

# AOPA PILOT

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**On display**

The cure for mapless GPS receivers.

# Aspen Avionics AT300

Lots of information in a little space

**BY ALTON K. MARSH**

**Y**our old GPS receiver gives only textual information and you long for a moving map. Is that you? Aspen Avionics has an alternative to buying a new GPS receiver with a moving map, or adding a \$6,000 to \$10,000 multifunction display. For \$3,995 this Albuquerque company can replace your vertical speed indicator with its AT300, a 2.5-inch high-resolution color moving map that takes its data from any existing panel-mount GPS, no matter how old it might be.

Or maybe your present unit has a moving map but you are tired of switching away from the situational awareness it provides to watch a traffic awareness page. The AT300 also can be used as a backup to an existing moving map yet adds information your present unit does not have. That way other pages of the main unit can be viewed while continuing to monitor your whereabouts on the AT300.

## **Packed with features**

Either way, the AT300 packs a huge amount of easily viewed information into a tiny space. The FAA-certified AT300, which began sales on the Experimental market but is now sold only as a certified unit, displays information both graphically and in text form. There is a color-coded “hazard awareness” display on the map that identifies known obstacles and terrain, and colors them red if they are a factor for your flight.

You’re not giving up a vertical speed indicator. A ribbon indicator like those found in glass cockpits occupies the left side of the screen, running from 2,000 feet per minute down to 2,000 feet per minute up. But there’s a text version of that information, too. The lower left corner of the screen shows a numerical readout; “+ 2,” for example,



The AT300 occupies space once used by the vertical speed indicator in this Piper Lance owned by Dick Russ. Compared to the photo on the opening page, the top rectangle has been replaced using the single control switch with a side terrain profile. Green is safe terrain, yellow suggests caution, and red indicates a collision threat. Switched to GPS data, the same rectangle displays destination, distance to go, desired track, ground speed, and time remaining. The bottom left figure indicates a climb of 1,600 fpm, also shown by the white band on the left side of the instrument. The bottom right figure of 1,400 feet agl is duplicated by the brown ribbon on the left, which has risen 400 feet from the bottom of the 2,000-foot scale (which runs from the bottom of the scale to the center or zero symbol). Numbers above the terrain map show barometric pressure, current heading, and the range of the current display.



means you're climbing at 200 feet per minute.

But it gets better. From 2,000 feet agl on down, during a descent, a brown ribbon representing the good Earth starts a climb from the bottom as though the Earth is coming up to meet you. When it reaches "0"—the center of the vertical speed indicator—you're on the ground. For this information, too, there is a number in the lower-right corner of the screen; "019," for example, means you are 1,900 feet above ground level.

All of the features are reached using only one button. Punch the button and

it becomes a cursor. With each punch, it moves from the altimeter setting you must enter manually to the text box across the top of the screen, then to the viewing scale of the map that can be set from 5 nm to 100 nm. The large text box across the top contains your destination, the distance to that destination, the required heading to get there, your present groundspeed, and the estimated time to reach the destination. Immediately below the required heading is another box with your present ground track. It is always on.

The map itself displays airports, terrain, towers, and obstacles—exactly the information you need to avoid a

category of accident known as "controlled flight into terrain." There is the usual airplane icon following a pink line—your course—as seen on most displays. An entire route can be displayed from the flight plan entered in the main GPS receiver, and the AT300 will indicate whether you are left or right of the desired track.

### Height above terrain

It's the height above the ground that caught Dick Russ' fancy. He owns Aircraft Door Seals based in Bethany, Oklahoma, a suburb of Oklahoma City, and provided the seals for the AOPA sweepstakes Piper Cherokee Six (see "AOPA's Win a Six in '06 Sweepstakes: A Six to Go," page 74). His award-winning

fully restored Piper Lance is used by Aspen Avionics as a demonstrator for the AT300.

“That’s similar to having a radar altimeter,” said Russ, who has flown heavy aircraft and appreciates knowing his height above terrain. “It’s extremely accurate.” The AT300 is tied in to the aircraft’s pitot static system and allows pilots to enter the correct altimeter setting. It could have been a backup altimeter were it not for certification issues involving proper altimeter markings and other requirements. The unit instead offers a height-above-ground-level “advisory” in rounded-off hundreds of feet—and such a feature does not need altimeter certification. The tower feature on the map is especially valuable when flying near Oklahoma City, where there are whole farms of antennas ranging up to 1,600 feet.

Russ, a former Rockwell test pilot on the Sabreliner and Twin Commander and a senior engineer for the space shuttle *Enterprise*, does the flying using the AT300 while his wife, LaNeal, monitors the traffic display on the Garmin GNS 430.

### **Read the owner’s manual**

During a test flight from Wiley Post Airport in Oklahoma City, it was obvious the display is easily readable in daylight. It is not viewable from the side and the copilot must lean toward the pilot to read the information. During the photo session for this story, while on the ground the photographer inadvertently enabled another feature, a side view of the terrain, one that Russ had never used (given that Oklahoma’s terrain is flat). We didn’t figure out how to turn it off until airborne,

so even with the one-button capability described above, getting the full use of your electronics still requires reading the owner’s manual.

Aspen Avionics is a new company and has been shipping the certified AT300 since early 2006. Russ has the fourth certified unit delivered. Many more have been sold on the Experimental market. Company officials estimated that installation can range from \$250 to \$600 depending on the aircraft and labor costs. It uses an internal airport-terrain-obstacle database that is field updatable. It can operate on electrical systems ranging from 12 to 32 volts and weighs one pound. For more information, visit the Web site ([www.aspenavionics.com](http://www.aspenavionics.com)).

**AOPA**

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