

# Xavion PFD PIREP

by Peter Cassidy

Steve Johnson and Shelby Smith got me interested in Xavion, the \$100 X-Plane-base Primary Flight Display (PFD) app for the iPhone. It uses the iPhone's internal motion sensors to give you a pretty good artificial horizon as well as the location of the nearest runway. It can also use an external AHRS for better attitude performance. Here's my observations after using it for a couple of months.

The first issue was what to use to display Xavion? The larger display of the iPad is attractive, but I use that for my EFB app, ForeFlight. Also, Xavion needs to be running during the entire flight so shared use is not an option. Getting a second iPad is out of the question. It would be too big for the space I have available. The iPhone turns out to be the best option, if not a bit on the small size.

Where to locate my iPhone on the panel? If you use the internal iPhone or iPad motion sensors, it must be mounted to the airframe, yoke mounts won't work. With an external AHRS like \$795 AHRS-G from Levil, a yoke mount would be ok. More on this later. For the iPhone size, I found a couple of workable locations. The best being over my ADF indicator. In 12 years I have never used the ADF so covering it won't cause a problem. RAM [www.rammount.com](http://www.rammount.com) makes a nice iPhone mount assembly (RAP-B-166-2-UN7U) for \$52 including shipping. Three things are important about this mount. It will hold the iPhone even if it is in a case, it is quick to install and remove the iPhone, and the suction cup mount is 2.75" in diameter, exactly the size of the glass of an ADF indicator. RAM has another suction cup mount that is 3.25" in diameter. That's too big for my AFD indicator, but would work elsewhere on my instrument panel.



This setup needs external power. When Xavion is running, the iPhone is always on so the battery will not last long. I've added another USB supply to take care of that.

Glare and display brightness are problems when the sun is coming in the pilot side window. Otherwise it's adequate. With indirect or less than full bright sun conditions, the display is OK. Text, however, is hard to read at this distance on the iPhone size screen. A display about 50% larger or iPad Mini-size screen would be nice but as a backup, I have to live with the iPhone.

Once you get familiar with Xavion's operation, using it in flight it straight forward. The internal GPS and motion sensors work surprisingly well. In an emergency, they'll get you on the ground. Using internal sensors, on each flight, you have to set level flight. The best way to do this is early in the flight when you are in level flight. You can avoid this and get much better motion detection by using an external AHRS like the Levil unit. I'm not excited about the Levil because it's expensive and must be precisely placed in the aircraft.

Can Xavion supplement normal flight and approaches with Synthetic vision and do I really need it? In my aircraft I have a backup alternator and backup



vacuum pump. Even if I have a vacuum failure and lose my artificial horizon and autopilot, I still have good backup capabilities with my panel mounted GPS and primary instruments. The unique capability of Xavion that is very attractive is guidance to the nearest airport in an emergency. This would take a big load off the pilot. Since I already have the iPhone and it does not take up important real estate on the panel, Xavion could be a useful addition to the cockpit. Is it worth an additional \$795 to get the Levil AHRS? A better solution for me would be Appareo's new Stratus 2 ADS-B receiver for \$899 which also includes an AHRS. It won't work with Xavion, but does come with an iPhone app that is a mini PFD. Positioning the Stratus 2 is not as critical as the Levil. The fact that the Levil includes an ADS-B receiver is no benefit to me as ForeFlight only works with Stratus.

Overall, I'm not particularly happy with the Xavion. In the process of this work, I found a better use for my iPhone in flight. I'm using it to display ADS-B weather while my iPad displays XM weather. It served me well on a recent flight to Toronto when XM stopped updating for about a half hour just as we were maneuvering around some weather.

This field is developing rapidly. We can expect new entrants into the market and for the current products to evolve. If you have concerns about Xavion or similar offerings, wait awhile.

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