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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2008-1210; Directorate Identifier 2008-CE-047-AD; Amendment 39-15829; AD 2009-05-05]**

**RIN 2120-AA64**

**Airworthiness Directives; Avidyne Corporation Primary Flight Displays (Part Numbers 700-00006-000, -001, -002, -003, and -100)**

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

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) to supersede AD 2008-06-28 R1, which applies to certain Avidyne Corporation (Avidyne) Primary Flight Displays (PFDs) (part numbers (P/Ns) 700-00006-000, -001, -002, -003, and -100) that are installed on airplanes. AD 2008-06-28 R1 currently requires you to do a check of the maintenance records and inspection of the PFD (if necessary) to determine if an affected serial number PFD is installed and incorporate (if necessary) operational limitations. Since we issued AD 2008-06-28 R1, Avidyne developed a factory modification that will correct the problems on these Avidyne PFDs and also factory modified certain serial number PFDs. To terminate the operational limitations of AD 2008-06-28 R1, this AD adds actions to assure any affected serial number PFD complies with one of the following: Passes the air data system performance verification test, receives the factory modification, or is replaced with a PFD that has complied with one of the previous two conditions or is not one of the affected serial number PFDs. Consequently, this AD will retain the actions from the previous AD until the added terminating action has been complied with. We are issuing this AD to prevent certain conditions from existing when PFDs display incorrect attitude, altitude, and airspeed information. This could result in airspeed/altitude mismanagement or spatial disorientation of the pilot with consequent loss of airplane control, inadequate traffic separation, or controlled flight into terrain.

**DATES:** This AD becomes effective on April 3, 2009.

On April 3, 2009, the Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD.

**ADDRESSES:** For service information identified in this AD, contact Avidyne Corporation, 55 Old Bedford Road, Lincoln, MA 01773; telephone: (781) 402-7400; fax: (781) 402-7599; E-mail: techsupport@avidyne.com; Internet: <http://www.avidyne.com/>.

To view the AD docket, go to U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590, or on the Internet at <http://www.regulations.gov>. The docket number is FAA-2008-1210; Directorate Identifier 2008-CE-047-AD.

**FOR FURTHER INFORMATION CONTACT:** Solomon Hecht, Aerospace Engineer, ANE-150, Boston Aircraft Certification Office, 12 New England Executive Park, Burlington, Massachusetts 01803, telephone: (781) 238-7159, fax: (781) 238-7170.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On November 7, 2008, we issued a proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that would apply to certain Avidyne PFDs P/Ns 700-00006-000, -001, -002, -003, and -100 that are installed on airplanes. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on November 14, 2008 (73 FR 67429). The NPRM proposed to retain the actions from AD 2008-06-28 R1 until the affected PFD is factory serviced; add the actions of a label or marking check, an air data system performance verification test, and (if necessary) replacement of the PFD and factory servicing of the failed PFD; and reduce the serial number applicability from that of AD 2008-06-28 R1.

### **Comments**

We provided the public the opportunity to participate in developing this AD. The following presents the comment received on the proposal and FAA's response to the comment:

#### **Comment Issue: Affected Units Identified in Service Information**

Mr. Frederic Barber, Avidyne Corporation, comments that Avidyne has updated their service information and issued Revision 2. He notes the test and repair requirements remain unchanged, but the list of serial numbers has been updated to remove those PFDs known to have been serviced since Revision 1 was published. Mr. Barber recommends that the proposed AD be modified to reference Revision 2.

We do not agree that the proposed AD be modified to reference Revision 2 of the service information. Some units may have already had the modification done per Revision 1 and these serial numbers may be reflected in the Revision 2 of the service information. Paragraph 35.c. of FAA AD Manual, FAA-IR-M-8040.1B (FAA-AIR-M-8040.1), dated May 28, 2008, reads:

The fact that an AD has been complied with by all owners/operators does not make the AD (the change in type design) unnecessary. Therefore, an AD must never be removed based on the representation of a manufacturer that all affected aircraft are in compliance with the AD, or the information that there are no affected aircraft left on the U.S. registry.

With this in mind, we have determined that we also should not base the applicability on the manufacturer's assurance that certain units have since been modified, but rather should base the applicability on those units that originally needed the modification. The "unless already done" phrase in the AD would give AD credit to those that have already incorporated the modification.

We are not changing the final AD rule action as a result of this comment.

## Conclusion

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed except for minor editorial corrections. We have determined that these minor corrections:

- Are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

## Costs of Compliance

We estimate that this AD affects 384 airplanes in the U.S. registry.

We estimate the following costs to do the serial number determination:

<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Total Cost Per Airplane</b>	<b>Total Cost on U.S. Operators</b>
1 work-hour X \$80 per hour = \$80	Not applicable	\$80	\$30,720

We estimate the following costs to do any necessary test and replacement that would be required based on the results of the proposed test. We have no way of determining the number of airplanes that may need this test and replacement:

<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Total Cost Per Airplane</b>
4 work-hours X \$80 per hour = \$320	Not applicable	\$320

## 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 AD.

## Regulatory Findings

We have 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. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); 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.

We prepared a summary of the costs to comply with this AD (and other information as included in the Regulatory Evaluation) and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "Docket No. FAA-2008-1210; Directorate Identifier 2008-CE-047-AD" in your request.

### **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 Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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) 2008-06-28 R1, Amendment 39-15468 (73 FR 19963, April 14, 2008), and adding the following new AD:



**2009-05-05 Avidyne Corporation:** Amendment 39-15829; Docket No. FAA-2008-1210; Directorate Identifier 2008-CE-047-AD.

### **Effective Date**

- (a) This AD becomes effective on April 3, 2009.

### **Affected ADs**

- (b) This AD supersedes AD 2008-06-28 R1, Amendment 39-15440.

### **Applicability**

(c) This AD applies to Avidyne Corporation (Avidyne) Primary Flight Displays (PFDs), part numbers (P/Ns) 700-00006-000, 700-00006-001, 700-00006-002, 700-00006-003, and 700-00006-100 with any serial number listed in Avidyne Service Bulletin No. 601-00006-096, Revision 1, dated July 14, 2008. Paragraph (d) of this AD gives procedures to determine if an affected serial number is installed on your airplane. This AD applies to affected serial number PFDs that are installed on, but not limited to the airplanes below that are certificated in any category.

- (1) Adam Aircraft Model A500;
- (2) Cessna Aircraft Company Model 441 (STEC Alliant Supplemental Type Certificate (STC) No. SA09547AC-D incorporated);
- (3) Cessna Aircraft Company Models LC42-550FG and LC41-550FG (Columbia Aircraft Manufacturing and The Lancair Company previously held the type certificate for these airplanes);
- (4) Cirrus Design Corporation Models SR20 and SR22;
- (5) Diamond Aircraft Industries GmbH Model DA 40;
- (6) Hawker Beechcraft Corporation Model E90 (STEC Alliant STC No. SA09545AC-D incorporated);
- (7) Hawker Beechcraft Corporation Model 200 series (STEC Alliant STC No. SA09543AC-D incorporated); and
- (8) Piper Aircraft, Inc. Models PA-28-161, PA-28-181, PA-28R-201, PA-32R-301 (HP), PA-32R-301T, PA-32-301FT, PA-32-301XTC, PA-34-220T, PA-44-180, PA-46-350P, PA-46R-350T, and PA-46-500TP.

(d) If you have one of the affected part number PFDs installed on your airplane, you must positively show that it is not one of the affected serial numbers or comply with paragraph (f), all subparagraphs, as applicable in this AD. Under 14 CFR 43.7, the owner/operator holding at least a private pilot certificate is allowed to do the check in paragraph (d)(1) of this AD. All other actions must be done by a certificated mechanic, unless noted differently.

(1) Do a logbook check of aircraft records (previously referred to in AD 2008-06-28 R1 as "maintenance records") to determine if any PFD (P/Ns 700-00006-000, 700-00006-001, 700-00006-002, 700-00006-003, or 700-00006-100) with any affected serial number listed in Avidyne Service Bulletin No. 601-00006-096, Revision 1, dated July 14, 2008, is installed.

(i) If, as a result of the logbook check, you positively identify that the PFD installed does not have a serial number affected by this AD, then only paragraph (f)(5) of this AD applies to you.

(ii) If, as a result of the logbook check, you cannot positively identify the serial number of the PFD, do the visual inspection required in paragraph (d)(2) of this AD.

(iii) If, as a result of the logbook check, you find any PFD installed with an affected serial number, do the actions required by paragraph (f) of this AD, including all subparagraphs as applicable.

(2) If, as a result of the above logbook check, you cannot positively identify the serial number of the PFD, visually inspect any PFD (P/Ns 700-00006-000, 700-00006-001, 700-00006-002, 700-00006-003, or 700-00006-100) for any affected serial number listed in Avidyne Service Bulletin No. 601-00006-096, Revision 1, dated July 14, 2008.

(i) If, as a result of this visual inspection, you positively identify that the PFD installed does not have a serial number affected by this AD, then only paragraph (f)(5) of this AD applies to you.

(ii) If, as a result of this visual inspection, you identify that the PDF installed does have a serial number affected by this AD, do the actions required in paragraph (f) of this AD, including all subparagraphs as applicable.

### Unsafe Condition

(e) This AD results from several field reports of Avidyne PFDs displaying incorrect altitude and airspeed information and Avidyne preparing a factory modification that will correct the possible incorrect altitude and airspeed information displayed. We are issuing this AD to prevent certain conditions from existing when PFDs display incorrect attitude, altitude, and airspeed information. This could result in airspeed/altitude mismanagement or spatial disorientation of the pilot with consequent loss of airplane control, inadequate traffic separation, or controlled flight into terrain.

### Compliance

(f) To address this problem, you must do the following, unless already done:

<b>Actions</b>	<b>Compliance</b>	<b>Procedures</b>
(1) Incorporate the operational limitations below by doing whichever of the following applies:  (i) For airplanes with an airplane flight manual (AFM), pilot's operating handbook (POH), or airplane flight manual supplement (AFMS), incorporate the language in the Appendix of this AD into the Limitations section of the AFM, POH, or AFMS.  (ii) For airplanes without an AFM, POH, or AFMS, do the following:  (A) Incorporate the language in the Appendix of this AD into your aircraft maintenance records; and  (B) Fabricate a placard (using at least 1/8-inch letters) with the following words and install the placard on the instrument panel within the pilot's clear view: "THIS AD AND SUPERSEDED AD 2008-06-28 R1 CONTAIN LIMITATIONS REGARDING AVIDYNE PRIMARY FLIGHT DISPLAYS (PFD) AND REQUIRED INCORPORATION OF THESE LIMITATIONS INTO THE AIRCRAFT RECORDS. YOU MUST FOLLOW THESE LIMITATIONS."	Prior to further flight after April 3, 2009 (the effective date of this AD).	Under 14 CFR 43.7, the owner/operator holding at least a private pilot certificate is allowed to insert the information into the AFM, POH, AFMS, or maintenance records as required in paragraph (f)(1)(i) or (f)(1)(ii)(A) of this AD and fabricate the placard required in paragraph (f)(1)(ii)(B) of this AD. Make an entry into the aircraft records showing compliance with these portions of the AD in accordance with 14 CFR 43.9.

<p>(2) Inspect for a label marked “Deviation 08-19A” on the exterior of the PFD near the TSO label or a “MOD 52” marking.</p> <p>(i) If the label marked “Deviation 08-19A” or “MOD 52” marking is present, then the PFD has received the factory modification. Remove the limitations required by paragraph (f)(1) of this AD and AD 2008-06-28 R1. Except for the actions of paragraph (f)(5) of this AD, no further action is required by this AD.</p> <p>(ii) If the label or marking is not present, do the PFD air data system performance verification test in Section 3.3 of the referenced service bulletin.</p>	<p>Within the next 15 days after April 3, 2009 (the effective date of this AD).</p>	<p>Follow Avidyne Service Bulletin No. 601-00006-096, Revision 1, dated July 14, 2008.</p>
<p>(3) If the PFD passes the test required in paragraph (f)(2)(ii) of this AD, remove the limitations required by paragraph (f)(1) of this AD and AD 2008-06-28 R1. Except for the actions of paragraph (f)(5) of this AD, no further action is required by this AD.</p>	<p>Within the next 15 days after April 3, 2009 (the effective date of this AD).</p>	<p>Follow Avidyne Service Bulletin No. 601-00006-096, Revision 1, dated July 14, 2008.</p>
<p>(4) If the PFD does not pass the test required in paragraph (f)(2)(ii) of this AD, do the following:</p> <p>(i) Remove the PFD, install a PFD that has passed the air data system performance verification test, has been factory modified (PFD bears a label marked “Deviation 08-19A” on the exterior of the PFD near the TSO label or a “MOD 52” marking), or is not one of the affected serial number PFDs;</p> <p>(ii) Remove the limitations required by paragraph (f)(1) of this AD and AD 2008-06-28 R1; and</p> <p>(iii) Except for the actions of paragraph (f)(5) of this AD, no further action is required by this AD.</p>	<p>Within the next 15 days after April 3, 2009 (the effective date of this AD).</p>	<p>Follow Avidyne Service Bulletin No. 601-00006-096, Revision 1, dated July 14, 2008.</p>
<p>(5) Do not install any PFD (P/Ns 700-00006-000, 700-00006-001, 700-00006-002, 700-00006-003, or 700-00006-100) with any affected serial number listed in Avidyne Service Bulletin No. 601-00006-096, Revision 1, dated July 14, 2008, unless it has passed the air data system performance verification test or has been factory modified (PFD bears a label marked “Deviation 08-19A” on the exterior of the PFD near the TSO label or a “MOD 52” marking).</p>	<p>As of April 3, 2009 (the effective date of this AD).</p>	<p>Not applicable.</p>

**Alternative Methods of Compliance (AMOCs)**

(g) The Manager, Boston Aircraft Certification Office, 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: Solomon Hecht, Aerospace Engineer, ANE-150, Boston Aircraft Certification Office, 12 New England Executive Park, Burlington, Massachusetts 01803, telephone: (781) 238-7159, fax: (781) 238-7170. 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.

(h) AMOCs approved for AD 2008-06-28 R1 are approved for this AD.

### **Material Incorporated by Reference**

(i) You must use Avidyne Service Bulletin No. 601-00006-096, Revision 1, dated July 14, 2008, to do the actions required by this AD, unless the AD specifies otherwise.

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

(2) For service information identified in this AD, contact Avidyne Corporation, 55 Old Bedford Road, Lincoln, MA 01773; telephone: (781) 402-7400; fax: (781) 402-7599; E-mail: techsupport@avidyne.com; Internet: <http://www.avidyne.com/>.

(3) You may review copies of the service information incorporated by reference for this AD at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the Central Region, call (816) 329-3768.

(4) You may also review copies of the service information incorporated by reference for this AD 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

### **Appendix to Airworthiness Directive 2009-05-05 Limitations Regarding Avidyne Primary Flight Displays (PFDs)**

Before conducting flight operations, pilots must review and be familiar with the Crosscheck Monitor section of the Avidyne Primary Flight Display Pilot's Guide and all limitations contained in the aircraft operating handbook.

As a normal practice, all pilots should be vigilant in conducting proper preflight and in-flight checks of instrument accuracy, including:

- Preflight check of the accuracy of both the primary and backup altimeter against known airfield elevation and against each other.
- Verification of airspeed indications consistent with prevailing conditions at startup, during taxi, and prior to takeoff.
- "Airspeed alive" check and reasonable indications during takeoff roll.
- Maintenance of current altimeter setting in both primary and backup altimeters.
- Cross-check of primary and backup altimeters at each change of altimeter setting and prior to entering instrument meteorological conditions (IMC).
- Cross-check of primary and backup altimeters and validation against other available data, such as glideslope intercept altitude, prior to conducting any instrument approach.
- Periodic cross-checks of primary and backup airspeed indicators, preferably in combination with altimeter cross-checks.

For flight operations under instrument flight rules (IFR) or in conditions in which visual reference to the horizon cannot be reliably maintained (that is IMC, night operations, flight operations over water, in haze or smoke) and the pilot has reasons to suspect that any source (PFD or back-up instruments) of attitude, airspeed, or altitude is not functioning properly, flight under IFR or in these conditions must not be initiated (when condition is determined on the ground) and further flight under IFR or in these conditions is prohibited until equipment is serviced and functioning properly.

Operation of aircraft not equipped with operating backup (or standby) attitude, altimeter, and airspeed indicators that are located where they are readily visible to the pilot is prohibited.

Pilots must frequently scan and crosscheck flight instruments to make sure the information depicted on the PFD correlates and agrees with the information depicted on the backup instruments.

Issued in Kansas City, Missouri, on February 19, 2009.

John Colomy,  
Acting Manager, Small Airplane Directorate,  
Aircraft Certification Service.