

[Federal Register Volume 87, Number 30 (Monday, February 14, 2022)]

[Rules and Regulations]

[Pages 8158-8167]

From the Federal Register Online via the Government Publishing Office [www.gpo.gov]

[FR Doc No: 2022-03000]

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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2021-0715; Project Identifier AD-2021-00259-A; Amendment 39-21932; AD 2022-03-15]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Various Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for various airplanes modified with certain configurations of Garmin G3X Touch Electronic Flight Instrument System installed per Supplemental Type Certificate (STC) No. SA01899WI or Garmin GI 275 Multi-Function Display (MFD) installed per STC No. SA02658SE. This AD was prompted by a report of a fuel quantity disparity between the amount of fuel indicated and the actual amount of fuel. This AD requires modifying the resistive fuel probe interface. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective March 21, 2022.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of March 21, 2022.

**ADDRESSES:** For service information identified in this final rule, contact Garmin International, Garmin Aviation Support, 1200 E 151st Street, Olathe, KS 66062; phone: (866) 739-5687; email: avionics@garmin.com; website: <https://fly.garmin.com/fly-garmin/support/>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222-5110. It is also available at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0715.

#### **Examining the AD Docket**

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0715; 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 final rule, any comments

received, and other information. The address for Docket Operations is 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:** Kevin Marks, Aviation Safety Engineer, Wichita ACO Branch, FAA, 1801 Airport Road, Wichita, KS 67209; phone: (316) 946-4153; email: kevin.marks@faa.gov or Wichita-COS@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Background**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to various airplanes modified with certain configurations of Garmin G3X Touch Electronic Flight Instrument System installed per STC No. SA01899WI or Garmin GI 275 MFD installed per STC No. SA02658SE. The NPRM published in the Federal Register on August 27, 2021 (86 FR 48070). The NPRM was prompted by notification of a Piper production line issue with the installation of a Garmin G3X Touch Electronic Flight Instrument System installed under STC No. SA01899WI. After calibration and fueling the airplane to a known level, the flight crew noted that the fuel quantity indicator displayed a higher level of fuel.

The Garmin G3X Touch Electronic Flight Instrument System, when interfaced with the Garmin GEA 24 (Engine Airframe Adapter) for display of the fuel quantity, uses a 1K ohm resistor inline between the GEA 24 and the airplane fuel quantity resistance style sending unit (float). This resistor provides lightning protection to the fuel tank as required by 14 CFR 23.954.

Use of the 1K resistor causes a GEA error when the GEA 24 or resistor is subjected to significantly hotter or colder temperatures than the temperature at which the fuel gauges were calibrated during installation. The farther the actual (ambient) temperature of the GEA 24 or resistor is from the temperature of the fuel quantity calibration, the larger the error. The lower the operating resistance of the fuel sending unit, the larger the error. The largest errors occur in installations with fuel sending units having an operational range less than 100 ohms. The Garmin GI 275 MFDs installed under STC No. SA02658SE, when interfaced with the Garmin GEA 24 for display of the fuel quantity, is also subject to this unsafe condition.

The displayed fuel quantity can have an error as much as four gallons/fuel tank with the display indicating four gallons with an empty tank. In the NPRM, the FAA proposed to require modifying the resistive fuel probe interface. The FAA is issuing this AD to prevent fuel starvation and engine shutdown, which could result in the inability to arrive at the destination airport or a suitable alternative airport.

### **Discussion of Final Airworthiness Directive**

### **Comments**

The FAA received comments from Garmin. The following presents the comments received on the NPRM and the FAA's response to each comment.

### **Requests Regarding Background Information**

Garmin requested the FAA correct certain information in the preamble. In the NPRM, the FAA stated that use of the 1K resistor causes a GEA error when the resistor temperature changes. According to Garmin, using the 1K resistor causes a GEA error when the GEA 24 temperature changes. Garmin further noted that 1k resistors are installed near the GEA 24 plug and are exposed to the same ambient temperatures.

The FAA agrees with correcting the preamble and has changed this final rule to clarify that a GEA error results from the GEA 24 being subjected to significantly hotter or colder temperatures than the temperature at which the fuel gauges were calibrated during installation. The FAA disagrees with the requested changes regarding the location of the resistors. The commenter's request is not supported by the information in the installation manual, which does not require the resistor to be installed near the GEA 24.

Garmin also requested that the FAA remove the exact error amount (i.e., four gallons) between the displayed fuel quantity and the actual amount of fuel. Garmin stated that due to variations in different aircraft system configurations, this amount could be misleading.

Removing the reference to 4 gallons would minimize the potential magnitude of the error and the need for AD action. The FAA did not change this AD based on this comment.

Garmin noted a typographical error in that the NPRM referred to "MFDS" instead of "MFDs." The FAA agrees and has corrected all references to MFDs accordingly.

### **Request Regarding Unsafe Condition**

Garmin requested that the FAA change the description of the inevitable consequence of the unsafe condition. In the NPRM, the FAA stated the unsafe condition, if not addressed, could result in fuel starvation and engine shutdown with consequent loss of airplane control. Garmin stated that this incorrectly implies that loss of airplane control is the inevitable consequence of fuel starvation and engine shutdown. Garmin requested the FAA revise the preamble to state that loss of airplane control is one of many possible outcomes.

The FAA agrees that loss of control is not an inevitable result of fuel starvation. In the context of this event, the end level effect is the loss of powered flight to the destination airport. Accordingly, the FAA has revised the background section of the preamble and the unsafe condition paragraph of the AD to reflect that fuel starvation and engine shutdown could result in the inability to arrive at the destination airport or a suitable alternative airport.

### **Request Regarding Applicability**

Garmin requested the FAA revise the AD to remove several airplane models that are not subject to the unsafe condition. Garmin listed these models as follows: The Boeing Company Model AT-6 (Navy SNJ-2), AT-6A (Navy SNJ-3), AT-6B, AT-6C (Navy SNJ-4), AT-6D (Navy SNJ-5), AT-6F (Navy SNJ-6), BC- 1A, Navy SNJ-7, and T-6G; Cessna Aircraft Company Model T-50 (Army AT-17 and UC-78 series, Navy JRC-1); Costruzioni Aeronautiche Tecnam S.P.A. Model P2006T; Daher Aircraft Design, LLC (type certificate previously held by Quest Aircraft Design, LLC) Model Kodiak 100; EADS-PZL Warszawa-Okęcie S.A. Model PZL-104 Wilga 80; Helio Alaska, Inc. Model H-800; Howard Aircraft Foundation Model DGA-15J (Army UC-70B), DGA-15P (Army UC-70, Navy GH-1, GH-2, GH-3, NH-1), and DGA-15W; Textron Aviation Inc. Model G17S; Thrush Aircraft, LLC Model 600 S-2D, S2R, S2R-R1340, S2R-R1820, S2R-R3S, and S2R-T34; and Waco Aircraft Company Model YMF airplanes.

The FAA agrees and has revised the list of applicable models accordingly.

### **Conclusion**

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. Except for the changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

## Related Service Information Under 1 CFR Part 51

The FAA reviewed Garmin Mandatory STC Service Bulletin 2134, Revision A, and Garmin Mandatory STC Service Bulletin 2135, Revision A, both dated April 23, 2021. This service information specifies procedures for modifying the GEA 24 resistive fuel probe interface. These documents are distinct since they apply to different STCs. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

## Other Related Service Information

The FAA also reviewed Master Drawing List (MDL) Document No. 005-01320-00, Revision 10, for STC No. SA01899WI; and MDL Drawing No. 005-01208-41, Revision 10, for STC No. SA02658SE; both dated April 23, 2021. This service information contains the type design data for installation of the STC. MDL Document No. 005-01320-00, Revision 10, dated April 23, 2021, introduces a new fuel quantity interface and configuration to eliminate the unsafe condition described previously.

## Costs of Compliance

The FAA estimates that this AD affects 920 airplanes of U.S. registry.  
The FAA estimates the following costs to comply with this AD:

Estimated Costs				
Action	Labor cost	Parts cost	Cost per airplane	Cost on U.S. operators
Modify fuel probe interface and recalibrate the fuel system	8 work-hours × \$85 per hour = \$680	\$10	\$690	\$634,800

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected operators.

## 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

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.

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

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

### **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 adding the following new airworthiness directive:



**FAA**  
**Aviation Safety**

## **AIRWORTHINESS DIRECTIVE**

[www.faa.gov/aircraft/safety/alerts/](http://www.faa.gov/aircraft/safety/alerts/)  
[www.gpoaccess.gov/fr/advanced.html](http://www.gpoaccess.gov/fr/advanced.html)

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**2022-03-15 Various Airplanes:** Amendment 39-21932; Docket No. FAA-2021-0715; Project Identifier AD-2021-00259-A.

### **(a) Effective Date**

This airworthiness directive (AD) is effective March 21, 2022.

### **(b) Affected ADs**

None.

### **(c) Applicability**

This AD applies to all serial numbers of the airplane models listed in table 1 to paragraph (c), certificated in any category, that are either:

(1) Modified with a Garmin G3X Touch Electronic Flight Instrument System under Supplemental Type Certificate (STC) No. SA01899WI, installed in accordance with Master Drawing List (MDL) Document No. 005-01320-00, Revision 9 or earlier, interfaced with a Garmin Engine Adapter GEA 24 connected to resistive fuel probes; or

(2) Modified with a Garmin GI 275 Multi-Function Display under STC No. SA02658SE, installed in accordance with MDL Revision 9 or earlier, interfaced with a Garmin Engine Adapter GEA 24 connected to resistive fuel probes.

Note 1 to paragraph (c): Garmin Mandatory STC Service Bulletin No. 2134, Revision A, and Garmin Mandatory STC Service Bulletin No. 2135, Revision A, both dated April 23, 2021, contain information for how to determine if your airplane has a resistive probe interface.

Table 1 to Paragraph (c)—*Affected Airplanes*

Type Certificate Holder	Airplane Model
Aermacchi S.p.A.	F.260, F.260B, F.260C, F.260D, F.260E, F.260F, S.205-18/F, S.205-18/R, S.205-20/F, S.205-20/R, S.205-22/R, S.208, and S.208A
Aeronautica Macchi S.p.A./Aerfer-Industrie Aerospaziali Meridionali S.p.A.	AM-3
Aerostar Aircraft Corporation	PA-60-600 (Aerostar 600), PA-60-601 (Aerostar 601), PA-60-601P (Aerostar 601P), and PA-60-602P (Aerostar 602P)
Air Tractor, Inc.	AT-401
Alexandria Aircraft, LLC	14-19, 14-19-2, 14-19-3, 14-19-3A, 17-30, 17-30A, 17-31, 17-31A, 17-31ATC, and 17-31TC
Alpha Aviation Concept Limited	R2160
American Champion Aircraft Corp.	402, 7EC, 7ECA, 7FC, 7GC, 7GCA, 7GCAA, 7GCB, 7GCBA, 7GCBC, 7KCAB, 8GCBC, and 8KCAB
Aviat Aircraft Inc.	A-1, A-1A, A-1B, A-1C-180, A-1C-200, S-1S, S-1T, S-2, S-2A, S-2B, S-2C, and S-2S
Bellanca Aircraft Corporation	14-13, 14-13-2, 14-13-3, and 14-13-3W
B-N Group Ltd.	BN-2 and BN-2A
CEAPR (type certificate previously held by APEX Aircraft)	R3000/160
Cirrus Design Corporation	SR20, SR22, and SR22T
Commander Aircraft Corporation	112, 112B, 112TC, 112TCA, 114, 114A, 114B, and 114TC
Cougar Aircraft Corporation	GA-7
Cub Crafters, Inc.	CC19-180
De Havilland Support Limited	B.121 Series 1, B.121 Series 2, and B.121 Series 3
Diamond Aircraft Industries Inc.	DA20-A1, DA20-C1, DA 40, DA 40 F, and DA 40 NG
Discovery Aviation, Inc.	XL-2

Dynac Aerospace Corporation	Aero Commander Model 100, Aero Commander Model 100-180, Aero Commander Model 100A, Volaire Model 10, and Volaire Model 10A
EADS-PZL Warszawa-Okecie S.A.	PZL-104M Wilga 2000, PZL-104MA Wilga 2000, PZL-KOLIBER 150A, and PZL-KOLIBER 160A
Extra Flugzeugproduktions- und Vertriebs-GmbH	EA-300, EA-300/200, EA-300/L, EA 300/LC, and EA-300/S
FLS Aerospace (Lovaux) Ltd.	OA7 Optica Series 300
Found Brothers Aviation Limited	FBA Centennial 100
Frakes Aviation	G-44 (Army OA-14, Navy J4F-2) (including SCAN Type 30) and G-44A
FS 2003 Corporation	PA-12 and PA-12S
Fuji Heavy Industries, Ltd.	FA-200-160, FA-200-180, and FA-200-180AO
GA8 Airvan (Pty) Ltd.	GA8 and GA8-TC 320
Gomolzig Flugzeug- und Maschinenbau GmbH	AS 202/15 BRAVO, AS 202/18A BRAVO, and AS 202/18A4 BRAVO
GROB Aircraft SE	G 115, G 115A, G 115B, G 115C, G 115C2, G 115D, and G 115D2
Helio Aircraft Corporation	15A and 20
Helio Alaska, Inc.	H-250, H-295 (USAF U10D), H-391 (USAF YL-24), H-391B, H-395 (USAF L-28A or U-10B), H-395A, H-700, and HT-295
Interceptor Aircraft Inc.	200, 200A, 200B, 200C, 200D, and 400
The King's Engineering Fellowship	44 Angel, 4500-300, and 4500-300 Series II
Legend Aviation & Marine, LLC	UC-1
Luscombe Aircraft Corporation	8, 8A, 8B, 8C, 8D, 8E, 8F, and T-8F
Maule Aerospace Technology, Inc.	Bee Dee M-4, M-4, M-4-180C, M-4-180S, M-4-180T, M-4-180V, M-4-210, M-4-210C, M-4-210S, M-4-210T, M-4-220, M-4-220C, M-4-220S, M-4-220T, M-4C, M-4S, M-4T, M-5-180C, M-5-200, M-5-210C, M-5-210TC, M-5-220C, M-5-235C, M-6-180, M-6-235, M-7-235, M-7-235A, M-7-235B, M-7-235C, M-7-260, M-7-260C, M-



	7-420A, M-7-420AC, M-8-235, M-9-235, MT-7-235, MT-7-260, MT-7-420, MX-7-160, MX-7-160C, MX-7-180, MX-7-180A, MX-7-180AC, MX-7-180B, MX-7-180C, MX-7-235, MX-7-420, MXT-7-160, MXT-7-180, and MXT-7-180A
Micco Aircraft Company, Inc.	MAC-125C, MAC-145, MAC-145A, and MAC-145B
Mooney Aircraft Corporation	M22
Mooney International Corporation	M20, M20A, M20B, M20C, M20D, M20E, M20F, M20G, M20J, M20K, M20L, M20M, M20R, M20S, and M20TN
Nardi S.A.	FN-333
Pacific Aerospace Ltd.	FBA-2C, FBA-2C1, FBA-2C2, and FBA-2C3
Piaggio & C.	P.136-L and P.136-L1
Pilatus Aircraft Limited	PC-6, PC-6/350, PC-6/350-H1, PC-6/350-H2, PC-6-H1, and PC-6-H2
Piper Aircraft, Inc.	PA-16, PA-16S, PA-18, PA-18-105 (Special), PA-18-125 (Army L-21A), PA-18-135, PA-18-150, PA-18A, PA-18A-135, PA-18A-150, PA-18AS-125, PA-18AS-135, PA-18AS-150, PA-18S, PA-18S-105 (Special), PA-18S-125, PA-18S-135, PA-18S-150, PA-19 (Army L-18C), PA-19S, PA-20, PA-20-115, PA-20-135, PA-20S, PA-20S-115, PA-20S-135, PA-22, PA-22-108, PA-22-135, PA-22-150, PA-22-160, PA-22S-135, PA-22S-150, PA-22S-160, PA-23, PA-23-160, PA-23-235, PA-23-250, PA-23-250 (Navy UO-1), PA-24, PA-24-250, PA-24-260, PA-24-400, PA-28-140, PA-28-150, PA-28-151, PA-28-160, PA-28-161, PA-28-180, PA-28-181, PA-28-201T, PA-28-235, PA-28-236, PA-28R-180, PA-28R-200, PA-28R-201, PA-28R-201T, PA-28RT-201, PA-28RT-201T, PA-28S-160, PA-28S-180, PA-30, PA-31-300, PA-32-260, PA-32-300, PA-32-301, PA-32-301FT, PA-32-301T, PA-32-301XTC, PA-32R-300, PA-32R-301 (HP), PA-32R-301 (SP), PA-32R-301T, PA-32RT-300, PA-32RT-300T, PA-32S-300, PA-34-200,

	PA-34-200T, PA-34-220T, PA-38-112, PA-39, PA-40, PA-44-180, PA-44-180T, PA-46-310P, PA-46-350P, PA-46R-350T, and PA-E23-250
Polskie Zaklady Lotnicze Spolka zo.o	PZL M26 01
Revo, Incorporated	Colonial Model C-1, Colonial Model C-2, Lake Model 250, Lake Model LA-4, and Lake Model LA-4-200
Robert E. Rust, Jr.	DHC-1 Chipmunk Mk 21, DHC-1 Chipmunk Mk 22, and DHC-1 Chipmunk Mk 22A
RUAG Aerospace Services GmbH	Do 27 Q-6, Do 28 A-1, and Do 28 B-1
Sierra Hotel Aero, Inc.	Navion (Army L-17A), Navion A (Army L-17B and L-17C), Navion B, Navion D, Navion E, Navion F, Navion G, and Navion H
Sky Enterprises, Inc.	RC-3
Slingsby Aviation Ltd.	T67M260
SOCATA (type certificate currently held by Daher)	MS 880B, MS 885, MS 892A-150, MS 892E-150, MS 893A, MS 893E, MS 894A, MS 894E, Rallye 100S, Rallye 150 ST, Rallye 150 T, Rallye 235C, Rallye 235 E, TB9, TB 10, TB 20, TB 21, and TB 200
Spartan Aircraft Company	7W (Army UC-71)
Swift Museum Foundation, Inc.	GC-1A and GC-1B
Symphony Aircraft Industries Inc.	OMF-100-160 and SA 160
Textron Aviation Inc.	19A, 23, 35, 36, 50, 58, 76, 77, 95, 120, 140, 140A, 150, 150A, 150B, 150C, 150D, 150E, 150F, 150G, 150H, 150J, 150K, 150L, 150M, 152, 170, 170A, 170B, 172, 172A, 172B, 172C, 172D, 172E, 172F (USAF T-41A), 172G, 172H (USAF T-41A), 172I, 172K, 172L, 172M, 172N, 172P, 172Q, 172R, 172RG, 172S, 175, 175A, 175B, 175C, 177, 177A, 177B, 177RG, 180, 180A, 180B, 180C, 180D, 180E, 180F, 180G, 180H, 180J, 180K, 182, 182A, 182B, 182C, 182D, 182E, 182F, 182G, 182H, 182J, 182K, 182L, 182M, 182N, 182P, 182Q, 182R, 182S, 182T, 185, 185A, 185B, 185C, 185D, 185E, 190, 195,

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195A, 195B, 206, 206H, 207, 207A, 210, 210-5 (205), 210-5A (205A), 210A, 210B, 210C, 210D, 210E, 210F, 210G, 210H, 210J, 210K, 210L, 210M, 210N, 210R, 310, 310A, 310B, 310C, 310D, 310E, 310F, 310G, 310H, 310I, 310J, 310J-1, 310K, 310L, 310N, 310P, 310Q, 310R, 320, 320-1, 320A, 320B, 320C, 320D, 320E, 320F, 335, 336, 337, 337A, 337B, 337C, 337D, 337E, 337F, 337G, 337H, 340, 340A, 35-33, 35-A33, 35-B33, 35-C33, 35-C33A, 35R, 45 (Military YT-34), 56TC, 58A, 58PA, 58TCA, 95-55, 95-A55, 95-B55, 95-B55A, 95-B55B, 95-C55, 95-C55A, A150K, A150L, A150M, A152, A185E, A185F, A23, A23-19, A23-24, A23A, A24, A24R, A35, A36, A36TC, A45 (Military T-34A, B-45), A56TC, B19, B23, B24R, B35, B36TC, B50, B95, B95A, C23, C24R, C35, C50, D17S, D35, D45 (Military T-34B), D50E-5990, D55, D55A, D95A, E310H, E310J, E33, E33A, E33C, E35, E55, E55A, E95, F150F, F150G, F150H, F150J, F150K, F150L, F150M, F152, F172D, F172E, F172F, F172G, F172H, F172K, F172L, F172M, F172N, F172P, F177RG, F182P, F182Q, F33, F33A, F33C, F337E, F337F, F337G, F337H, F35, FA150K, FA150L, FA150M, FA152, FP172D, FR172E, FR172F, FR172G, FR172H, FR172J, FR172K, FR182, FRA150L, FRA150M, FT337E, FT337F, FT337GP, FT337HP, G33, G35, G36, G58, H35, J35, K35, LC40-550FG, LC41-550FG, LC42-550FG, M19A, M337B, M35, N35, P172D, P206, P206A, P206B, P206C, P206D, P206E, P210N, P210R, P337H, P35, R172E, R172F, R172G, R172H, R172J, R172K, R182, S35, SD17S, T182, T182T, T206H, T207, T207A, T210F, T210G, T210H, T210J, T210K, T210L, T210M, T210N, T210R, T240, T303, T310P, T310Q, T310R, T337B, T337C, T337D, T337E, T337F, T337G, T337H, T337H-SP, TP206A, TP206B, TP206C, TP206D, TP206E, TR182, TU206A, TU206B,

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	TU206C, TU206D, TU206E, TU206F, TU206G, U206, U206A, U206B, U206C, U206D, U206E, U206F, U206G, V35, V35A, and V35B
Topcub Aircraft, Inc.	CC18-180 and CC18-180A
True Flight Holdings LLC	AA-1, AA-1A, AA-1B, AA-1C, AA-5, AA-5A, AA-5B, and AG-5B
Twin Commander Aircraft LLC	500, 500-A, 520, 560, and 560-A
Univair Aircraft Corporation	108, 108-1, 108-2, 108-3, 108-5, 415-C, 415-CD, 415-D, A-2, A2-A, E, F-1, F-1A, G, and M10
Viking Air Limited	DHC-2 Mk.I, DHC-2 Mk.II, DHC-2 Mk.III, and TR-1
Vulcanair S.p.A.	P.68, P.68 "Observer," P.68B, P.68C, P.68C-TC, P.68R, P.68 Observer 2, P.68TC Observer, and Vulcanair V1.0
WACO Classic Aircraft Corporation	2T-1A, 2T-1A-1, and 2T-1A-2
WSK PZL Mielec and OBR SK Mielec	PZL M20 03
W.Z.D. Enterprises Inc	11A and 11E
Zenair Ltd.	CH2000
Zlin Aircraft a.s.	Z-143L, Z-242L, and Zlin 526L

**(d) Subject**

Joint Aircraft System Component (JASC) Code 2841, Fuel Quantity Indicator.

**(e) Unsafe Condition**

This AD was prompted by reports of fuel quantity disparities between the amount of fuel indicated and the actual amount of fuel. The FAA is issuing this AD to ensure that the amount of fuel indicated is the amount of fuel available. The unsafe condition, if not addressed, could result in fuel starvation and engine shutdown which could result in the inability to arrive at the destination airport or a suitable alternative airport.

**(f) Compliance**

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

**(g) Action**

Within 100 hours time-in-service after the effective date of this AD or within 12 months after the effective date of this AD, whichever occurs first, modify the fuel probe interface by following the Modification Instructions in Garmin Mandatory STC Service Bulletin 2134, Revision A, or Garmin Mandatory STC Service Bulletin 2135, Revision A, both dated April 23, 2021, whichever is applicable.

## **(h) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Wichita 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 (i) 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.

## **(i) Related Information**

For more information about this AD, contact Kevin Marks, Aviation Safety Engineer, Wichita ACO Branch, FAA, 1801 Airport Road, Wichita, KS 67209; phone: (316) 946-4153; email: kevin.marks@faa.gov or Wichita-COS@faa.gov.

## **(j) 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) Garmin Mandatory STC Service Bulletin 2134, Revision A, dated April 23, 2021.

(ii) Garmin Mandatory STC Service Bulletin 2135, Revision A, dated April 23, 2021.

(3) For service information identified in this AD, contact Garmin International, Garmin Aviation Support, 1200 E 151st Street, Olathe, KS 66062; phone: (866) 739-5687; email: avionics@garmin.com; website: <https://fly.garmin.com/fly-garmin/support/>.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. 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, email: [fr.inspection@nara.gov](mailto:fr.inspection@nara.gov), or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on January 25, 2022.

Lance T. Gant,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2022-03000 Filed 2-11-22; 8:45 am]