

**FEDERAL AVIATION ADMINISTRATION
AIRWORTHINESS DIRECTIVES**

**SMALL AIRPLANES, ROTORCRAFT, GLIDERS,
BALLOONS, & AIRSHIPS**

BIWEEKLY 2019-09

4/15/2019 - 4/28/2019



Federal Aviation Administration
Continued Operational Safety Policy Section, AIR-141
P.O. Box 25082
Oklahoma City, OK 73125-0460

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SMALL AIRCRAFT, ROTORCRAFT, GLIDERS, BALLOONS, & AIRSHIPS

AD No.	Information	Manufacturer	Applicability
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Information Key: E – Emergency; COR – Correction; S – Supersedes; R – Replaces, A – Affects

Biweekly 2019-01

2018-26-02	R 2016-25-19	Airbus Helicopters	AS350B3; EC130B4; EC130T2 helicopters
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Biweekly 2019-02

We published no ADs for the Small AD Biweekly during this period.

Biweekly 2019-03

2019-01-02		Aspen Avionics, Inc.	Evolution Flight Display (EFD) EFD1000 Primary Flight Display, EFD1000 Multi-Function Display (MFD), EFD1000 Emergency Backup Display, or EFD500 MFD units
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Biweekly 2019-04

2019-02-02 2019-02-05	R 2013-11-03	Pacific Aerospace Ltd. Viking Air Limited	FBA-2C1, FBA-2C2, FBA-2C3, and FBA-2C4 airplanes CL-215-1A10, CL-215-6B11 airplanes
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Biweekly 2019-05

2014-05-06 R2 2018-21-14 2018-22-11 2019-03-02 2019-03-05	R 2014-05-06 R1	Airbus Helicopters Deutschland GmbH Zodiac Aerotechnics Safran Helicopter Engines Pacific Aerospace Limited Bell Helicopter Textron Canada Limited	EC135 P1, P2, P2+, T1, T2, and T2+; MBB-BK 117 C-2 helicopters MC10 series crew oxygen mask regulators ASTAZOU XIV B and H model engines 750XL airplanes 429 helicopters
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Biweekly 2019-06

2019-03-12 2019-05-03 2019-05-04 2019-05-05 2019-05-06	R 97-26-03	Airbus Helicopters Leonardo S.p.A. MD Helicopters, Inc. Airbus Helicopters Deutschland GmbH Airbus Helicopters Deutschland GmbH	EC225 LP helicopters AB139 and AW139; AW169 and AW189 helicopters 369A, 369D, 369E, 369FF, 369H, 369HE, 369HM, 369HS, 500N, and 600N helicopters MBB-BK 117 A-1, MBB-BK 117 A-3, MBB-BK 117 A-4, MBB-BK 117 B-1, MBB-BK 117 B-2, and MBB-BK 117 C-1 helicopters EC135P1, EC135P2, EC135P2+, EC135P3, EC135T1, EC135T2, EC135T2+, and EC135T3 helicopters
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Biweekly 2019-07

We published no ADs for the Small AD Biweekly during this period.

Biweekly 2019-08

2019-04-01 2019-05-15 2019-06-04 2019-06-05 2019-06-10 2019-06-11 2019-07-02		HPH s. r.o. Pilatus Aircraft Ltd Bell Helicopter Textron Canada Limited Airbus Helicopters Deutschland GmbH Vulcanair S.p.A. Pacific Aerospace Limited Robinson Helicopter Company	Glasfögel 304C, Glasfögel 304CZ, and Glasfögel 304CZ-17 gliders PC-7 airplanes 429 helicopters MBB-BK 117 A-1, MBB-BK 117 A-3, MBB-BK 117 A-4, MBB-BK 117 B-1, MBB-BK 117 B-2, MBB-BK 117 C-1, and MBB-BK 117 C-2 helicopters AP68TP-300 “SPARTACUS”; AP68TP-600 “VIATOR” airplanes 750XL airplanes R66 helicopters
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Biweekly 2019-09

2019-07-07 2019-07-08 2019-07-10	A 2010-26-09	Airbus Helicopters Deutschland GmbH GA 8 Airvan (Pty) Ltd Northrop Grumman LITEF GmbH	BO-105A, BO-105C, BO-105S, BO105LS A-3, MBB-BK 117A-1, MBB-BK 117A-3, MBB-BK 117A-4, MBB-BK 117B-1, MBB-BK 117B-2, MBB-BK 117C-1, MBB-BK 117C-2, and MBB-BK 117D-2 helicopters GA8 and Model GA8-TC320 airplanes LCR-100 Attitude and Heading Reference System
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SMALL AIRCRAFT, ROTORCRAFT, GLIDERS, BALLOONS, & AIRSHIPS

AD No.	Information	Manufacturer	Applicability
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Information Key: E – Emergency; COR – Correction; S – Supersedes; R – Replaces, A – Affects

2019-08-51	E	Cirrus Design Corporation (Cirrus)	SF50 airplanes
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2019-07-07 Airbus Helicopters Deutschland GmbH: Amendment 39-19618; Docket No. FAA-2016-9395; Product Identifier 2016-SW-027-AD.

(a) Applicability

This AD applies to Airbus Helicopters Deutschland GmbH Model BO-105A, BO-105C, BO-105S, BO105LS A-3, MBB-BK 117A-1, MBB-BK 117A-3, MBB-BK 117A-4, MBB-BK 117B-1, MBB-BK 117B-2, MBB-BK 117C-1, MBB-BK 117C-2, and MBB-BK 117D-2 helicopters, certificated in any category.

Note 1 to paragraph (a) of this AD: Helicopters with an MBB-BK 117C-2e designation are Model MBB-BK 117C-2 helicopters.

(b) Unsafe Condition

This AD defines the unsafe condition as a loose bellows clamp. This condition can cause loss of the bellows, contact of the bellows with the main rotor blades, main rotor mast, and tail rotor, and subsequent loss of helicopter control.

(c) Effective Date

This AD becomes effective May 24, 2019.

(d) 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.

(e) Required Actions

(1) Within 50 hours time-in-service (TIS):

(i) Remove the swashplate bellows (bellows) part number (P/N) 105-10113.05, P/N 4638305043, P/N 4619305044, or B623M20X2240 from the swashplate.

(ii) Inspect the swashplate by following the Accomplishment Instructions, paragraph 3.B.1.(h) through 3.B.1.(k) of Airbus Helicopters Alert Service Bulletin (ASB) BO105-40A-107, Revision 4, dated May 23, 2016 (ASB BO105-40A-107); ASB BO105 LS-40A-12, Revision 4, dated May 23, 2016 (ASB BO105 LS-40A-12); ASB MBB-BK117-40A-115, Revision 4, dated May 23, 2016 (ASB MBB-BK117-40A-115); or ASB MBB-BK117 C-2-62A-007, Revision 4, dated May 23, 2016 (ASB MBB-BK117 C-2-62A-007); or paragraph 3.B.1.5 through 3.B.1.8 of Airbus Helicopters ASB MBB-BK117 D-2-62A-003, Revision 2, dated May 23, 2016 (ASB MBB-BK117 D-2-62A-003); whichever is applicable to your helicopter. If there is corrosion on a ball bearing, you are not required to contact Airbus Helicopters customer support; instead, before further flight, replace the ball bearing.

(2) Within 400 hours TIS after complying with the actions in paragraph (1) of this AD, and thereafter at intervals not to exceed 400 hours TIS, inspect the swashplate by following the

Accomplishment Instructions, paragraph 3.B.3 of ASB BO105-40A-107, ASB BO105 LS-40A-12, ASB MBB-BK117-40A-115, ASB MBB-BK117 C-2-62A-007, or ASB MBB-BK117 D-2-62A-003.

(3) Do not install a bellows P/N 105-10113.05, P/N 4619305044, or P/N 4638305043 or a gearbox with a bellows P/N 105-10113.05, P/N 4619305044, or P/N 4638305043 on any helicopter.

(f) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Safety Management Section, Rotorcraft Standards Branch, FAA, may approve AMOCs for this AD. Send your proposal to: Matt Fuller, Senior Aviation Safety Engineer, Safety Management Section, Rotorcraft Standards Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone (817) 222-5110; email 9-ASW-FTW-AMOC-Requests@faa.gov.

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, we suggest 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.

(g) Additional Information

The subject of this AD is addressed in European Aviation Safety Agency (EASA) AD No. 2016-0142, dated July 19, 2016, and EASA AD No. 2016-0142R1, dated April 12, 2018. You may view the EASA ADs on the internet at <http://www.regulations.gov> in Docket No. FAA-2016-9395.

(h) Subject

Joint Aircraft Service Component (JASC) Code: 6200, Main Rotor System.

(i) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Airbus Helicopters Alert Service Bulletin BO105-40A-107, Revision 4, dated May 23, 2016.

(ii) Airbus Helicopters Alert Service Bulletin BO105 LS-40A-12, Revision 4, dated May 23, 2016.

(iii) Airbus Helicopters Alert Service Bulletin MBB-BK117-40A-115, Revision 4, dated May 23, 2016.

(iv) Airbus Helicopters Alert Service Bulletin MBB-BK117 C-2-62A-007, Revision 4, dated May 23, 2016.

(v) Airbus Helicopters Alert Service Bulletin MBB-BK117 D-2-62A-003, Revision 2, dated May 23, 2016.

(3) For Airbus Helicopters service information identified in this AD, contact Airbus Helicopters, 2701 N. Forum Drive, Grand Prairie, TX 75052; telephone (972) 641-0000 or (800) 232-0323; fax (972) 641-3775; or at <http://www.airbushelicopters.com/techpub>.

(4) You may view this service information at FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Fort Worth, Texas, on March 21, 2019.

Scott A. Horn,
Deputy Director for Regulatory Operations, Compliance & Airworthiness Division,
Aircraft Certification Service.



2019-07-08 GA 8 Airvan (Pty) Ltd: Amendment 39-19619; Docket No. FAA-2018-0771; Product Identifier 2018-CE-029-AD.

(a) Effective Date

This AD becomes effective May 23, 2019.

(b) Affected ADs

None.

(c) Applicability

This AD applies to GA 8 Airvan (Pty) Ltd Model GA8 and Model GA8-TC320 airplanes, certificated in any category, with a strut or strut fitting installed that has a part number and serial number listed in table 1 of GippsAero Service Bulletin SB-GA8-2017-174, Issue 2, dated May 23, 2018 (GippsAero SB-GA8-2017-174, Issue 2).

(d) Subject

Air Transport Association of America (ATA) Code 57: Wings.

(e) Reason

This AD was prompted by mandatory continuing airworthiness information (MCAI) issued by the aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as certain wing strut fittings manufactured with incorrect grain orientation, which has an unknown effect on fatigue-related concerns. We are issuing this AD to detect and address fatigue-related damage to the wing strut fittings, which could lead to failure of the wing with consequent loss of control of the airplane.

(f) Actions and Compliance

Unless already done, do the following actions in paragraphs (f)(1) through (7) of this AD:

(1) Within 3 months after May 23, 2019 (the effective date of this AD) or within 100 hours time-in-service (TIS) after May 23, 2019 (the effective date of this AD), whichever occurs first, with the wing struts removed, visually inspect each forward and aft wing strut fitting and fuselage attachment point for cracks, corrosion, and damage. If there is a crack, any corrosion, or any damage, before further flight, do the applicable corrective actions (including checking torque, restoring surface protection, reworking areas with fouling, and replacing any part with a crack, corrosion, or damage). Follow the procedures in Parts C1, C2, and D or E, as applicable, in the Accomplishment Instructions in GippsAero SB-GA8-2017-174, Issue 2.

(2) Within 3 months after May 23, 2019 (the effective date of this AD) or within 100 hours TIS after May 23, 2019 (the effective date of this AD), whichever occurs first, and thereafter at intervals not to exceed 100 hours TIS, visually inspect each strut and strut fitting for cracks, corrosion, and

damage. If there is a crack, any corrosion, or any damage, before further flight, do the applicable corrective actions (including checking torque, restoring surface protection, and replacing any part with a crack, corrosion, or damage). Follow the procedures in Parts B and D or E, as applicable, in the Accomplishment Instructions of GippsAero SB-GA8-2017-174, Issue 2.

(3) Within 1,000 hours TIS after doing the inspections required in paragraph (f)(1) of this AD and thereafter at intervals not to exceed 1,000 hours TIS, with the wing struts installed, visually inspect each forward and aft wing strut, strut fitting, and strut fitting lug hole for cracks, corrosion, and damage. If there is a crack, any corrosion, or any damage, before further flight, do the applicable corrective actions (including additional inspections, replacing hardware, and replacing any part with a crack, corrosion, or damage). Follow the procedures in Parts C3 and D or E, as applicable, in the Accomplishment Instructions of GippsAero SB-GA8-2017-174, Issue 2.

(4) To use an eddy current or fluorescent liquid penetrant inspection method instead of a visual inspection for the requirements in paragraph (f)(1) of this AD, the Manager, Small Airplane Standards Branch, FAA must approve your inspection method, and the Manager's approval letter must specifically refer to this AD. Send your approval request to the contact information found in paragraph (g)(1) of this AD.

(5) As of May 23, 2019 (the effective date of this AD), remove from service each part on or before exceeding its replacement time listed in Parts D and E of table 3 of GippsAero SB-GA8-2017-174, Issue 2, and replace with an airworthy part by following the procedures in Part D or Part E, as applicable, in the Accomplishment Instructions of GippsAero SB-GA8-2017-174, Issue 2.

(6) For each part that has, on May 23, 2019 (the effective date of this AD), exceeded its replacement time listed in Parts D and E of table 3 of GippsAero SB-GA8-2017-174, Issue 2, you may comply with the requirements in paragraph (f)(5) of this AD within 100 hours TIS after May 23, 2019 (the effective date of this AD) or within 12 months after May 23, 2019 (the effective date of this AD), whichever occurs first.

(7) Within 24 hours after each inspection required in paragraphs (f)(1) and (2) of this AD, submit a report of the inspection results as specified in the Document Compliance Notice of GippsAero SB-GA8-2017-174, Issue 2, even if no damage is found, to the Civil Aviation Safety Authority (CASA) and GA 8 Airvan (Pty) Ltd. Also include in the report the total hours TIS on the airplane and the type of operation. You may use the contact information found in paragraph (i)(3) of this AD to contact GA 8 Airvan (Pty) Ltd. To contact CASA, use the online CASA Defect Reporting Service at the following internet address: <https://drs.casa.gov.au/>.

(g) Other FAA AD Provisions

The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, Small Airplane Standards Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Standards Branch, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4059; fax: (816) 329-4090; email: doug.rudolph@faa.gov. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

(2) Contacting the Manufacturer: For any requirement in this AD to obtain corrective actions from a manufacturer, the action must instead be accomplished using a method approved by the Manager, Small Airplane Standards Branch, FAA; or CASA.

(3) Reporting Requirements: A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0731. Public reporting for this collection of information is estimated to be approximately 1 hour per response, including the time for reviewing

instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. All responses to this collection of information are voluntary; the nature and extent of confidentiality to be provided, if any. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177-1524.

(h) Related Information

Refer to MCAI issued by CASA, AD No. AD/GA8/9, Amendment 1, dated May 29, 2018. You may examine the MCAI on the internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0771.

(i) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) GippsAero Service Bulletin SB-GA8-2017-174, Issue 2, dated May 23, 2018 (ii) [Reserved]

(3) For service information identified in this AD, contact GA 8 Airvan (Pty) Ltd, c/o GippsAero Pty Ltd, Attn: Technical Services, P.O. Box 881, Morwell Victoria 3840, Australia; telephone: + 61 03 5172 1200; fax: +61 03 5172 1201; email: aircraft.techpubs@mahindraaerospace.com.

(4) You may view this service information at the FAA, Policy and Innovation Division, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148. In addition, you can access this service information on the internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0771.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Kansas City, Missouri, on April 5, 2019.

Melvin J. Johnson,
Deputy Director, Policy & Innovation Division,
Aircraft Certification Service.



FAA
Aviation Safety

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

2019-07-10 Northrop Grumman LITEF GmbH LCR-100 Attitude and Heading Reference System: Amendment 39-19621; Docket No. FAA-2017-0522; Product Identifier 2015-SW-068-AD.

(a) Applicability

This AD applies to airplanes and helicopters, certificated in any category, with a Northrop Grumman LITEF GmbH LCR-100 Attitude and Heading Reference System (AHRS) unit part number (P/N) 145130-2000, 145130-2001, 145130-7000, 145130-7001, or 145130-7100 installed using analog outputs for primary flight information display or autopilot functions without automatic output comparison. Aircraft known to have the subject AHRS units installed include but are not limited to the following:

- (1) Dornier Luftfahrt GmbH Model 228-100, 228-101, 228-200, 228-201, 228-202, and 228-212 airplanes;
- (2) Learjet Inc. Model 31A airplanes;
- (3) Pilatus Aircraft Ltd. Model PC12, PC-12/45, and PC-12/47 airplanes;
- (4) Polskie Zaklady Lotnicze Sp. z o.o. Model PZL M28 05 airplanes;
- (5) Textron Aviation Inc. (type certificate previously held by Cessna Aircraft Company) Model 560XL airplanes;
- (6) Bell Helicopter Textron Canada Limited Model 407 helicopters;
- (7) Bell Helicopter Textron Inc. Model 412 and 412EP helicopters; and
- (8) Sikorsky Aircraft Corporation Model S-76A, S-76-B, and S-76C helicopters.

(b) Unsafe Condition

This AD defines the unsafe condition as the AHRS unit's analog outputs of attitude and heading data freezing without detection or warning. This condition could result in misleading attitude and heading information, anomalous autopilot behavior, and loss of control of the aircraft.

(c) Affected ADs

This AD affects AD 2010-26-09, Amendment 39-16548 (75 FR 81424, December 28, 2010) ("AD 2010-26-09"). Accomplishing a certain requirement of this AD terminates the requirements of AD 2010-26-09.

(d) Effective Date

This AD becomes effective May 29, 2019.

(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 (TIS), remove the AHRS unit from service.
- (2) Removal from service of P/N 145130-7100 terminates the requirements of AD 2010-26-09 (75 FR 81424, December 28, 2010).
- (3) Do not install an AHRS unit P/N 145130-2000, 145130-2001, 145130-7000, 145130-7001, or 145130-7100 on any aircraft.

(g) Alternative Methods of Compliance (AMOCs)

- (1) The Manager, Boston ACO Branch, FAA, may approve AMOCs for this AD. Send your proposal to: Nick Rediess, Aviation Safety Engineer, Boston ACO Branch, Compliance and Airworthiness Division, 1200 District Avenue, Burlington, Massachusetts 01803; telephone (781) 238-7763; email nicholas.rediess@faa.gov.
- (2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, we suggest 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) Additional Information

- (1) Northrop Grumman LITEF GmbH Service Bulletin No. 145130-0017-845, Revision D, dated April 1, 2015, which is not incorporated by reference, contains additional information about the subject of this AD. For service information identified in this AD, contact Northrop Grumman LITEF GmbH, Customer Service—Commercial Avionics, Loerracher Str. 18, 79115 Freiburg, Germany; telephone +49 (761) 4901-142; fax +49 (761) 4901-773; email ahrs.support@ng-litef.de. You may review a copy of the service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177.
- (2) The subject of this AD is addressed in European Aviation Safety Agency (EASA) AD No. 2015-0093, dated May 27, 2015. You may view the EASA AD on the internet at <http://www.regulations.gov> in Docket No. FAA-2017-0522.

(i) Subject

Joint Aircraft Service Component (JASC) Code: 3420, Attitude and Directional Data System.

Issued in Fort Worth, Texas, on April 16, 2019.
Lance T. Gant,
Director, Compliance & Airworthiness Division,
Aircraft Certification Service.



DATE: April 18, 2019
AD #: 2019-08-51

Emergency Airworthiness Directive (AD) 2019-08-51 is sent to owners and operators of Cirrus Design Corporation (Cirrus) Model SF50 airplanes.

Background

This emergency AD was prompted by Cirrus reporting three incidents on Cirrus Model SF50 airplanes of the stall warning and protection system (SWPS) or Electronic Stability & Protection (ESP) System engaging when not appropriate, with the first incident occurring in November 2018 and the latest in April 2019. The SWPS or ESP systems may engage even when sufficient airspeed and proper angle of attack (AOA) exists for normal flight. The SWPS includes the stall warning alarm, stick shaker, and stick pusher. The ESP includes under speed protection (USP). The SWPS system engaging inappropriately could potentially result in a STALL WARNING crew alert (CAS) message activation, accompanied by an audio alarm and stick shaker activation, followed possibly by either low speed ESP/USP engaging, and/or the stick pusher engaging. The pilot will also observe the dynamic and color-coded (Red) airspeed awareness ranges displaying the stall band, regardless of actual indicated airspeed.

The information below presents information on each incident.

1. While the airplane was under manual pilot control, the airplane activated several downward pitch commands coincident with stall warning, stick shaker, and several associated alerts. The pilot reported "AOA FAIL" and "STICK PUSHER FAIL CAS" messages preceding the pitch command. The pilot was able to stop the automatic pitch commands by pressing and holding the autopilot disconnect button in accordance with the emergency procedure in the airplane flight manual and safely landed at his destination.
2. The operator reported stall warning and stick pusher failure in flight.
3. The airspeed indicator went red and the stall warning and stick shaker were heard and felt while on descent. The autopilot was disengaged with the same results. The system settled with stick pusher fail, stall warning fail, and low speed awareness (LSA) fail under the airspeed. The pilot hand flew the approach and had no V_{REF} indicator but AOA appeared to be operating normally.

Cirrus and Aerosonic (manufacturer of the technical standard order AOA sensor) have identified the probable root cause as an AOA sensor malfunction due to a quality escape in the assembly of the AOA sensor at Aerosonic. Two set screws that secure the potentiometer shaft to the AOA vane shaft may have improper torqueing and no application of thread locker (Loctite) to secure the two set screws. The AOA sensor with this quality escape is labeled with part number 4677-03.

Potential erroneous AOA derived indications may occur before, during, and after unintended automatic control system engagement. These indications include an abnormal appearing low speed red band or VREF green donut presented on the airspeed tape. Failed indications or intermittent indication may result in one or more of the following:

- Unintended automatic flight control activations;
- The flight crew having difficulty controlling the airplane;
- Excessive nose-down attitude; and/or
- Possible impact with terrain.

Relevant Service Information

We reviewed Cirrus Design Corporation SF50 Service Bulletin Number: SB5X-34-03, dated April 16, 2019 (SB5X-34-03). The service information provides instructions for replacing the AOA sensor with an improved flight sensor.

FAA’s Determination

We are issuing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design. The noted condition presents an immediate danger to pilots and passengers of Cirrus Design Corporation Model SF50 airplanes because an uncommanded pitch down may be difficult to recover from in some flight regimes with potential fatal consequences. The before further flight compliance time and need to replace the AOA sensors due to the potential fatal consequences does not allow for prior notice and opportunity to comment for the public.

AD Requirements

This AD requires replacing the AOA sensors with improved AOA sensors using the instructions in SB5X-34-03.

Differences Between This AD and the Service Information

SB5X-34-03 specifies 5 hours time-in-service (TIS) before replacing the AOA sensors. We determined that allowing 5 hours TIS to replace the AOA sensors does not mitigate the unsafe condition; thus, this AD requires such replacement before further flight.

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.

We are 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.

Presentation of the Actual AD

We are issuing this AD under 49 U.S.C. Section 44701 according to the authority delegated to me by the Administrator.

2019-08-51 Cirrus Design Corporation: Product Identifier 2019-CE-020-AD.

(a) Effective Date

This Emergency AD is effective upon receipt.

(b) Affected ADs

None.

(c) Applicability

This AD applies to Cirrus Design Corporation Model SF50 airplanes, all serial numbers, certificated in standard category.

(d) Subject

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 27; Flight Controls.

(e) Unsafe Condition

This AD was prompted by Cirrus reporting three incidents of the stall warning and protection system (SWPS) or Electronic Stability & Protection (ESP) System engaging when not appropriate. The SWPS and ESP may engage even when sufficient airspeed and proper angle of attack (AOA) exists for normal flight. SWPS includes the stall warning alarm, stick shaker and stick pusher. ESP includes under speed protection (USP). The SWPS and ESP engaging could potentially result in a STALL WARNING crew alert (CAS) message activation, accompanied by an audio alarm and stick shaker activation, followed possibly by either low speed ESP/USP engaging and/or the stick pusher engaging. The pilot will also observe the dynamic and color-coded (Red) airspeed awareness ranges displaying the stall band, regardless of actual indicated airspeed. These conditions, if not addressed, could result in the flight crew having difficulty controlling the airplane, lead to excessive nose-down attitude, significant altitude loss, and possible impact with terrain.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Corrective Action

(1) Before further flight after receipt of this emergency AD, replace the AOA sensor with an improved AOA sensor, Aerosonic part number 4677-03 Mod 1 or Cirrus part number 32159-004 in accordance with section 11. ACCOMPLISHMENT INSTRUCTIONS, paragraphs A, B, and C of Cirrus Design Corporation SF50 Service Bulletin Number: SB5X-34-03, dated April 16, 2019.

(2) Before further flight after replacement of the AOA sensor per paragraph (g)(1) of this AD, perform final installation checkout procedures and flight tests in accordance with a method approved by the Manager, FAA, Chicago ACO Branch. For the checkout procedures and flight test to be approved by the Manager, FAA, Chicago ACO Branch as required by this paragraph, the Manager's approval letter must specifically refer to this AD.

(3) As of the effective date of this emergency AD, do not install any AOA sensor on any affected airplane unless it is an improved AOA sensor as identified in paragraph (g)(1) of this AD.

(h) Special Flight Permit

A special flight permit is allowed with the following limitation: Operators may fly the airplane to a location where the modification/corrective action can be incorporated. However, the pilot must follow the procedures listed in section 4., Pilot Actions Required, in Cirrus SF50 Alert Service Advisory SA19-08, dated April 8, 2019.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Chicago ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (j)(1) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

(1) For further information about this AD, contact: Wess Rouse, Small Airplane Program Manager, 2300 East Devon Avenue, Room 107, Des Plaines, Illinois 60018; telephone: (847) 294-8113; fax: (847) 294-7834; email: wess.rouse@faa.gov.

(2) For copies of the service information referenced in this AD, contact: Cirrus Worldwide Headquarters, 4515 Taylor Circle, Duluth, Minnesota, 55811; telephone: (800) 921-2737 or after hours (800) 921-2737; fax: (218) 788-3500; email: fieldservice@cirrusaircraft.com; Internet: <https://cirrusaircraft.com/service-support/>. You may view this referenced service information at the FAA, Small Airplane Standards Branch, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

Issued in Kansas City, Missouri, on April 18, 2019.
Lance T. Gant,
Director, Compliance & Airworthiness Division,
Aircraft Certification Service.