EMERGENCY AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

www.faa.gov/aircraft/safety/alerts/

DATE: December 20, 2007
AD #: 2007-26-52

This Emergency Airworthiness Directive (EAD) is prompted by a report of the loss of part of a tip cap, part number (P/N) 709-0103-29-109, of a main rotor blade (MRB), P/N 709-0103-01. This condition, if not corrected, could result in an increase in vibration of the MRB and subsequent loss of control of the helicopter.

On June 16, 2004, the FAA issued AD 2001-24-07 R1, Amendment 39-13687 (69 FR 35511, June 25, 2004). That AD required inspecting each MRB, P/N 709-0103-01, tip cap, for either bonding separation or a crack, and provided a terminating action for the requirements of the AD by replacing each tip cap with an airworthy tip cap, P/N 709-0103-29-109.

Since issuing that AD, there has been one report of in-flight loss of part of a tip cap, P/N 709-0103-29-109, resulting in an emergency landing due to an increase in vibrations. There has also been one report of cracking on the tip cap leading edge. Therefore, we are superseding AD 2001-24-07 R1, to remove the terminating action of replacing a tip cap with tip cap, P/N 709-0103-29-109, and to remove the serial number limitation of the existing AD.

The FAA has reviewed Agusta Alert Bollettino Tecnico No. 109-106, No. 109K-22, and No. 109EP-1, all Revision B and all dated December 19, 2000, which describe inspecting the MRB tip cap for bonding separation and a crack; a tap inspection of the tip cap for bonding separation in the blade bond; and a dye-penetrant inspection of the tip cap leading edge along the welded joint line of the upper and lower tip cap skin shells for a crack. Since then, Agusta has issued Bolletino Tecnico No. 109-125 for Agusta Model A109C, No. 109EP-85 for Agusta Model A109E, and No. 109K-48 for Agusta Model A109K2 helicopters, all dated December 13, 2007, which describe procedures for inspecting the tip cap, P/N 709-0103-29-109, for cracking on the tip cap leading edge at the welded bead (joint line of shells).

The European Aviation Safety Agency (EASA), which is the technical agent for Italy, a member of the European Community, notified us that an unsafe condition may exist on Agusta S.p.A. Model A109C, A109E, and A109K2 helicopters. The EASA advises that an incident recently occurred in which a Model A109E helicopter lost part of the tip of the MRB due to fracture of the welded bead (joint line of shells). The manufacturer advises that the investigation relating to this tip cap failure is still ongoing. The EASA has classified the Agusta BTs as mandatory and issued EASA EAD No. 2007-0306-E, dated December 14, 2007, to ensure the continued airworthiness of these helicopters in Italy. This FAA EAD differs from the EASA EAD in that it does not require reporting findings of cracks to Agusta S.p.A. Further, the EASA AD does not address the previously issued Ente Nazionale per l'Aviazionne Civile AD 2000-571, -572, and -573 which provided our basis for

issuing AD 2001-24-07 R1 and whose requirements we are continuing in this AD. Also, the EASA AD requires compliance no later than January 31, 2008, and this AD instead requires compliance within 30 days.

These helicopter models are manufactured in Italy 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 our Italian bilateral agreement, EASA has kept the FAA informed of the situation described above. The FAA has examined the findings of EASA, reviewed all available information, and determined that EAD action is necessary for products of these type designs that are certificated for operation in the United States.

This unsafe condition, bonding separation or cracking, is likely to exist or develop on other helicopters of the same type design with MRB, P/N 709-0103-01-all dash numbers, installed.

This EAD requires, for any MRB with a serial number with a prefix of either "EM-" or "A5-", except a MRB with a tip cap, P/N 709-0103-29-109, within 10 hours time-in-service (TIS) and thereafter at intervals not to exceed 25 hours TIS:

- A tap inspection of the upper and lower sides of each tip cap for bonding separation and in the tip cap to blade bond area;

- A visual inspection of the upper and lower side of each blade tip cap for swelling or deformation; and

- A dye-penetrant inspection of the tip cap leading edge along the welded joint line of the upper and lower tip cap skin shells for a crack.

This AD also requires visually inspecting each MRB with a tip cap, P/N 709-0103-29-109, for a crack on the leading edge at the welded bead (joint line of shells) using a 10x or higher power magnifying glass, and if there is damage other than a crack, inspecting the area using a dye-penetrant inspection method, within the following compliance times:

- For a tip cap, P/N 709-0103-29-109, with 600 or more hours TIS, inspect within the next 5 hours TIS or 30 days, whichever occurs first, and thereafter at intervals not to exceed 50 hours TIS; or

- For a tip cap with less than 600 hours TIS, inspect before reaching 600 hours TIS, and thereafter, at intervals not to exceed 50 hours TIS.

If a crack is found, the MRB must be replaced with an airworthy MRB before further flight.

This rule is issued under 49 U.S.C. Section 44701 pursuant to the authority delegated to me by the Administrator, and is effective immediately upon receipt of this EAD.

2007-26-52 AGUSTA S.p.A.: Directorate Identifier 2007-SW-77-AD. Supersedes AD 2001-24-07 R1, Amendment 39-13687, Docket No. 2001-SW-15-AD.

Applicability: Model A109C, A109E, and A109K2 helicopters, with a main rotor blade (MRB), Part Number (P/N) P/N 709-0103-01-all dash numbers, certificated in any category.

Compliance: Required as indicated.

(a) For a MRB with a serial number that has a prefix of either "EM-" or "A5-", except a MRB with a tip cap, P/N 709-0103-29-109, installed, within 10 hours time-in-service (TIS), unless accomplished previously, and thereafter at intervals not to exceed 25 hours TIS:

(1) Tap inspect the upper and lower sides of each tip cap for bonding separation between the metal shells and the honeycomb core using a steel hammer, P/N 109-3101-58-1, or a coin (quarter) in the area indicated as honeycomb core on Figure 1 of Alert Bollettino Tecnico (BT) No. 109-106, No. 109K-22, or No. 109EP-1, all Revision B, and all dated December 19, 2000, as applicable to your model helicopter. Also, tap inspect for bonding separation in the tip cap to blade bond area (no bonding voids are permitted in this area).

(2) Visually inspect the upper and lower sides of each blade tip cap for swelling or deformation.

(3) Dye-penetrant inspect the tip cap leading edge along the welded joint line of the upper and lower tip cap skin shells for a crack in accordance with the Compliance Instructions, steps 3. through 3.2.6., of the applicable BT.

(4) If any swelling, deformation, crack, or bonding separation that exceeds the prescribed limits in the applicable maintenance manual is found, replace the blade with an airworthy blade before further flight.

(b) For a MRB with a tip cap, P/N 709-0103-29-109, installed, perform the following in accordance with Table 1:

Table 1

For each tip cap:	**Comply:**
With 600 or more hours TIS,	Within the next 5 hours TIS or 30 days, whichever occurs first, and thereafter at intervals not to exceed 50 hours TIS.
With less than 600 hours TIS,	Before reaching 600 hours TIS, and thereafter, at intervals not to exceed 50 hours TIS.

(1) Using a 10x or higher power magnifying glass, visually inspect the tip cap leading edge welded bead (joint line between the two metallic shells) for a crack in accordance with the Compliance Instructions, steps 1. through 2. of BT No. 109-125, No. 109EP-85, or No. 109K-48, all dated December 13, 2007, as applicable to your model helicopter.

(2) If there is damage other than a crack, inspect the tip cap leading edge along the welded joint line of the shells for a crack using a dye penetrant method in accordance with the Compliance Instructions, steps 3. through 3.7. of BT No. 109-125, No. 109EP-85, or No. 109K-48, all dated December 13, 2007, as applicable to your model helicopter.

(3) If a crack is present, remove the blade and replace it with an airworthy blade before further flight.

(c) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Contact the Manager, Safety Management Group, FAA, ATTN: Sharon Miles, Rotorcraft Directorate, Fort Worth, Texas 76193-0111, telephone (817) 222-5122, fax (817) 222-5961, for information about previously approved alternative methods of compliance.

(d) Emergency AD 2007-26-52, issued December 20, 2007, becomes effective upon receipt.

Note: The subject of this AD is addressed in European Aviation Safety Agency (EASA) AD No. 2007-0306-E, dated December 14, 2007.

FOR FURTHER INFORMATION CONTACT: Sharon Miles, Aviation Safety Engineer, FAA, Rotorcraft Directorate, Safety Management Group, Fort Worth, Texas 76193-0111, telephone (817) 222-5122, fax (817) 222-5961.

Issued in Fort Worth, Texas, on December 20, 2007.

Jorge R. Castillo,

Acting Manager, Rotorcraft Directorate,
Aircraft Certification Service.