation time in the helicopter and less than 25000 flights, are to be replaced at the latest after completing 10 years installation time or 25,000 flights, whichever occurs first. If Tension-torsion-straps complete 10 years installation time before May 31, 2001, the permitted installation time may be exceeded by 6 weeks at the most.
2. Tension-torsion straps which have exceeded a total of 15 years installation time in the helicopter or have completed 25,000 flights, must be replaced immediately. A maximum of 5 additional flights are permitted for transfer to the service station for replacement of the tension-torsion straps (see also diagram in the ASB).
3. In the case of tension-torsion straps which have accumulated between 10 and 15 years installation time in the helicopter, the number of flights must be calculated reduces from the maximum of 25,000 flights in linear form by 3000 flights for each respective year of installation time down to a minimum of 10,000 flights (see diagram in

Enquiries regarding this Airworthiness Directive should be referred to Mr. Olaf Schneider, Airworthiness Directive Section at the above address, fax-no. 0049 531/2355-720. Please note, that in case of any difficulty, reference should be made to the German issue!

the ASB). Tension-torsion straps exceeding the respective reduction in the calculated number of flights are to be replaced immediately. A maximum of 5 additional flights are permitted for transfer to the service station for replacement of the tension-torsion straps.

4. Tension-torsion straps having accumulated following installation times in the helicopter, must be inspected in accordance with the Alert Service Bulletin, if the permissible number of flights (see 1. and 2.) has not been exceeded:
  - Installation time accumulated 10 to 11 years: Inspection within the next 6 weeks
  - Installation time accumulated 11 to 12 years: Inspection within the next 5 weeks
  - Installation time accumulated 12 to 13 years: Inspection within the next 4 weeks
  - Installation time accumulated 13 to 14 years: Inspection within the next 3 weeks
  - Installation time accumulated 14 to 15 years: Inspection within the next 2 weeks
5. In the case of tension-torsion straps which have been inspected in accordance with 3. of the AD, and for which no defects have been discovered, these tension-torsion straps can be used for a maximum of 500 further flights starting from the time of the inspection. They must then be replaced. However, this must not lead to their exceeding the permissible number of flights (see 1. and 2.).
6. In future, tension-torsion straps are to be replaced after having completed a lifetime of 10 years (after installation into the helicopter) or after completing 25,000 flights, whichever occurs first.
7. In the case of tension-torsion straps which are in spares storage, provide them with new part number (in accordance with Alert Service Bulletin) at latest, during their installation into the main rotor head. The corresponding main rotor head is also to be given a new part number in accordance with the Alert Service Bulletin.
8. If tension-torsion-straps are removed or inspected before expiry of the lifetime period of 10 years or 25,000 flights and these same tension-torsion-straps are then reinstalled, all of the tension-torsion-straps of the main rotor head are to be reidentified with the new P/N in accordance with the Alert Service Bulletin. The corresponding main rotor head is also to be reidentified with a new P/N in accordance with the Alert Service Bulletin.
9. Valid only for BO 105 CBS-5 KLH:  
If not already has been done: reidentify main rotor head and the tension-torsion-straps at the next convenient opportunity in accordance with the Alert Service Bulletin.

**Technical publication of the manufacturer:**

Eurocopter Deutschland Alert Service Bulletin BO 105 No. ASB-BO 105-10-113 Revision 3 dated November 10, 2000 which becomes herewith part of this AD and must be obtained from Messrs.:

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**Accomplishment and log book entry:**

Action to be accomplished by an approved service station and to be checked and entered in the log book by a licensed inspector.

**Note:**

This AD supersedes the AD-No. 1999-290/2 dated September 01, 1999.

**Holders of affected aircraft registered in Germany have to observe the following:**

As a result of the a.m. deficiencies, the airworthiness of the aircraft is affected to such an extent that after the expiry of the a.m. dates the aircraft may be operated only after proper accomplishment of the prescribed actions. In the interest of aviation safety outweighing the interest of the receiver in a postponement of the prescribed actions, the immediate compliance with this AD is to be directed

**Instructions about Available Legal Remedies:**

An appeal to this notice may be raised within a period of one month following notification. Appeals must be submitted in writing or registered at the Luftfahrt-Bundesamt, Hermann-Blenk-Str. 26, 38108 Braunschweig.

SUPERSEDED