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Aviation Safety

## EMERGENCY AIRWORTHINESS DIRECTIVE

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**DATE: May 19, 2010**

**AD #: 2010-11-52**

This Emergency Airworthiness Directive (AD) is prompted by reports of intermittent malfunctions of the LITEF Attitude Heading and Reference System (AHRS) units of the navigation system. This condition, if not corrected, could result in malfunction of the autopilots, inability to reset the autopilots, an uncommanded roll, reduction in rotorcraft functional capabilities, inability of the crew to perform the required tasks, and subsequent loss of control of the helicopter.

We have reviewed Sikorsky Alert Service Bulletin No. 76-34-11, dated May 17, 2010 (ASB). The ASB specifies informing operators of an interim minimum flight crew restriction of two pilots for Instrument Flight Rules (IFR) and night flight for helicopters equipped with LITEF LCR-100, Mod Status 18, AHRS units. The ASB also specifies removing and inspecting the AHRS units to determine if part number (P/N) 145130-7100, Mod Status 18, is installed. Also, the ASB specifies if an AHRS unit with LITEF LCR-100, P/N 145130-7100, Mod Status 18 is installed, identifying the unit with a placard with a different P/N. Finally, the ASB specifies installing 2 placards P/N SS9140-1746 or locally fabricated placards onto the instrument panel.

This unsafe condition is likely to exist or develop on other helicopters of these same type designs. Therefore, this AD requires inspecting the AHRS unit to determine if it is a Mod Status 18. If the nameplate on an AHRS unit is P/N 145130-7100, Mod Status 18, this AD requires installing placards on the instrument panel to prohibit single pilot IFR and single pilot night flight, and reducing airspeeds to 120 KIAS if both autopilots uncouple during IFR or night flight. This AD also requires inserting Active Temporary Revisions into the Limitations section of the applicable Rotorcraft Flight Manual (RFM) to limit the minimum flight crew to two pilots for IFR and night flight and to reduce airspeed to 120 KIAS if both autopilots uncouple during IFR or night flight. This AD does not require installing placards on the AHRS unit as specified in the ASB. The actions must be done by following specified portions of the ASB described previously.

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 emergency AD.

**2010-11-52 SIKORSKY AIRCRAFT CORPORATION:** Directorate Identifier  
2010-SW-059-AD.

**Applicability:** Model S-76A, B, and C helicopters, with LITEF LCR-100, part number (P/N) 145130-7100, Attitude Heading and Reference System (AHRS) Unit, installed, certificated in any category.

**Compliance:** Within 5 days, unless accomplished previously, and any time thereafter when a LITEF LCR-100, part number (P/N) 145130-7100, Attitude Heading and Reference System (AHRS) Unit is installed.

To prevent malfunction of the autopilot, inability to reset the autopilots, an uncommanded roll, reduction in rotorcraft functional capabilities, inability of the crew to perform the required tasks, and subsequent loss of control of the helicopter, do the following:

(a) Inspect the nameplate for the No. 1 and No. 2 AHRS units to determine if P/N 145130-7100, Mod Status 18, is installed.

(1) If P/N 145130-7100, Mod Status 18, is not installed, no further action is required.

(2) If P/N 145130-7100, Mod Status 18, is installed on either unit, accomplish the following:

(i) Install instrument panel placards as shown in Figure 2 in the areas depicted in Figure 3 of Sikorsky Alert Service Bulletin No. 76-34-11, dated May 17, 2010 (ASB), and by following the Accomplishment Instructions, paragraph 3.A.(6)(c) through (d) of the ASB.

(ii) Insert an Active Temporary Revision into the Limitations section of the Rotorcraft Flight Manual (RFM) to limit the minimum flight crew to two pilots for Instrument Flight Rules and night flight for the affected helicopters as follows:

Table 1

| Model                                                                        | RFM Document No. | Active Temporary Rev. No. |
|------------------------------------------------------------------------------|------------------|---------------------------|
| S-76A                                                                        | SA-4047-76-1     | T-Revision 3              |
| S-76B                                                                        | SA 4047-76B-1    | T-Revision 3              |
| S-76C (TurboMeca Arriel 1S1 engines installed)                               | SA 4047-76C-1    | T-Revision 3              |
| S-76C (TurboMeca Arriel 2S1 engines installed)                               | SA 4047-76C-10   | T-Revision 4              |
| S-76C (TurboMeca Arriel 2S1 engines installed and s/n 760511 and subsequent) | SA 4047-76C-14   | T-Revision 4              |
| S-76C (TurboMeca Arriel 2S2 engines installed)                               | SA 4047-76C-15   | T-Revision 1              |

(b) 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, Boston Aircraft Certification Office, FAA, ATTN: Tony Pigott, Aviation Safety Engineer, 12 New England Executive Park, Burlington, MA 01803, telephone (781) 238-7158, fax (781) 238-7170, for information about previously approved alternative methods of compliance.

(c) The Joint Aircraft System/Component (JASC) Code is 3420: Navigation.

(d) Copies of the applicable service information may be obtained from Sikorsky Aircraft Corporation, Attn: Manager, Commercial Technical Support, mailstop s581a, 6900 Main Street, Stratford, CT, telephone (203) 383-4866, e-mail address [tsslibrary@sikorsky.com](mailto:tsslibrary@sikorsky.com), or at <http://www.sikorsky.com>.

(e) Emergency AD 2010-11-52, issued May 19, 2010, becomes effective upon receipt.

FOR FURTHER INFORMATION CONTACT: Tony Pigott, Aviation Safety Engineer, Boston Aircraft Certification Office, 12 New England Executive Park, Burlington, MA 01803, telephone (781) 238-7158, fax (781) 238-7170.

Issued in Fort Worth, Texas, on May 19, 2010.

Mark R. Schilling,  
Acting Manager, Rotorcraft Directorate,  
Aircraft Certification Service.

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