



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2017-0052; Product Identifier 2016-SW-081-AD; Amendment 39-21024; AD 2020-02-11]**

**RIN 2120-AA64**

**Airworthiness Directives; Bell Helicopter Textron Inc. Helicopters**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** The FAA is superseding Airworthiness Directive (AD) 2015-04-04 for Bell Helicopter Textron Inc. (Bell) Model 412 and 412EP helicopters. AD 2015-04-04 required revising the Rotorcraft Flight Manual (RFM) for your helicopter and installing a placard to limit flights to visual flight rules (VFR) and prohibit night operations because of failing inverters. This AD requires replacing the affected inverter with a new inverter. This AD was prompted by numerous failures of inverters. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this final rule, contact Bell Helicopter Textron, Inc., P.O. Box 482, Fort Worth, TX 76101; telephone 817-280-3391; fax 817-280-6466; or at <https://www.bellcustomer.com>. You may view this service

information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy, Room 6N-321, Fort Worth, TX 76177.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0052; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the economic evaluation, any comments received, and other information. The address for Docket Operations is Docket Operations, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Tim Beauregard, Aviation Safety Engineer, DSCO Branch, AIR-7J0, FAA, 10101 Hillwood Pkwy, Fort Worth, TX 76177; telephone 817-222-5190; email [timothy.beauregard@faa.gov](mailto:timothy.beauregard@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2015-04-04, Amendment 39-18106 (80 FR 9594, February 24, 2015) (“AD 2015-04-04”). AD 2015-04-04 applied to Bell Model 412 and 412EP helicopters with a static inverter part number (P/N) 412-375-079-101 or 412-375-079-103 with a serial number 29145 or higher installed. The NPRM published in the Federal Register on August 2, 2018 (83 FR 37764). The NPRM was prompted by numerous failures of inverters and a newly introduced improved inverter, which corrects the unsafe condition. Bell determined the root causes of the failures were an external connector that caused a

short circuit inside inverter P/N 412-375-079-101 and components chafing because of variations in the assembly process and packaging tolerances for inverter P/N 412-375-079-103. Bell introduced an improved inverter, P/N 412-375-079-105, and retrofit kits to replace inverter P/N 412-375-079-101 or 412-375-079-103 on helicopters with serial numbers 33001 or higher. These replacements and repairs correct the unsafe condition by providing 450 voltage amperes (VA) of total power instead of 500 VA, thereby reducing the input power to the inverter. The NPRM proposed to require these repairs and replacements. The FAA is issuing this AD to address the unsafe condition on these products.

### **Comments**

After the NPRM was published, The FAA received comments from two commenters, Bell and Leonardo Helicopters. The following presents the comments received on the NPRM, and the FAA's response to each comment.

Request: Bell and Leonardo Helicopters requested clarification as to why the FAA did not indicate that the NPRM applied to helicopters with static inverters that had a serial number 29145 or higher in the NPRM's Applicability section. Leonardo Helicopters stated no evidence exists that static inverters with a serial number lower than 29145 have the unsafe condition described in the NPRM.

FAA Response: The FAA agrees and has revised this AD to specify that this AD only applies to static inverters with serial numbers 29145 or higher.

Request: Bell requested the FAA allow inverter P/N 412-375-079-103 450 VA or P/N 412-375-079-101 450 VA to be replaced by inverter P/N 412-075-158-101 250 VA if the

Electrical Load Analysis (ELA) requirements are met per Bell Alert Service Bulletin 412-16-171, dated March 22, 2016 (ASB 412-16-171).

FAA Response: The FAA disagrees. ASB 412-16-171 does not have a standard listed for how to conduct the ELA or the margins that may be acceptable. Therefore, the FAA could not legally enforce such a requirement.

Request: Bell requested the FAA either increase the 25 hours time-in-service (TIS) compliance time or add an alternate compliance date because no additional failures have occurred since ASB 412-16-171 was issued.

FAA Response: The FAA disagrees. ASB 412-16-171 set a compliance time no later than January 1, 2017. The FAA believes that 25 hours TIS is appropriate given that three years have passed between the deadline in ASB 412-16-171 and the publication of this final rule.

Request: Bell requested that the FAA correct an error in the NPRM. The NPRM stated that Bell introduced a new inverter and recommended repairs that “correct the unsafe condition by providing 250 VA of total power instead of 500 VA, thereby reducing the input power to the inverter.” Bell stated that “250 VA” should be changed to “450 VA.”

FAA Response: The FAA agrees and has revised this AD to include the requested change.

Request: Bell stated that Bell Alert Service Bulletin 412-13-156, dated April 25, 2013 (ASB 412-13-156) related to P/N 412-375-079-101 only and that inverter P/N 412-375-079-103 would eventually replace inverter P/N 412-375-079-101 but was not part of ASB 412-13-156’s method of compliance. Bell stated the NPRM did not match the ASB.

FAA Response: The FAA disagrees because ASB 412-13-156’s method of compliance

appears to include replacing inverter P/N 412-375-079-101 with inverter P/N 412-375-079-103. Paragraph 9 of ASB 412-13-156 states, “Remove the affected inverter and replace with inverter P/N 412-375-079-103[.]”

Request: Bell requested that the FAA add more information in the Discussion paragraph regarding an alternative method of compliance (AMOC) issued to AD 2015-04-04. Bell requested this information should include Bell Alert Service Bulletin 412-15-164, dated March 13, 2015 (ASB 412-15-164), which was issued to notify individuals that an AMOC to AD 2015-04-04, was available. Bell ASB 412-15-164 specifies the FAA-approved AMOC, which allows instrument flight rules (IFR) and night operations provided the helicopter is flown by two pilots.

FAA Response: The FAA agrees and has revised the information in the Related Service Information section.

Request: Bell requested the FAA clarify a statement in the NPRM that Bell notified the FAA that ASB 412-16-171 contained errors in the serial numbers listed in Part B.

FAA Response: The FAA agrees. The FAA noticed an error in the serial numbers listed in ASB 412-16-171, Part B, and reached out to Bell for clarification. The FAA received an email from Bell dated August 29, 2017, confirming the existence of an error. The email from Bell stated: “There is an error in Part B. According to the ‘Helicopters Affected’ block, helicopters 36696 through 36999 and 37013 through subsequent have the intent of the bulletin accomplished prior to delivery therefore, Part B should read: Part B is applicable to helicopters 36248 through 36695 and 37002 through 37012.”

### **FAA’s Determination**

The FAA has reviewed the relevant information and determined that an unsafe

condition exists and is likely to exist or develop on other helicopters of these same type designs and that air safety and the public interest require adopting the AD requirements as proposed with the changes described previously. These changes are consistent with the intent of the proposals in the NPRM and will not increase the economic burden on any operator nor increase the scope of the AD.

### **Related Service Information**

The FAA reviewed Bell ASB 412-15-164, which specifies an AMOC approved by the FAA for AD 2015-04-04. Instead of the flight limitations mandated by AD 2015-04-04, ASB 412-15-164 limits allow operation under IFR and night operations with two pilots.

The FAA reviewed Bell ASB 412-16-171, which specifies replacing certain serial-numbered inverters P/N 412-375-079-101 and 412-375-079-103 with inverter P/N 412-375-079-105 as a direct replacement or with a retrofit kit. Bell specifies that completing the actions specified by the ASB constitute terminating action for Bell ASB 412-15-164.

The FAA also reviewed Bell Service Instruction for Inverter Retrofit Kit BHT-412-SI-93, dated February 15, 2016, which provides instructions for installing retrofit kit P/N 412-704-058-103.

### **Costs of Compliance**

The FAA estimates that this AD affects 73 helicopters of U.S. Registry. The FAA estimates that operators may incur the following costs in order to comply with this AD. Labor costs are estimated at \$85 per work-hour.

Installing an inverter or retrofit kit requires about 3 work-hours and parts cost about \$15,749, for an estimated cost of \$16,004 per helicopter and \$1,168,292 for the U.S. fleet.

### **Differences Between This AD and the Service Information**

Bell ASB 412-16-171 requires compliance no later than January 1, 2017, while this AD requires compliance within 25 hours TIS. Bell ASB 412-16-171 makes an ELA a determining factor for corrective actions. This proposed AD makes no such requirement. Bell ASB 412-16-171 provides instructions for helicopters with serial numbers 36649, 36658, 36659, 36673, 36681 through 36684, 36686, 36688, 36690, 36692, 36694, and 36696 through 36704, and this AD does not. Bell has notified the FAA of errors in the S/Ns listed for Part B of ASB 412-16-171. Accordingly, this AD is only applicable to those serial-numbered helicopters subject to the unsafe condition.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

The FAA has determined that this AD will not have federalism implications under Executive Order 13132. This AD 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.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, 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.

The FAA prepared an economic evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

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

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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. The FAA amends § 39.13 by removing Airworthiness Directive (AD) 2015-04-04, Amendment 39-18106 (80 FR 9594, February 24, 2015), and adding the following new AD:

**2020-02-11 Bell Helicopter Textron Inc.:** Amendment 39-21024; Docket No. FAA-2017-0052; Product Identifier 2016-SW-081-AD.

**(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Applicability**

This AD applies to Model 412 and 412EP helicopters with serial number (S/N) 33001 through 33213, 34001 through 34036, 36001 through 36648, 36650 through 36657, 36660 through 36672, 36674 through 36680, 36685, 36687, 36689, 36691, 36693, 36695, and 37002 through 37012, certificated in any category, with a static inverter (inverter) part number (P/N) 412-375-079-101 or 412-375-079-103 with S/N 29145 or higher, installed.

**(c) Unsafe Condition**

This AD defines the unsafe condition as the failure of an inverter under instrument meteorological conditions or night flight. This condition could result in smoke in the cockpit, increased pilot workload due to the loss of primary flight and navigation displays, alternating current powered engine and transmission indicators, and autopilot, and subsequent loss of control of the helicopter.

**(d) Affected ADs**

This AD replaces AD 2015-04-04, Amendment 39-18106 (80 FR 9594, February 24, 2015).

**(e) Compliance**

You are responsible for performing each action required by this AD within the specified compliance time unless it has already been accomplished prior to that time.

**(f) Required Actions**

(1) Within 25 hours time-in-service:

(i) For helicopters with S/N 33001 through 33213, 34001 through 34036, and 36001 through 36086, replace the inverter with inverter P/N 412-375-079-105.

(ii) For helicopters with a S/N 36087 through 36648, 36650 through 36657, 36660 through 36672, 36674 through 36680, 36685, 36687, 36689, 36691, 36693, 36695, and 37002 through 37012, install retrofit kit P/N 412-704-058-103 and replace the inverter with inverter P/N 412-375-079-105.

(2) After accomplishing the actions required by paragraph (f)(1) of this AD, you may remove the placard and Rotorcraft Flight Manual limitations, required by AD 2015-04-04, prohibiting night operations and restricting flights to visual flight rules.

(3) After the effective date of this AD, do not install an inverter P/N 412-375-079-101 or 412-375-079-103 on any helicopter.

**(g) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, DSCO Branch, may approve AMOCs for this AD. Send your proposal to: Tim Beauregard, Aviation Safety Engineer, DSCO Branch, AIR-7J0, FAA,

10101 Hillwood Pkwy, Fort Worth, TX 76177; telephone 817-222-5190; email 9-ASW-190-COS@faa.gov.

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, the FAA suggests that you notify your principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office before operating any aircraft complying with this AD through an AMOC.

**(h) Related Information**

For more information about this AD, contact Tim Beaugard, Aviation Safety Engineer, DSCO Branch, AIR-7J0, FAA, 10101 Hillwood Pkwy, Fort Worth, TX 76177; telephone 817-222-5190; email timothy.beaugard@faa.gov.

Issued in Fort Worth, Texas, on January 22, 2020.

Lance T. Gant,

Director, Compliance & Airworthiness Division,  
Aircraft Certification Service.

[FR Doc. 2020-02587 Filed: 2/10/2020 8:45 am; Publication Date: 2/11/2020]