



DATE: May 18, 2015

AD #: 2015-10-51

Emergency Airworthiness Directive (AD) 2015-10-51 is sent to owners and operators of all aircraft that incorporate Avidyne Corporation (Avidyne) Integrated Flight Displays (IFDs) part number (P/N) 700-00083-() loaded with software release 9.3.1.0 or earlier release (referred to as Model R9 – 10 inch), P/N 700-00171-() loaded with software release 9.2.5.0 or earlier release (referred to as Model R9 - 12 inch), and P/N 700-00182-() loaded with software release 10.0.3.0 or earlier release (referred to as Model IFD540).

Background

This emergency AD was prompted by reports of Avidyne IFDs displaying incorrect course deviation indication information during GPS approaches (incorrect display of lateral deviations). This condition occurs when the airplane is flying in certain approaches, the leg to the Final Approach Fix (FAF) is active, and the leg to the FAF is not aligned with the final approach course (i.e., an angled entry to the FAF). The software of the Avidyne IFDs as referenced above will produce lateral deviations to the final approach course as soon as the leg to the FAF becomes active. Therefore when the leg does not align with the final approach course, the CDI will show a deviation when, in fact, the aircraft is on the proper course for the active leg. This could result in the pilot making flight decisions that put the aircraft in unsafe flight conditions, flying into airspace that was, by the GPS approach design, to be avoided (terrain, obstacle, traffic, restricted).

FAA’s Determination

We are issuing this AD because we evaluated all the relevant information and determined the unsafe condition described above is likely to exist or develop in other products of the same type design.

AD Requirements

This AD requires incorporating an operational limitation into the Limitations Section of the airplane flight manual (AFM) or airplane flight manual supplement (AFMS). The operational limitation will contain the following:

- “Flying a full procedure (non Vector-to-Final) GPS approach, with a course change at the Final Approach Fix (FAF), is prohibited.”
- “Flying a GPS approach, with a Direct-To or with an Omni-Bearing Selector (OBS) leg to the FAF, is prohibited.”

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.

2015-10-51 Avidyne Aerospace: Directorate Identifier 2015-CE-019-AD.

(a) Effective Date

This Emergency AD is effective upon receipt.

(b) Affected ADs

None

(c) Applicability

Avidyne Corporation (Avidyne) Integrated Flight Displays (IFDs) part number (P/N) 700-00083-() loaded with software release 9.3.1.0 or earlier release (referred to as Model R9 – 10 inch), P/N 700-00171-() loaded with software release 9.2.5.0 or earlier release (referred to as Model R9 - 12 inch), and P/N 700-00182-() loaded with software release 10.0.3.0 or earlier release (referred to as Model IFD540). These IFDs are installed on, but not limited to, airplanes that are certificated in any category and are identified in the following:

(1) For Model R9 – 10 inch: AML STC SA00282BO. This document can be found at: [http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/24d8d8ba6cb57e4f86257d1d0055dec4/\\$FILE/SA00282BO_AML.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/24d8d8ba6cb57e4f86257d1d0055dec4/$FILE/SA00282BO_AML.pdf)

(2) For Model R9 – 12 inch: Korea Aerospace Industries KC-100 (currently being type validated by the FAA).

(3) For Model IFD540: STC SAA00343BO. This document can be found at: [http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/5084676a444f3b2b86257d20005d08ab/\\$FILE/SA00343BO_AML.pdf](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/5084676a444f3b2b86257d20005d08ab/$FILE/SA00343BO_AML.pdf)

(d) Subject

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code: 34, Navigation.

(e) Unsafe Condition

This AD was prompted by reports of Avidyne IFDs displaying incorrect course deviation indication information during GPS approaches (incorrect display of lateral deviations). This condition occurs when the airplane is flying in certain approaches, the leg to the Final Approach Fix (FAF) is active, and the leg to the FAF is not aligned with the final approach course (i.e., an angled entry to the FAF). The software of the Avidyne IFDs as referenced above in the Applicability section of this AD will produce lateral deviations to the final approach course as soon as the leg to the FAF becomes active. Therefore when the leg does not align with the final approach course, the CDI will show a deviation when, in fact, the aircraft is on the proper course for the active leg. We are issuing this AD to prevent such incorrect display of lateral deviations, which could result in the pilot making flight decisions that put the aircraft in unsafe flight conditions, flying into airspace that was, by the GPS approach design, to be avoided (terrain, obstacle, traffic, restricted).

(f) Compliance

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

(g) Airplane Flight Manual (AFM) or Airplane Flight Manual Supplement (AFMS) Limitation

(1) Before further flight, incorporate the operational limitations listed in paragraphs (g)(1)(i) and (g)(1)(ii) of this AD into the Limitations Section of the AFM or AFMS, as applicable. This can be done by inserting a copy of this AD into the Limitations Section of the AFM or AFMS.

(i) "Flying a full procedure (non Vector-to-Final) GPS approach, with a course change at the Final Approach Fix (FAF), is prohibited."

(ii) "Flying a GPS approach, with a Direct-To or with an Omni-Bearing Selector (OBS) leg to the FAF, is prohibited."

(2) This action may be done by an owner/operator (pilot) holding at least a private pilot certificate and must be entered into the airplane records showing compliance with this AD in accordance with 14 CFR 43.9 (a)(1)(4) and 14 CFR 91.417(a)(2)(v). The record must be maintained as required by 14 CFR 91.173 or 135.439.

(3) Paragraphs (g)(3)(i) and (g)(3)(ii) of this AD provides examples of prohibited and allowed GPS approach per AD paragraph (g)(1)(i) of this AD:

(i) An example of a prohibited GPS approach per AD paragraph (g)(1)(i) can be found at: <http://aeronav.faa.gov/d-tpp/1505/05597r25.pdf>

(ii) An example of an allowed GPS approach per AD paragraph (g)(1)(i) can be found at: <http://aeronav.faa.gov/d-tpp/1505/00626rz29.pdf>

(4) This AD is no longer applicable if software is installed that is different than that referenced in the Applicability section of this AD.

(h) Special Flight Permit

Under 14 CFR 39.23, special flight permits are prohibited for this AD.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Boston Aircraft Certification Office (ACO), 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 ACO, send it to the attention of the person identified in paragraph (j) 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

For further information about this AD, contact: Anthony Pigott, Aerospace Engineer, Boston Aircraft Certification Office, FAA, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7158; fax: 781-238-7199; email: Anthony.pigott@faa.gov.

Issued in Kansas City, Missouri, on May 18, 2015.

Earl Lawrence,
Manager, Small Airplane Directorate,
Aircraft Certification Service.