



SA-05-001
17 October 2005

SERVICE ALERT

Avidyne Primary Flight Display

{P/Ns: 700-00006-000,-001,-002,-003,-100}

This **SERVICE ALERT** communicates important safety information concerning aircraft with Avidyne Primary Flight Displays (PFD) installed while flying in instrument meteorological conditions (IMC) or in conditions in which visual reference to the horizon cannot be reliably maintained.

BACKGROUND INFORMATION

Avidyne has received a limited number of field reports of PFDs displaying incorrect attitude and heading information. These occurrences were accompanied by a “CROSSCHECK ATTITUDE” alert annunciation displayed approximately 45 seconds after initiation of this condition. During these occurrences, altitude and airspeed indications on the PFD and attitude, airspeed and altimeter back-up instruments were unaffected. None of these occurrences led to an accident or incident.

While these field occurrences have been infrequent, no new operating procedures are required beyond those provided in the associated aircraft and equipment operating manuals. Backup systems and equipment, coupled with frequent instrument cross checking procedures accommodate these occurrences.

The following observations may accompany a Primary Flight Display whose attitude reference system is not functioning properly:

- PFD indicates a roll attitude that does not reflect the aircraft attitude to within a few degrees
- Progressively increasing roll angle display (in either direction and at any rate) without a corresponding change in aircraft attitude
- Display of the “CROSSCHECK ATTITUDE” alert annunciation on the PFD.
- Display of a small oscillation in heading on the PFD horizontal situational indicator (HSI) in coordination with the roll attitude excursion, with corresponding heading change depictions on aircraft map and navigation displays (including Avidyne EX5000 MFD and Garmin GNS430)
- HSI heading changes inconsistent with magnetic compass indications. Note that the autopilot will track to possible inaccurate HSI headings while in heading hold (HDG) mode.
- Repeated failure of the PFD to align during initialization, not attributable to aircraft motion or location.

Airspeed and altitude indications on the PFD and back-up attitude, airspeed, altimeter instruments are unaffected. STec 55X autopilot GPS steering (GPSS) mode and vertical modes are unaffected and remain valid.

Avidyne has notified the FAA and its OEMs about these events, and Avidyne's technical investigation is ongoing. This issue is considered to affect all Avidyne Primary Flight Displays. **Retain this Service Alert in the Primary Flight Display Pilot's Guide which is to be in the aircraft.**

SAFETY WARNINGS

BEFORE CONDUCTING FLIGHT OPERATIONS PILOTS MUST REVIEW AND FAMILIARIZE THEMSELVES WITH THE CROSS-CHECK MONITOR SECTION OF THE AVIDYNE PRIMARY FLIGHT DISPLAY PILOT'S GUIDE AND ALL LIMITATIONS CONTAINED IN THEIR AIRCRAFT OPERATING HANDBOOK.

FOR FLIGHT OPERATIONS IN INSTRUMENT METEOROLOGICAL CONDITIONS (IMC) OR IN OTHER CONDITIONS IN WHICH VISUAL REFERENCE TO THE HORIZON CANNOT BE RELIABLY MAINTAINED (E.G., NIGHT OPERATIONS, FLIGHT OPERATIONS OVER WATER, IN HAZE OR SMOKE, ETC.):

- FULL OR PARTIAL FAILURE OF THE PFD CAN LEAD TO SPATIAL DISORIENTATION OF THE PILOT AND SUBSEQUENT LOSS OF AIRCRAFT CONTROL. THIS COULD RESULT IN AN ACCIDENT CAUSING DEATH, SERIOUS BODILY INJURY, OR PROPERTY DAMAGE.
- WHERE THE PILOT HAS REASONS TO SUSPECT THAT ANY SOURCE (PFD OR BACK-UP INSTRUMENTS) OF ATTITUDE, AIRSPEED OR ALTITUDE IS NOT FUNCTIONING PROPERLY, FLIGHT IN THESE CONDITIONS SHOULD BE DISCONTINUED UNTIL EQUIPMENT IS SERVICED AND FUNCTIONING PROPERLY.

IMC operations of aircraft, not equipped with an operating back-up, or standby, attitude indicator, located where it is readily visible to the pilot, are not recommended and may violate limitations contained in the aircraft operating handbook.

Pilots should frequently scan and cross-check flight instruments. Make sure the information depicted on the PFD correlates and agrees with the information depicted on your back-up, or standby attitude indicator, and other instruments.

Exercise basic airmanship and practice partial panel flight operations. If you are not comfortable or current flying partial panel, avoid flight in IMC and marginal VFR conditions.

Electronic copies of the Primary Flight Display Pilot's Guide are available on the Avidyne website at <http://www.avidyne.com/techpubs.shtm>.

SERVICE ACTIONS

At this time, no specific service actions have been identified for units that have not exhibited the behaviors described in this Service Alert. If a PFD and associated aircraft systems exhibit the behavior described herein, this PFD may be functioning improperly and **MUST** be returned to Avidyne for servicing prior to further flights in IMC conditions.