

by its conventional long form name, the Slovak Republic. For consistency with the manner in which we refer to other countries in the regulations, we use the conventional short form designation of "Slovakia" in this interim rule.

#### Emergency Action

This rulemaking is necessary on an emergency basis to update the disease status of Slovakia and Slovenia regarding BSE. Under these circumstances, the Administrator has determined that prior notice and opportunity for public comment are contrary to the public interest and that there is good cause under 5 U.S.C. 553 for making this rule effective less than 30 days after publication in the **Federal Register**.

We will consider comments we receive during the comment period for this interim rule (see **DATES** above). After the comment period closes, we will publish another document in the **Federal Register**. The document will include a discussion of any comments we receive and any amendments we are making to the rule as a result of the comments.

#### Executive Order 12866 and Regulatory Flexibility Act

This rule has been reviewed under Executive Order 12866. For this action, the Office of Management and Budget has waived its review process required by Executive Order 12866.

We are amending the regulations by adding Slovakia and Slovenia to the list of regions where BSE exists because the disease has been detected in native-born animals in those regions. Slovakia and Slovenia are currently listed among the regions that present an undue risk of introducing BSE into the United States. Regardless of which of the two lists a region is on, the same restrictions apply to the importation of ruminants and meat, meat products, and most other products and byproducts of ruminants that have been in the region. Therefore, this action, which is necessary in order to update the disease status of Slovakia and Slovenia regarding BSE, will not result in any change in the restrictions that apply to the importation of ruminants and meat, meat products, and certain other products and byproducts of ruminants that have been in Slovakia and Slovenia.

Under these circumstances, the Administrator of the Animal and Plant Health Inspection Service has determined that this action will not have a significant economic impact on a substantial number of small entities.

#### Executive Order 12988

This rule has been reviewed under Executive Order 12988, Civil Justice Reform. This rule: (1) Preempts all State and local laws and regulations that are inconsistent with this rule; (2) has no retroactive effect; and (3) does not require administrative proceedings before parties may file suit in court challenging this rule.

#### Paperwork Reduction Act

This interim rule contains no information collection or recordkeeping requirements under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*).

#### List of Subjects in 9 CFR Part 94

Animal diseases, Imports, Livestock, Meat and meat products, Milk, Poultry and poultry products, Reporting and recordkeeping requirements.

Accordingly, we are amending 9 CFR part 94 as follows:

#### **PART 94—RINDERPEST, FOOT-AND-MOUTH DISEASE, FOWL PEST (FOWL PLAGUE), EXOTIC NEWCASTLE DISEASE, AFRICAN SWINE FEVER, HOG CHOLERA, AND BOVINE SPONGIFORM ENCEPHALOPATHY: PROHIBITED AND RESTRICTED IMPORTATIONS**

1. The authority citation for part 94 continues to read as follows:

**Authority:** 7 U.S.C. 450, 7711, 7712, 7713, 7714, 7751, and 7754; 19 U.S.C. 1306; 21 U.S.C. 111, 114a, 134a, 134b, 134c, 134f, 136, and 136a; 31 U.S.C. 9701; 42 U.S.C. 4331 and 4332; 7 CFR 2.22, 2.80, and 371.4.

#### **§ 94.18 [Amended]**

2. Section 94.18 is amended as follows:

a. In paragraph (a)(1), by adding, in alphabetical order, the words "Slovakia, Slovenia,".

b. In paragraph (a)(2), by removing the words "the Slovak Republic, Slovenia,".

Done in Washington, DC, this 28th day of January 2002.

**W. Ron DeHaven,**

*Acting Administrator, Animal and Plant Health Inspection Service.*

[FR Doc. 02-2494 Filed 1-31-02; 8:45 am]

**BILLING CODE 3410-34-U**

#### DEPARTMENT OF TRANSPORTATION

#### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2001-SW-14-AD; Amendment 39-12628; AD 2002-01-31]

RIN 2120-AA64

#### **Airworthiness Directives; Model HH-1K, TH-1F, TH-1L, UH-1A, UH-1B, UH-1E, UH-1F, UH-1H, UH-1L, UH-1P, and Southwest Florida Aviation Model SW204, SW204HP, SW205, and SW205A-1 Helicopters, Manufactured by Bell Helicopter Textron, Inc. for the Armed Forces of the United States**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule.

**SUMMARY:** This amendment supersedes an existing airworthiness directive (AD) that applies to Model HH-1K, TH-1F, TH-1L, UH-1A, UH-1B, UH-1E, UH-1F, UH-1H, UH-1L, UH-1P, and Southwest Florida Aviation Model SW204, SW204HP, SW205, and SW205A-1 helicopters, manufactured by Bell Helicopter Textron, Inc. (BHTI) for the Armed Forces of the United States. That AD currently requires establishing retirement lives for certain main rotor masts, creating a component history card or equivalent record, and identifying and replacing any unairworthy masts. That AD also contains certain requirements regarding the hub spring, conducting inspections based on the retirement index number (RIN), and sending information to the FAA. This AD contains the same requirements but would establish a retirement life for the main rotor trunnion (trunnion) based on monitoring the number of torque events and flight hours rather than flight hours only as currently required. This AD also adds a note clarifying that the mast serial number (S/N) is defined by 5 or fewer digits plus various prefixes. This amendment is prompted by the determination that monitoring the number of torque events and flight hours for the trunnion is more accurate than by monitoring flight hours only to establish a retirement life. The actions specified by this AD are intended to prevent failure of a mast or trunnion, separation of the main rotor system, and subsequent loss of control of the helicopter.

**EFFECTIVE DATE:** March 8, 2002.

**FOR FURTHER INFORMATION CONTACT:** Michael Kohner, Aviation Safety Engineer, FAA, Rotorcraft Directorate, Rotorcraft Certification Office, Fort

Worth, Texas 76193-0170, telephone (817) 222-5447, fax (817) 222-5783.

**SUPPLEMENTARY INFORMATION:** A proposal to amend 14 CFR part 39 by superseding AD 2000-22-51, Amendment 39-12034 (65 FR 77263, December 11, 2000), which applies to Model HH-1K, TH-1F, TH-1L, UH-1A, UH-1B, UH-1E, UH-1F, UH-1H, UH-1L, UH-1P, and Southwest Florida Aviation Model SW204, SW204HP, SW205, and SW205A-1 helicopters, manufactured by BHTI for the Armed Forces of the United States, was published in the **Federal Register** on September 21, 2001 (66 FR 48631). In addition to retaining several of the requirements of AD 2000-22-51, that action proposed establishing a retirement life for the trunnions based on monitoring the number of torque events and flight hours. Also proposed was adding a note clarifying that the mast S/N is defined by 5 or fewer digits plus various prefixes.

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comment received.

The one commenter states that when the details in paragraphs (a)(2)(i) and (b)(2)(i) of the AD are unavailable for a particular component but the total time-in-service (TIS) is known, he suggests that the worst possible combination for RIN and TIS count should be applied and recorded and the FAA should not require that the component be removed from service. The FAA does not concur. Even assuming the worst case scenario proposed by the commenter would not necessarily provide an appropriate safety margin. The helicopter model installation history and the hours TIS are required to ensure that the mast or trunnion has not been installed on any ineligible helicopter. Masts purchased from the U.S. military should have the part records with the helicopter model installation history and hours TIS.

The FAA has determined that air safety and the public interest require the adoption of the rule as proposed except that an editorial change has been made to the reporting requirements information, paragraph (9) of the AD. The FAA has determined that this change neither increases the economic burden on any operator nor increases the scope of the AD.

The FAA estimates that this AD will affect 75 helicopters of U.S. registry. The FAA also estimates that it will take 10 work hours to replace the trunnion, 2 work hours per helicopter to create a new component history card or equivalent record for the trunnions and

that the average labor rate is \$60 per work hour. Required trunnions will cost approximately \$5,300 per helicopter. Based on these figures, the total cost impact of this AD on U.S. operators is estimated to be \$451,500.

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas.

#### List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

#### Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

#### PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701.

##### § 39.13 [Amended]

2. Section 39.13 is amended by removing Amendment 39-12034 (65 FR 77263, December 11, 2000), and by adding a new airworthiness directive (AD), Amendment 39-12628, to read as follows:

**2002-01-31 Arrow Falcon Exporters, Inc. (Previously Utah State University); Firefly Aviation Helicopter Services (Previously Erickson Air-crane Co.); Garlick Helicopters, Inc.; Hawkins and Powers Aviation, Inc.; International Helicopters, Inc.; Robinson Air Crane,**

**Inc.; Smith Helicopters; Southern Helicopter, Inc.; Southwest Florida Aviation; Tamarack Helicopters, Inc. (Previously Ranger Helicopter Services, Inc.); U.S. Helicopter, Inc.; Western International Aviation, Inc., and Williams Helicopter Corporation (Previously Scott Paper Co.):**

*Amendment 39-12628.* Docket No. 2001-SW-14-AD. Supersedes AD 2000-22-51, Amendment 39-12034, Docket No. 2000-SW-42-AD.

*Applicability:* Model HH-1K, TH-1F, TH-1L, UH-1A, UH-1B, UH-1E, UH-1F, UH-1H, UH-1L, and UH-1P; and Southwest Florida Aviation SW204, SW204HP, SW205, and SW205A-1 helicopters, manufactured by Bell Helicopter Textron Inc. (BHTI) for the Armed Forces of the United States, with main rotor mast (mast), part number (P/N) 204-011-450-007, -105, or -109, or main rotor trunnion (trunnion), P/N 204-011-105-001, installed, certificated in any category.

**Note 1:** This AD applies to each helicopter identified in the preceding applicability provision, regardless of whether it has been otherwise modified, altered, or repaired in the area subject to the requirements of this AD. For helicopters that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (c) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

*Compliance:* Required as indicated, unless accomplished previously.

**Note 2:** This AD requires using new factors to recalculate the FACTORED flight hours and the accumulated Retirement Index Number (RIN) for masts installed on certain helicopter models. This AD also expands the serial number (S/N) applicability for the one-time special inspection of the mast.

To prevent failure of a mast or trunnion, separation of the main rotor system, and subsequent loss of control of the helicopter, accomplish the following:

(a) For the mast, P/N 204-011-450-007, -105, or -109:

**Note 3:** The next higher assembly level for the affected P/N's are the 204-040-366 mast assemblies. Check the helicopter records for the appropriate P/N and assembly level.

(1) Within 10 hours time-in-service (TIS), create a component history card or equivalent record for the mast.

(2) Within 10 hours TIS, determine and record the accumulated RIN and revised hours TIS for the mast as follows:

(i) Review the helicopter maintenance records for the mast. If you do not know the helicopter model installation history or hours TIS of the mast, remove the mast from service, identify the mast as unairworthy, and replace it with an airworthy mast before further flight.

(ii) Calculate the accumulated RIN and the revised hours TIS for the mast in accordance with the instructions in Appendix 1 to this AD. For those hours TIS the mast has been installed on any other helicopter, calculate the RIN for that trunnion in accordance with the requirements for those helicopters.

(iii) Record the accumulated RIN and revised hours TIS for the mast on the component history card or equivalent record. Use the revised hours TIS as the new hours TIS for the mast.

(3) Before further flight after accomplishing the requirements of paragraph (a)(2) of this AD, remove from service any mast that has accumulated 265,000 or more RIN or 15,000 or more revised hours TIS and identify the mast as unairworthy. Replace the mast with an airworthy mast.

(4) Within 25 hours TIS, remove any hub spring installed on any affected helicopter.

**Note 4:** U.S. Army Modification Work Order (MWO) 55-1520-242-50-1 pertains to the removal of the hub spring and replacement of any required parts. U.S. Army Safety of Flight Message UH-1-00-10 dated July 19, 2000, also pertains to the subject of this AD.

(5) Determine whether a mast with a S/N less than and including 52720, 61433 through 61444, or 61457 through 61465 (regardless of prefix), has ever been installed on a helicopter while operated *with* a hub spring.

**Note 5:** The mast S/N consists of 5 or less numerical digits and may be preceded by one of the following prefixes: NFS, N9, H, AC9, CP, FA, H9, N19, RH9, or NC. There may be

other prefixes in addition to those listed. The prefix and S/N may or may not be separated by a dash.

(i) If a mast has *never* been installed on a helicopter while operated with a hub spring, before reaching 100,000 RIN, inspect the upper and lower snap ring grooves in the damper clamp splined area for:

(A) A minimum radius of 0.020 inch around the entire circumference (see Figures 1 and 2), using a 100x or higher magnification. If any snap ring groove radius is less than 0.020 inch, identify the mast as unairworthy and replace it with an airworthy mast before exceeding 100,000 RIN.

(B) A burr (see Figures 1 through 3), using a 200x or higher magnification. If a burr is found in any snap ring groove/spline intersection, identify the mast as unairworthy and replace it with an airworthy mast before exceeding 170,000 RIN.

(ii) If a mast has ever been installed on a helicopter while operated *with* a hub spring or if you do not know whether a hub spring has ever been installed, before reaching 100,000 RIN or 400 *unfactored* flight hours, whichever occurs first, inspect the upper and lower snap ring grooves in the damper clamp splined area for:

(A) A minimum radius of 0.020 inch around the entire circumference (see Figures 1 and 2), using a 100x or higher magnification. If any snap ring groove radius is less than 0.020 inch, identify the mast as unairworthy and replace it with an airworthy mast before further flight.

(B) A burr (see Figures 1 through 3), using a 200x or higher magnification. If a burr is found in any snap ring groove/spline

intersection, identify the mast as unairworthy and replace it with an airworthy mast before further flight.

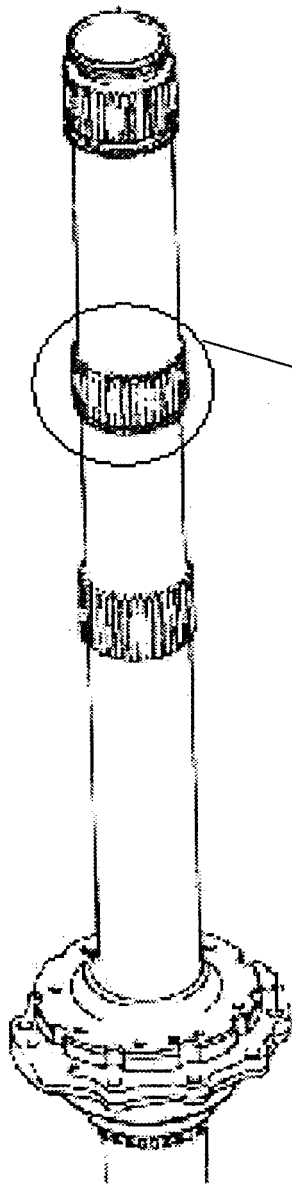
(6) After accomplishing the requirements of paragraph (a)(2) of this AD, continue to calculate the accumulated RIN for the mast by multiplying all takeoff and external load lifts by the RIN factors defined in columns (D) and (G) of Table 1 of Appendix 1 of this AD.

(7) After accomplishing the requirements of paragraph (a)(2) of this AD, continue to count the hours TIS for the mast. Any hours TIS for the mast while installed on a helicopter operated *with* a hub spring or those hours during which you do not know whether a hub spring was installed must be factored in accordance with the instructions in Appendix 1 of this AD.

(8) This AD establishes a retirement life of 265,000 accumulated RIN or 15,000 hours TIS, whichever occurs first, for mast, P/N 204-011-450-007, -105, and -109.

(9) Within 10 days after completing the inspections required by paragraph (a)(5) of this AD, send the information contained on the AD compliance inspection report sample format contained in Appendix 2 to the Manager, Rotorcraft Certification Office, Federal Aviation Administration, Fort Worth, Texas, 76193-0170, USA. Information collection requirements contained in this AD have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*) and have been assigned OMB Control Number 2120-0056.

**BILLING CODE 4910-13-V**



Inspect area for:

- At 100x minimum magnification  
Minimum radius of 0.020 at the  
snap ring groove/spline intersection
- At 200x minimum magnification  
Burr in the snap ring groove

See view A-A for detail

View A

Figure 1

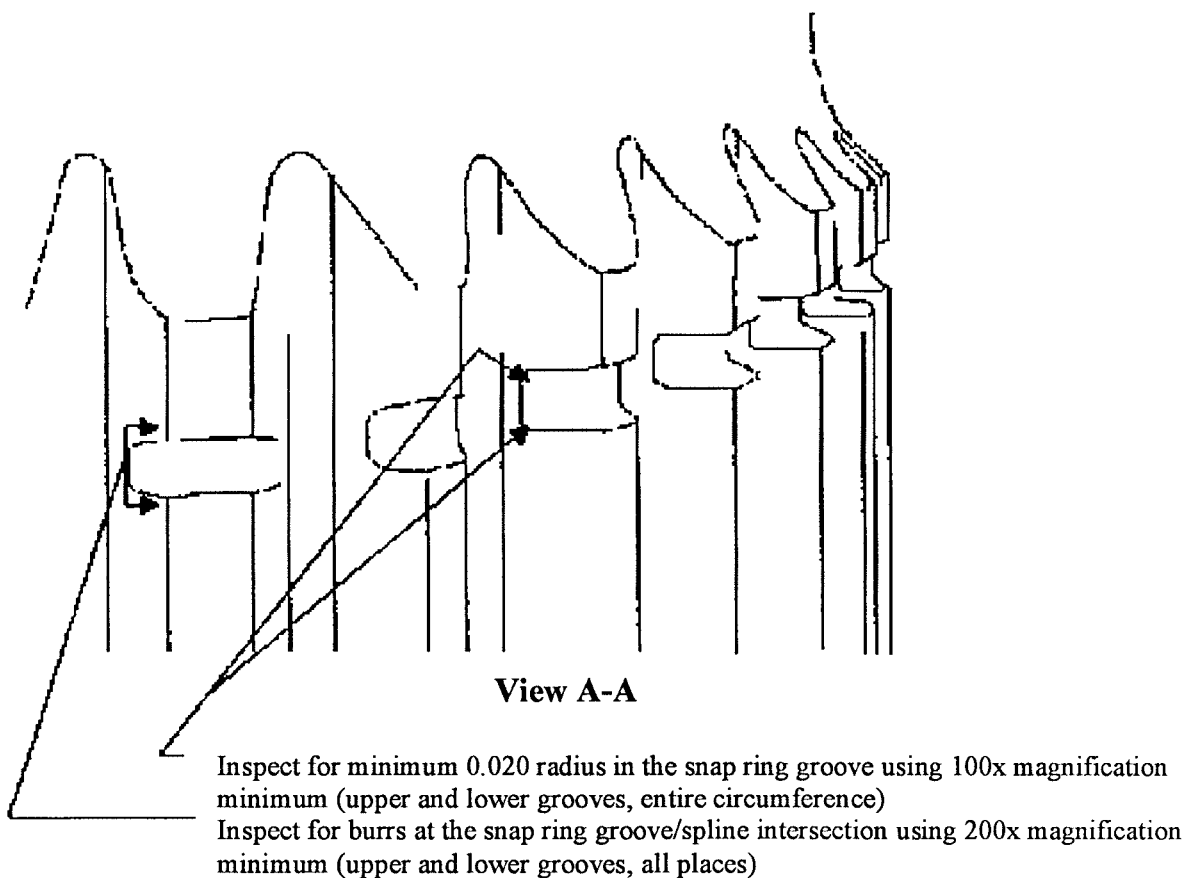
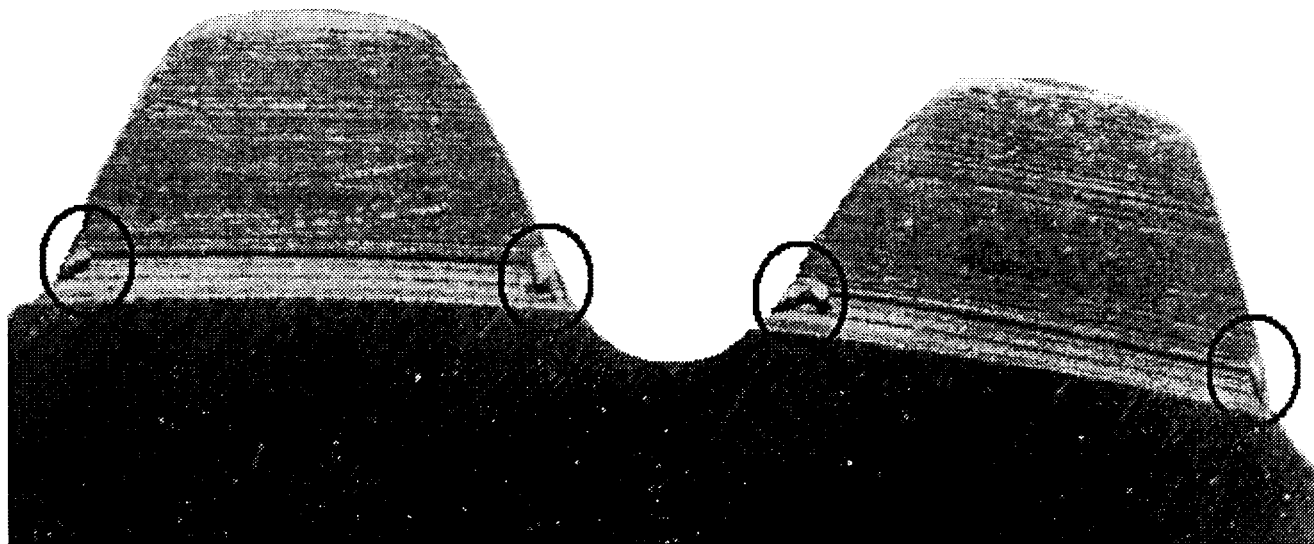


Figure 2  
Snap Ring Groove/Spline Intersection



**Cutaway View Looking Down from Inside Snap Ring Groove**  
**Typical Burrs at Snap Ring Groove/Spline Intersection**  
**Burrs are to be Inspected at 200x Minimum Magnification**

**Figure 3**  
**Typical Burr at Snap Ring Groove**

(b) For the trunnion, P/N 204-011-105-001:

(1) Within 10 hours TIS, create a component history card or equivalent record for the trunnion.

(2) Within 10 hours TIS, determine and record the accumulated RIN and revised hours TIS for the trunnion as follows:

(i) Review the helicopter maintenance records for the trunnion. If the helicopter model installation history or hours TIS of the trunnion are unknown, remove the trunnion from service, identify the trunnion as unairworthy, and replace it with an airworthy trunnion before further flight.

(ii) Calculate the accumulated RIN and the revised hours TIS in accordance with the instructions in Appendix 3 to this AD. For those hours TIS the trunnion has been installed on any other helicopter, calculate the RIN for that trunnion in accordance with the requirements for those helicopters.

(iii) Record the accumulated RIN and revised hours TIS for the trunnion on the component history card or equivalent record. Use the revised hours TIS as the new hours TIS for the trunnion.

(3) Before further flight after accomplishing the requirements of paragraph (b)(2) of this AD, remove from service any trunnion that has accumulated 300,000 or more RIN or 15,000 or more revised hours TIS and identify the trunnion as unairworthy. Replace the trunnion with an airworthy trunnion.

(4) After accomplishing the requirements of paragraph (b)(2) of this AD, continue to calculate the accumulated RIN for the trunnion by multiplying all takeoff and external load lifts by the RIN factors defined in columns (D) and (G) of Table 1 of Appendix 3 to this AD.

(5) After accomplishing the requirements of paragraph (b)(2) of this AD, continue to count the hours TIS for the trunnion.

(6) This AD establishes a retirement life of 300,000 accumulated RIN or 15,000 hours TIS, whichever occurs first, for the trunnion, P/N 204-011-105-001.

(c) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Rotorcraft Certification Office, FAA. Operators shall submit their requests through an FAA

Principal Maintenance Inspector, who may concur or comment and then send it to the Manager, Rotorcraft Certification Office.

**Note 6:** Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Manager, Rotorcraft Certification Office.

(d) Special flight permits may be issued in accordance with 14 CFR 21.197 and 21.199 to operate the helicopter to a location where the requirements of this AD can be accomplished.

#### **Appendix 1—Instructions for Calculating the RIN and Revised Hours TIS**

##### *Definitions for the RIN:*

The overall *fatigue life* of a main rotor mast is a function of the number of cycles of torque, lift, and bending loads applied to it during the various modes of operation. The mast experiences both high cycle fatigue and low cycle fatigue during operation.

The *high cycle fatigue life* of the mast is a function of high frequency but relatively low level cyclic loads, which are primarily

induced by rotor rpm. The high cycle fatigue life limit for the mast is defined in terms of hours TIS because rotor rpm is basically a constant value.

The *low cycle fatigue life* of the mast is a function of the number of less frequent but relatively high level cyclic loads experienced primarily during takeoffs and external load lifts. The low cycle fatigue life limit for the mast is expressed in terms of the accumulated RIN.

A *load cycle* is a power cycle caused by a repeating or fluctuating load that alternates from a starting power value, goes to a higher power value, and returns to the starting power value.

The *accumulated RIN* is defined as the total number of load cycles multiplied by a **RIN factor** to account for the difference in torque levels applied to the same mast (since manufactured) when installed in different helicopter models. The level of torque applied to the mast is directly proportional to the transmission output horsepower.

The *unfactored hours TIS* is the time from the moment a helicopter leaves the surface of the earth until it touches it at the next point of landing with no factors applied.

The *FACTORED flight hours* is the *unfactored* hours TIS multiplied by a frequency of event hour factor based on the torque (horsepower) of the helicopter model in which it was installed and the usage of the helicopter.

The *revised hours TIS* is the new hours TIS for the mast as determined by following the instructions in this appendix.

An *external load lift* is defined as a lift where the load is carried, or extends, outside of the aircraft fuselage.

#### Calculation of RIN and Revised Hours TIS:

There are two methods for calculating the accumulated RIN and the revised hours TIS, depending on the available service history information for the mast. In some cases, one method will be used for a portion of the mast service history, and the other method will be used for another portion of the mast service history. Both methods require knowledge of all the helicopter models in which the mast was installed.

#### Calculation of RIN and Revised Hours TIS when the Exact Number of Takeoffs and External Load Lifts is Known (Reference Tables 1 and 3):

Table 1 of Appendix 1 is the worksheet for calculating the accumulated mast RIN when the exact number of takeoffs and external load lifts is *known*. Table 3 of Appendix 1 is the worksheet that has the frequency of event hour factors to calculate the FACTORED flight hours for the *unfactored* hours TIS for the mast while installed on a helicopter operated *with* a hub spring or the hub spring installation history is *unknown*.

The RIN factor for each external load lift is twice that specified for each takeoff because two torque events are experienced during a typical external load lift.

Using Table 1, calculate accumulated RIN as follows:

1. Enter the total number of takeoffs for the particular mast model/helicopter model combination in column (C).

2. Multiply the value entered in column (C) by the RIN factor listed in column (D), and enter the result in column (E). This is the total accumulated RIN due to takeoffs.

3. Enter the total number of external load lifts for the particular mast model/helicopter model combination in column (F).

4. Multiply the value entered in column (F) by the RIN factor listed in column (G), and enter the result in column (H). This is the accumulated RIN due to external load lifts.

5. Add the values from column (E) and column (H) and enter the result in column (I). This is the total accumulated RIN to-date for the mast for the particular mast model/helicopter model combination.

6. Add the accumulated RIN subtotals for the various mast model/helicopter combinations in column (I) and enter the result in the space provided. This is the total accumulated RIN for the mast.

Using Table 3, calculate the revised hours TIS as follows:

7. Determine the *unfactored* hours TIS for the mast while installed on a helicopter operated *with* a hub spring or the number of hours TIS for which you do not know whether a hub spring was installed for each of the particular mast model/helicopter model combinations.

8. Determine the frequency of events per hour for each of the particular mast model/helicopter model combinations dividing the combined number of takeoffs and external load lifts by the corresponding *unfactored* hours TIS.

9. Multiply the value for *unfactored* hours TIS for each of the particular mast model/helicopter model combinations by the appropriate value in column (E) of Table 3 for the frequency of event hour factor. These are the total FACTORED flight hours for the particular mast model/helicopter model combinations.

10. Add the FACTORED flight hour subtotals for each of the particular mast model/helicopter model combinations. This is the total FACTORED flight hours for the mast while installed on a helicopter operated *with* a hub spring or when you do not know whether a hub spring was installed.

11. Determine the *unfactored* hours TIS for the mast while installed on a helicopter operated *without* a hub spring.

12. Add to the total FACTORED flight hours for the mast while installed on a helicopter operated *with* a hub spring or those hours during which you do not know whether a hub spring was installed to the *unfactored* hours TIS as determined in step 11. This is the total revised hours TIS for the mast when the exact number of takeoffs and external load lifts is known.

#### Calculation of RIN and Revised Hours TIS when Exact Number of Takeoffs and External Load Lifts is Unknown (Reference Tables 2, 3, and 4):

Tables 2, 3, and 4 of Appendix 1 are the worksheets for calculating the FACTORED flight hours and accumulated mast RIN when the exact number of takeoffs and external load lifts is *unknown*.

Using Tables 2, 3, and 4, calculate the accumulated mast RIN and revised hours TIS as follows:

1. Enter the *unfactored* hours TIS for the particular mast model/helicopter model combination in column (C) of Tables 2 and 3.

2. Using service history for the mast, select the appropriate frequency of event hour factor from column (E) of Tables 2 and 3 based on the total combined number of takeoffs and external load lifts per hour shown in column (D).

3. Multiply the value for *unfactored* hours TIS entered in column (C) by the appropriate value in column (E) for the frequency of event hour factor as determined in step 2. Enter the result in column (F) of Tables 2 and 3. This is the total FACTORED flight hours for the particular mast model/helicopter model combination.

4. Enter the value for FACTORED flight hours from column (F) of Tables 2 and 3 into column (C) of Table 4.

5. Using Table 4, multiply the value for FACTORED flight hours in column (C) by the appropriate RIN conversion factor listed in column (D), by the appropriate RIN adjustment factor in column (E), and enter the result in column (F). This is the accumulated RIN to-date for the particular mast model/helicopter model combination.

6. Add the accumulated RIN subtotals for the various mast model/helicopter model combinations in column (F) of Table 4 and enter the result in the space provided. This is the total accumulated RIN for the mast.

7. Add the factored flight hour subtotals for the various mast model/helicopter model combinations as determined in steps 1 through 4. This is the total revised hours TIS for the mast when the exact number of takeoffs and external load lifts is *unknown*.

#### Sample Mast Calculation

Given the following known service history for the mast:

Mast, P/N 204-011-450-007, was first purchased as a United States military surplus part with valid historical records. The mast had accumulated 550 hours military TIS on an Army UH-1H with a hub spring installed.

The mast was first installed on a restricted category UH-1H former military helicopter for 250 hours TIS. The helicopter had a rating of 1100 takeoff horsepower (T.O. hp) at sea level standard day conditions (SLS), and the operation of the helicopter *without* a hub spring cannot be determined. The helicopter was used for fire fighting operations and the exact number of takeoffs and external load lifts is unknown. It is known, however, that the helicopter averaged less than 15 combined takeoffs and external load lifts per hour.

The mast was then removed and subsequently installed on a restricted category UH-1E former military helicopter (1100 T.O. hp SLS rating) *without* a hub spring for 450 hours TIS. It is known that the helicopter was used primarily for aerial surveying for the first 200 hours of operation. The exact number of takeoffs and external load lifts is unknown, but it is known that the helicopter averaged less than 16 takeoffs per hour, with no external load lifts. It was subsequently used for repeated heavy lift operation for the next 250 hours of operation and averaged between 25 and 31 combined

takeoffs and external load lifts per hour during this period of time.

The mast was then removed and installed on another restricted category UH-1H former military helicopter (1100 T.O. hp SLS rating) for a total of 150 hours TIS with accurate records indicating that it experienced 100 takeoffs and 2,450 external load lifts. A hub spring was installed on the helicopter for the first 50 hours of operation with a calculated average of 19 combined takeoffs and external load lifts per hour (as determined from aircraft records for the first 50 hours of operation). The hub spring was subsequently removed for the remaining 100 hours TIS.

Calculate the FACTORED flight hours and total accumulated RIN for the mast as follows:

*FACTORED Flight Hours and Accumulated RIN while installed in U.S. military Model UH-1H:*

Calculate FACTORED flight hours from Table 3 as follows:

$$\begin{aligned} \text{FACTORED Flight Hours} &= (\text{unfactored hours TIS}) \times (\text{frequency of event hour factor}) \\ &= (\text{column C}) \times (\text{column E}) \\ &= (550) \times (10) \\ &= 5,500 \text{ hours} \end{aligned}$$

Then using Table 4, calculate the accumulated RIN as follows:

$$\begin{aligned} \text{Accumulated RIN} &= (\text{FACTORED flight hours}) \times (\text{RIN conversion factor}) \times (\text{RIN adjustment factor}) \\ &= (\text{column C}) \times (\text{column D}) \times (\text{column E}) \\ &= (5,500) \times (20) \times (1) \\ &= 110,000 \text{ RIN} \end{aligned}$$

*FACTORED Flight Hours and Accumulated RIN while installed in restricted category Model UH-1H:*

Calculate FACTORED flight hours from Table 3 as follows:

$$\begin{aligned} \text{FACTORED Flight Hours} &= (\text{unfactored hours TIS}) \times (\text{frequency of event hour factor}) \\ &= (\text{column C}) \times (\text{column E}) \\ &= (250) \times (14) \\ &= 3,500 \text{ hours} \end{aligned}$$

Then using Table 4, calculate the accumulated RIN as follows:

$$\begin{aligned} \text{Accumulated RIN} &= (\text{FACTORED flight hours}) \times (\text{RIN conversion factor}) \times (\text{RIN adjustment factor}) \\ &= (\text{column C}) \times (\text{column D}) \times (\text{column E}) \end{aligned}$$

$$\begin{aligned} &= (3,500) \times (20) \times (1) \\ &= 70,000 \text{ RIN} \end{aligned}$$

*FACTORED Flight Hours and Accumulated RIN while installed in restricted category Model UH-1E:*

Calculate FACTORED flight hours from Table 2 as follows:

$$\begin{aligned} \text{FACTORED Flight Hours (for first 200 hrs.)} &= (\text{unfactored hours TIS}) \times (\text{frequency of event hour factor}) \\ &= (\text{column C}) \times (\text{column E}) \\ &= (200) \times (5) \\ &= 1,000 \text{ hours} \\ \text{FACTORED Flight Hours (for next 250 hrs.)} &= (\text{unfactored hours TIS}) \times (\text{frequency of event hour factor}) \\ &= (\text{column C}) \times (\text{column E}) \\ &= (250) \times (10) \\ &= 2,500 \text{ hours} \end{aligned}$$

Then using Table 4, calculate the accumulated RIN as follows:

$$\begin{aligned} \text{Accumulated RIN} &= (\text{FACTORED flight hours}) \times (\text{RIN conversion factor}) \times (\text{RIN adjustment factor}) \\ &= (\text{column C}) \times (\text{column D}) \times (\text{column E}) \\ &= (1,000) \times (20) \times (1) + (2,500) \times (20) \times (1) \\ &= 20,000 + 50,000 \\ &= 70,000 \text{ RIN} \end{aligned}$$

*FACTORED Flight Hours and Accumulated RIN while installed in another restricted category Model UH-1H:*

Calculate the accumulated RIN from Table 1 and the given number of takeoffs and external load lifts as follows:

$$\begin{aligned} \text{Accumulated RIN} &= (\text{number of takeoffs} \times \text{RIN factor per takeoff}) + (\text{number of external load lifts} \times \text{RIN factor per external load lift}) \\ &= (\text{column C}) \times (\text{column D}) + (\text{column F}) \times (\text{column G}) \\ &= (100) \times (3) + (2,450) \times (6) \\ &= 15,000 \text{ RIN} \end{aligned}$$

Calculate the FACTORED flight hours for the mast while installed on a helicopter operated with a hub spring or when you do not know whether a hub spring was installed using the frequency of event hour factors from Table 3 as follows:

$$\begin{aligned} \text{FACTORED Flight Hours (w/ hub spring)} &= (\text{unfactored hours TIS}) \times (\text{frequency of event hour factor}) \\ &= (\text{column C}) \times (\text{column E}) \\ &= (50) \times (16) \\ &= 800 \text{ hours} \end{aligned}$$

Unfactored Hours TIS (w/o hub spring)

$$\begin{aligned} &= (\text{unfactored hours TIS}) \\ &= 100 \text{ hours} \end{aligned}$$

Note that the FACTORED flight hours are not used in the accumulated RIN calculations when the number of takeoffs and external load lifts is known.

Calculate the Total Accumulated RIN and Revised Hours TIS as follows:

The total accumulated RIN to-date for the mast is the sum of the subtotals from Tables 1 and 4.

$$\begin{aligned} \text{Total Accumulated RIN} &= 110,000 + 70,000 + 70,000 + 15,000 \\ &= 265,000 \end{aligned}$$

The total FACTORED flight hours for the mast is the sum of the subtotals from Tables 2 and 3 and the total FACTORED flight hours as determined in the preceding step 12 when the exact number of takeoff and external load lifts is known.

$$\begin{aligned} \text{Total FACTORED Flight Hours} &= 5,500 + 3,500 + 1,000 + 2,500 + 800 \\ &= 13,300 \text{ hours} \end{aligned}$$

The revised hours TIS to-date for the mast is the sum of the total FACTORED flight hours and the additional unfactored hours TIS for the mast while installed on a helicopter operated without a hub spring and the exact number of takeoffs and external load lifts is known.

$$\begin{aligned} \text{Revised Hours TIS} &= 5,500 + 3,500 + 1,000 + 2,500 + 800 + 100 \\ &= 13,300 + 100 \\ &= 13,400 \text{ hours} \end{aligned}$$

Both the total accumulated RIN and the revised hours TIS need to be determined and checked for exceeding the allowable life limits for the mast. Also, note that the recalculated total accumulated RIN for this sample mast would be 265,000 RIN. Therefore, this mast would be removed from service.

The values for the sample problem are shown in Tables 1-4 for illustration purposes only. The FACTORED flight hours TIS shown in the brackets in Table 3 are calculated for the mast while installed on a helicopter operated with a hub spring or when you do not know whether a hub spring was installed and the exact number of takeoffs and external load lifts is known. These FACTORED flight hours are not used in the accumulated RIN calculations.

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Mast RIN Calculation Based on Takeoffs and External Load Lifts

Mast A/C Model Installation	Mast P/N 204-011-450	Number Of Takeoffs	RIN Factor Per Takeoff	Total Takeoff RIN = (C) x (D)	Number of External Load Lifts	RIN Factor Per External Load Lift	Total External Load Lift RIN = (F) x (G)	Accumulated RIN = (E) + (H)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
Restricted Category TIS (<700 T.O. hp SLS)	204-011-450-007		0.25			0.5		
	204-011-450-105		0.25			0.5		
	204-011-450-109		0.25			0.5		
Restricted Category TIS (700<T.O. hp SLS <=1000)	204-011-450-007		1.5			3		
	204-011-450-105		1.5			3		
	204-011-450-109		1.5			3		
Restricted Category TIS (1000<T.O. hp SLS <=1100)	204-011-450-007	100	3	300	2,450	6	14,700	15,000
	204-011-450-105		3			6		
	204-011-450-109		3			6		
Restricted Category TIS (1100<T.O. hp SLS <=1290)	204-011-450-007		6			12		
	204-011-450-105		6			12		
	204-011-450-109		6			12		
Restricted Category TIS (>1290 T.O. hp SLS)	204-011-450-007		Contact FAA*			Contact FAA*		Contact FAA*
	204-011-450-105		Contact FAA*			Contact FAA*		Contact FAA*
	204-011-450-109		Contact FAA*			Contact FAA*		Contact FAA*
<b>Total RIN=</b>								<b>15,000</b>

\*Contact FAA at (817) 222-5447

## Calculation of Mast FACTORED Flight Hours (Without a Hub Spring Installed)

Mast A/C Model Installation	Mast P/N 204-011-450 (without a hub spring installed)	Unfactored Hours TIS on Model	Frequency Of Events Per Hour	Frequency of Event Hour Factor	FACTORED Flight Hours On Model
(A)	(B)	(C)	(D)	(E)	(F) = (C) x (E)
Restricted Category TIS ( $\leq 700$ T.O. hp SLS)	204-011-450-007, -105, or -109		1.0-37.00	1.00	
			37.01-46.00	1.25	
			46.01-55.00	1.50	
			55.01-63.00	1.75	
			Greater than 63.00	Contact FAA*	
			Unknown	1.75	
Restricted Category TIS ( $700 < \text{T.O. hp SLS} \leq 1000$ )	204-011-450-007, -105, or -109		1.0-7.00	1.00	
			7.01-13.00	2.00	
			13.01-18.00	3.00	
			18.01-30.00	5.00	
			30.01-41.00	7.00	
			41.01-52.00	9.00	
			52.01-63.00	11.00	
			Greater than 63.00	Contact FAA*	
			Unknown	11.00	
Restricted Category TIS ( $1000 < \text{T.O. hp SLS} \leq 1100$ )	204-011-450-007, -105, or -109		1.0-5.00	1.00	
			5.01-7.00	2.00	
			7.01-10.00	3.00	
			10.01-16.00	5.00	1,000
			16.01-24.00	7.50	
			24.01-31.00	10.00	2,500
			31.01-46.00	15.00	
			46.01-61.00	20.00	
	Greater than 61.00	Contact FAA*			
			Unknown	20.00	
Restricted Category TIS ( $1100 < \text{T.O. hp SLS} \leq 1290$ )	204-011-450-007, -105, or -109		1.0-5.00	2.10	
			5.01-7.00	4.00	
			7.01-10.00	6.00	
			10.01-15.00	9.00	
			15.01-19.00	12.00	
			19.01-25.00	16.00	
			25.01-31.00	20.00	
			31.01-46.00	30.00	
			46.01-60.00	40.00	
	Greater than 60.00	Contact FAA*			
			Unknown	40.00	
Military TIS ( $\leq 700$ T.O. hp SLS)	204-011-450-007, -105, or -109		All	1.00	
( $\leq 1000$ T.O. hp SLS)			All	2.00	
( $\leq 1100$ T.O. hp SLS)			All	3.50	
( $\leq 1290$ T.O. hp SLS)			All	7.00	
(> 1290 T.O. hp SLS)			All	Contact FAA*	

\*Contact FAA at (817) 222-5447

**Calculation of Mast FACTORED Flight Hours (With a Hub Spring Installed)**

Mast A/C Model Installation	Mast P/N 204-011-450 (with a hub spring or for which you do not know whether a hub spring was installed)	Unfactored Hours TIS on Model	Frequency Of Events Per Hour	Frequency of Event Hour Factor	FACTORED Flight Hours On Model
(A)	(B)	(C)	(D)	(E)	(F) = (C) x (E)
Restricted Category TIS (≤700 T.O. hp SLS)	204-011-450-007, -105, or -109		1.0-6.00	10.00	
			6.01-12.00	10.25	
			12.01-21.00	10.50	
			21.01-39.00	11.00	
			39.01-63.00	11.75	
			Greater than 63.00 Unknown	Contact FAA* 11.75	
Restricted Category TIS (700<T.O. hp SLS ≤1000)	204-011-450-007, -105, or -109		1.0-6.00	10.00	
			6.01-15.00	12.00	
			15.01-26.00	14.00	
			26.01-37.00	16.00	
			37.01-49.00	18.00	
			49.01-63.00 Greater than 63.00 Unknown	21.00 Contact FAA* 21.00	
Restricted Category TIS (1000<T.O. hp SLS ≤1100)	204-011-450-007, -105, or -109		1.0-6.00	10.00	
			6.01-9.00	12.00	
		<b>250</b>	9.01-15.00	14.00	<b>3,500</b>
		<b>&lt;50&gt;</b>	15.01-21.00	16.00	<b>&lt;800&gt;</b>
			21.01-33.00	20.00	
			33.01-45.00 45.01-61.00 Greater than 61.00 Unknown	24.00 30.00 Contact FAA* 30.00	
Restricted Category TIS (1100<T.O. hp SLS ≤1290)	204-011-450-007, -105, or -109		1.0-6.00	10.00	
			6.01-11.00	15.00	
			11.01-18.00	20.00	
			18.01-26.00	25.00	
			26.01-33.00	30.00	
			33.01-40.00 40.01-48.00 48.01-60.00 Greater than 60.00 Unknown	35.00 40.00 50.00 Contact FAA* 50.00	
Military TIS (≤1290 hp T.O. SLS)	204-011-450-007, -105,	<b>550</b>	All	10.00	<b>5,500</b>
(>1290 hp T.O. SLS)	or -109		All	Contact FAA*	

\*Contact FAA at (817) 222-5447

Mast RIN Calculation Based on Hours TIS

Mast A/C Model Installation	Mast P/N 204-011-450	FACTORED Flight Hours On Model	RIN Conversion Factor	RIN Adjustment Per AD 2000-15-52	Accumulated RIN
(A)	(B)	(C) (From Table 2 of Appendix I)	(D)	(E)	(F) =(C) x (D) x (E)
Restricted Category or Military TIS with (<=1290 T.O. hp SLS)	204-011-450-007	12,500	20	1	250,000
	204-011-450-105		20	1	
Restricted Category or Military TIS with (>1290 T.O. hp SLS)	204-011-450-109		20	1	
	204-011-450-007				
	204-011-450-105				
	204-011-450-109				
<b>Total RIN =</b>			Contact FAA*	Contact FAA*	Contact FAA*
					<b>250,000</b>

Contact FAA at (817) 222-5447

Appendix 1 - Table 4

Subtotals for the FACTORED Flight Hours and Accumulated RIN For Table 4 of the Sample Mast Calculation:

FACTORED Flight Hours		Accumulated RIN
5,500 X	20 =	110,000
3,500 X	20 =	70,000
3,500 X	20 =	70,000
<hr/>		<hr/>
12,500		250,000

## Appendix 2—AD Compliance Inspection Report (Sample Format) P/N 204-011-450-007/-105/-109 Main Rotor Mast

Provide the following information and mail or fax it to: Manager, Rotorcraft Certification Office, Federal Aviation Administration, Fort Worth, Texas, 76193-0170, USA, Fax: 817-222-5783

Aircraft Registration No:

Helicopter Model:

Helicopter S/N:

Mast P/N:

Mast S/N:

Mast RIN:

Mast Total TIS:

Inspection Results

Were any radii during inspection of this mast determined to be less than 0.020 inch? If yes, what was the dimension measured?

Was a burr found in the inspected snap ring grooves?

Were cracks noted during the inspection?

Who performed this inspection?

Provide any other comments?

## Appendix 3—Instructions for Calculating Trunnion RIN and Revised Hours TIS

Definitions for the RIN:

The overall *fatigue life* of a main rotor trunnion is a function of the number of cycles of torque, lift, and bending loads applied to it during the various modes of operation. The trunnion experiences both high cycle fatigue and low cycle fatigue during operation.

The *high cycle fatigue life* of the trunnion is a function of high frequency but relatively low level cyclic loads, which are primarily induced by rotor rpm. The high cycle fatigue life limit for the trunnion is defined in terms of hours TIS because rotor rpm is basically a constant value.

The *low cycle fatigue life* of the trunnion is a function of the number of less frequent but relatively high level cyclic loads experienced primarily during takeoffs and external load lifts. The low cycle fatigue life limit for the trunnion is expressed in terms of the accumulated RIN.

A *load cycle* is a power cycle caused by a repeating or fluctuating load that alternates from a starting power value, goes to a higher power value, and returns to the starting power value.

The *accumulated RIN* is defined as the total number of load cycles multiplied by a RIN factor to account for the difference in torque levels applied to the same trunnion (since manufactured) when installed in different helicopter models. The level of torque applied to the trunnion is directly proportional to the transmission output horsepower.

The *unfactored hours TIS* is the time from the moment a helicopter leaves the surface of the earth until it touches it at the next point of landing with no factors applied.

The *FACTORED flight hours* is the *unfactored hours TIS* multiplied by a frequency of event hour factor based on the torque (horsepower) of the helicopter model in which it was installed and the usage of the helicopter.

The *revised hours TIS* is the new hours TIS for the trunnion as determined by following the instructions in this appendix.

An *external load lift* is defined as a lift where the load is carried, or extends, outside of the aircraft fuselage.

*Calculation of RIN and Revised Hours TIS:*

There are two methods for calculating the accumulated RIN and the revised hours TIS, depending on the available service history information for the trunnion. In some cases, one method will be used for a portion of the trunnion service history, and the other method will be used for another portion of the trunnion service history. Both methods require knowledge of all the helicopter models in which the trunnion was installed.

*Calculation of RIN and Revised Hours TIS when the Exact Number of Takeoffs and External Load Lifts is Known (Reference Table 1):*

Table 1 of Appendix 3 is the worksheet for calculating the accumulated trunnion RIN when the exact number of takeoffs and external load lifts is *known*.

The RIN factor for each external load lift is twice that specified for each takeoff because two torque events are experienced during a typical external load lift.

Using Table 1, calculate the accumulated RIN as follows:

1. Enter the total number of takeoffs for the particular trunnion model/helicopter model combination in column (C).

2. Multiply the value entered in column (C) by the RIN factor listed in column (D), and enter the result in column (E). This is the total accumulated RIN due to takeoffs.

3. Enter the total number of external load lifts for the particular trunnion model/helicopter model combination in column (F).

4. Multiply the value entered in column (F) by the RIN factor listed in column (G), and enter the result in column (H). This is the accumulated RIN due to external load lifts.

5. Add the values from column (E) and column (H) and enter the result in column (I). This is the total accumulated RIN to-date for the trunnion for the particular trunnion model/helicopter model combination.

6. Add the accumulated RIN subtotals for the various trunnion model/helicopter combinations in column (I) and enter the result in the space provided. This is the total accumulated RIN for the trunnion.

*Calculation of RIN and Revised Hours TIS when Exact Number of Takeoffs and External Load Lifts is Unknown (Reference Tables 2 and 3):*

Tables 2 and 3 of Appendix 3 are the worksheets for calculating the FACTORED flight hours and accumulated trunnion RIN when the exact number of takeoffs and external load lifts is *unknown*.

Using Tables 2 and 3, calculate the accumulated trunnion RIN and revised hours TIS as follows:

1. Enter the *unfactored hours TIS* for the particular trunnion model/helicopter model combination in column (C) of Table 2.

2. Using service history for the trunnion, select the appropriate frequency of event hour factor from column (E) of Table 2 based on the total combined number of takeoffs and

external load lifts per hour shown in column (D).

3. Multiply the value for *unfactored hours TIS* entered in column (C) by the appropriate value in column (E) for the frequency of event hour factor as determined in step 2. Enter the result in column (F) of Table 2. This is the total FACTORED flight hours for the particular trunnion model/helicopter model combination.

4. Enter the value for FACTORED flight hours from column (F) of Table 2 into column (C) of Table 3.

5. Using Table 3, multiply the value for FACTORED flight hours in column (C) by the appropriate RIN conversion factor listed in column (D), by the appropriate RIN adjustment factor in column (E), and enter the result in column (F). This is the accumulated RIN to-date for the particular trunnion model/helicopter model combination.

6. Add the accumulated RIN subtotals for the various trunnion model/helicopter model combinations in column (F) of Table 3 and enter the result in the space provided. This is the total accumulated RIN for the trunnion.

7. Add the factored flight hour subtotals for the various trunnion model/helicopter model combinations as determined in steps 1 through 4. This is the total revised hours TIS for the trunnion when the exact number of takeoffs and external load lifts is *unknown*.

### Sample Trunnion Calculation

Given the following known service history for the trunnion:

Trunnion, P/N 204-011-105-001, was first purchased as a United States military surplus part with valid historical records. The trunnion had accumulated 550 hours military TIS on an Army UH-1H.

The trunnion was first installed on a restricted category UH-1H former military helicopter (1100 T.O. hp SLS rating) for 450 hours TIS. It is known that the helicopter was used primarily for aerial surveying for the first 200 hours of operation. The exact number of takeoffs and external load lifts is unknown, but it is known that the helicopter averaged less than 16 takeoffs per hour with no external load lifts. It was subsequently used for repeated heavy lift operation for the next 250 hours of operation and averaged between 25 and 31 combined takeoffs and external load lifts per hour during this period of time.

The trunnion was then removed and subsequently installed on a restricted category UH-1E former military helicopter (1100 T.O. hp SLS rating) for a total of 150 hours TIS with accurate records indicating that it experienced 100 takeoffs and 2,450 external load lifts.

Calculate the FACTORED flight hours and total accumulated RIN for the trunnion as follows:

*FACTORED Flight Hours and Accumulated RIN while installed in U.S. military Model UH-1H:*

Calculate FACTORED flight hours from Table 2 as follows:  
FACTORED Flight Hours

= (unfactored hours TIS) × (frequency of event hour factor)  
 =(column C) × (column E)  
 =(550) × (1)  
 =550 hours

Then using Table 3, calculate the accumulated RIN as follows:

Accumulated RIN

= (FACTORED flight hours) × (RIN conversion factor) × (RIN adjustment factor)  
 = (column C) × (column D) × (column E)  
 = (550) × (20) × (1)  
 = 11,000 RIN

*FACTORED Flight Hours and Accumulated RIN while installed in restricted category Model UH-1H:*

Calculate FACTORED flight hours from Table 2 as follows:

FACTORED Flight Hours (for first 200 hours)

= (unfactored hours TIS) × (frequency of event hour factor)  
 = (column C) × (column E)  
 = (200) × (1)  
 = 200 hours

FACTORED Flight Hours (for next 250 hours)

= (unfactored hours TIS) × (frequency of event hour factor)  
 = (column C) × (column E)  
 =(250) × (2)

=500 hours

Then using Table 3, calculate the accumulated RIN as follows:

Accumulated RIN

= (FACTORED flight hours) × (RIN conversion factor) × (RIN adjustment factor)  
 = (column C) × (column D) × (column E)  
 = (200) × (20) × (1) + (500) × (20) × (1)  
 = 4,000 + 10,000  
 = 14,000 RIN

*FACTORED Flight Hours and Accumulated RIN while installed in restricted category Model UH-1E:*

Calculate the accumulated RIN from Table 1 and the given number of takeoffs and external load lifts as follows:

Accumulated RIN

= (number of takeoffs × RIN factor per takeoff) + (number of external load lifts × RIN factor per external load lifts)  
 = (column C) × (column D) + (column F) × (column G)  
 = (100) × (1.5) + (2,450) × (3)  
 = 7,500 RIN

*Calculate the Total Accumulated RIN and Revised Hours TIS as follows:*

The total accumulated RIN to-date for the trunnion is the sum of the subtotals from Tables 1 and 3.

*Total Accumulated RIN*

= 11,000 + 14,000 + 7,500  
 = 32,500

The total FACTORED flight hours for the trunnion is the sum of the subtotals from Table 2.

*Total FACTORED Flight Hours*

= 550 + 200 + 500  
 = 1,250 hours

The revised hours TIS to-date for the trunnion is the sum of the total FACTORED flight hours and the additional unfactored hours TIS for the trunnion when the exact number of takeoff and external load lifts is known.

*Revised Hours TIS*

= 550 + 200 + 500 + 150  
 = 1,250 + 150  
 = 1,400 hours

Both the total accumulated RIN and the revised hours TIS need to be determined and checked for exceeding the allowable life limits for the trunnion.

The values for the sample problem are shown in Tables 1–3 for illustration purposes only.

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Trunnion RIN Calculation Based on Takeoffs and External Load Lifts

Trunnion A/C Model Installation	Trunnion P/N 204-011-105	Number Of Takeoffs	RIN Factor Per Takeoff	Total Takeoff RIN	Number of External Load Lifts	RIN Factor Per External Load Lift	Total External Load Lift RIN	Accumulated RIN
(A)	(B)	(C)	(D)	(E) =(C) x (D)	(F)	(G)	(H) =(F) x (G)	(I) =(E) + (H)
Restricted Category TIS (≤700 T.O. hp SLS)	204-011-105-001		0.25			0.5		
Restricted Category TIS (700<T.O. hp SLS ≤1000)	204-011-105-001		1			2		
Restricted Category TIS (1000<T.O. hp SLS ≤1100)	204-011-105-001	100	1.5	150	2,450	3	7,350	7,500
Restricted Category TIS (1100<T.O. hp SLS ≤1290)	204-011-105-001		5			10		
Restricted Category TIS (>1290 T.O. hp SLS)	204-011-105-001		Contact FAA *			Contact FAA *		Contact FAA *
<b>Total RIN=</b>								<b>7,500</b>

\*Contact FAA at (817) 222-5447

## Calculation of Trunnion FACTORED Flight Hours

Trunnion A/C Model Installation	Trunnion P/N 204-011-105	Unfactored Hours TIS on Model	Frequency Of Events Per Hour	Frequency of Event Hour Factor	FACTORED Flight Hours On Model
(A)	(B)	(C)	(D)	(E)	(F) = (C) x (E)
Restricted Category TIS (≤1000 T.O. hp SLS)	204-011-105-001		1.0-40.00	1.00	
			Greater than 40.00	Contact FAA*	
			Unknown	1.00	
Restricted Category TIS (1000<T.O. hp SLS ≤1100)	204-011-105-001	<i>200</i>	1.0-20.00	1.00	<i>200</i>
			20.01-44.00	2.00	<i>500</i>
			44.01-69.00	3.00	
			Greater than 69.00	Contact FAA*	
			Unknown	3.00	
Restricted Category TIS (1100<T.O. hp SLS ≤1290)	204-011-105-001		1.0-5.00	1.00	
			5.01-8.00	1.50	
			8.01-12.00	2.00	
			12.01-18.00	3.00	
			18.01-32.00	5.00	
			32.01-48.00	7.00	
			48.01-62.00	9.00	
			Greater than 62.00	Contact FAA*	
Unknown	9.00				
Military TIS (≤1100 T.O. hp SLS)	204-011-105-001	<i>550</i>	All	1.00	<i>550</i>
			All	2.00	
			All	Contact FAA*	
(≤1290 T.O. hp SLS)			All		
(>1290 T.O. hp SLS)			All	Contact FAA*	

\*Contact FAA at (817) 222-5447

Appendix 3 - Table 2



**Trunnum RIN Calculation Based on Hours TIS**

Trunnum A/C Model Installation	Trunnum P/N 204-011-105	FACTORED Flight Hours On Model	RIN Conversion Factor	RIN Adjustment Per AD 2000-15-52	Accumulated RIN
(A)	(B)	(C) (From Table 2 of Appendix I)	(D)	(E)	(F) =(C) x (D) x (E)
Restricted Category or Military TIS with (≤1000 T.O. hp SLS)	204-011-105-001		20	1.0	
Restricted Category or Military TIS with (1000<T.O. hp SLS ≤1100)	204-011-105-001	1,250	20	1.0	- 25,000
Restricted Category or Military TIS with (1100<T.O. hp SLS ≤1290)	204-011-105-001		20	1.0	
Restricted Category or Military TIS with (>1290 T.O. hp SLS)	204-011-105-001				
<b>Total RIN =</b>					<b>Contact FAA*</b> <b>25,000</b>

Contact FAA at (817) 222-5447

Appendix 3 - Table 3

Subtotals for the FACTORED Flight Hours and Accumulated RIN For Table 3 of the Sample Trunnum Calculation:

FACTORED Flight Hours		Accumulated RIN
550	X 20 =	11,000
200	X 20 =	4,000
500	X 20 =	10,000
1,250		25,000

(e) This amendment becomes effective on March 8, 2002.

Issued in Fort Worth, Texas, on January 22, 2002.

**Eric Bries,**

*Acting Manager, Rotorcraft Directorate,  
Aircraft Certification Service.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2001-SW-38-AD; Amendment 39-12625; AD 2002-01-30]

RIN 2120-AA64

#### **Airworthiness Directives; Eurocopter France Model SE 3130, SE 313B, SA 315B, SE 3160, SA 316B, SA 316C, SA 3180, SA 318B, SA 318C, and SA 319B Helicopters**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD) for Eurocopter France (ECF) Model SE 3130, SE 313B, SA 315B, SE 3160, SA 316B, SA 316C, SA 3180, SA 318B, SA 318C, and SA 319B helicopters with a certain main gearbox (MGB) installed. This action requires inspecting the magnetic plug for magnetic particles at specified intervals in addition to the MGB inspections currently required. This AD also requires, within 50 hours time-in-service (TIS), dye-penetrant inspecting the MGB bevel gear for a crack, and if a crack is found, replacing the cracked bevel gear with an airworthy bevel gear before further flight. This amendment is prompted by an MGB failure due to a cracked bevel gear. This condition, if not corrected, could result in failure of the MGB, loss of the main rotor drive, and subsequent loss of control of the helicopter.

**DATES:** Effective February 19, 2002.

Comments for inclusion in the Rules Docket must be received on or before April 2, 2002.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Office of the Regional Counsel, Southwest Region, Attention: Rules Docket No. 2001-SW-38-AD, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137. You may also send comments electronically to the Rules Docket at the following address: 9-asw-adcomments@faa.gov.

**FOR FURTHER INFORMATION CONTACT:** Ed Cuevas, Aviation Safety Engineer, FAA, Rotorcraft Directorate, Regulations Group, Fort Worth, Texas 76193-0111, telephone (817) 222-5355, fax (817) 222-5961.

**SUPPLEMENTARY INFORMATION:** The Direction Generale De L'Aviation Civile (DGAC), the airworthiness authority for France, notified the FAA that an unsafe condition may exist on ECF Model SE 3130, SE 313B, SA 315B, SE 3160, SA 316B, SA 316C, SA 3180, SA 318B, SA 318C, and SA 319B helicopters with certain MGBs installed. The DGAC advises of the discovery of a crack on the bevel gear installed on an Alouette helicopter, which may cause failure of the MGB, subsequent loss of the main rotor drive, and an auto-rotation landing.

ECF has issued Alert Telex 01.67 and 01.32, dated April 20, 2001, and Alert Service Bulletins 01.32 and 01.67, both dated July 18, 2001, specifying a dye-penetrant inspection of both bevel gear faces in the coupling areas of the bevel gear and the bevel gear housing assembly of the MGB. The DGAC classified these service bulletins as mandatory and issued ADs 2001-149-044(A) R1, 2001-178-058(A) R1, and 2001-179-061(A) R1, all dated August 8, 2001, to ensure the continued airworthiness of these helicopters in France.

These helicopter models are manufactured in France and are type certificated for operation in the United States under the provisions of 14 CFR 21.29 and the applicable bilateral agreement. Pursuant to the applicable bilateral agreement, the DGAC has kept the FAA informed of the situation described above. The FAA has examined the findings of the DGAC, reviewed all available information, and determined that AD action is necessary for products of this type design that may operate in the United States.

This unsafe condition may exist or develop on other helicopters of the same type designs with these certain MGBs installed. We are issuing this AD to prevent failure of an MGB due to a cracked bevel gear, loss of the main rotor drive, and subsequent loss of control of the helicopter. This AD requires inspecting the MGB magnetic plug for metal particles at intervals not to exceed 10 hours TIS. This AD also requires, within 50 hours TIS, dye-penetrant inspecting the bevel gear for a crack and, if a crack is found, replacing the unairworthy bevel gear with an airworthy bevel gear before further flight. Replacing a cracked bevel

gear is terminating action for the requirements of this AD.

None of the eight MGBs affected by this action are currently installed on helicopters on the U.S. Register. All helicopters included in the applicability of this rule that have an affected MGB installed are currently operated by non-U.S. operators under foreign registry; therefore, they are not directly affected by this AD action. However, the FAA considers that this rule is necessary to ensure that the unsafe condition is addressed in the event that any of these affected MGBs are imported and installed on helicopters on the U.S. Register in the future.

Should an affected MGB be imported and installed on a helicopter on the U.S. Register in the future, it would require approximately 1/2 work hour to review the records for a certain MGB. If the affected MGB is present, the FAA estimates that it would take 30 work hours per helicopter to inspect the bevel gear. The average labor rate is \$60 per work hour. Required parts would cost approximately \$14,500 per helicopter to replace a cracked bevel gear. Based on these figures, the total cost impact of this AD would be \$16,330, assuming one helicopter requires replacement of the bevel gear.

Since this AD action does not affect any helicopter that is currently on the U.S. register, it has no adverse economic impact and imposes no additional burden on any person. Therefore, notice and public procedures hereon are unnecessary and the amendment may be made effective in less than 30 days after publication in the **Federal Register**.

#### Comments Invited

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified under the caption **ADDRESSES**. All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.