burn log after topping off all the tanks. The log's math is then verified before flights by using a calibrated dipstick. However, reality tends to step in and calibrated dipsticks go missing or a tank is not easily measured and the pilot resorts to eyeballing the amount of fuel on board. Moreover, math and engine operation errors introduce unknown and compounding inaccuracies into the fuel burn log's neat columns of numbers.

The Big, Red Knob

Improper leaning, or simple failure to lean is usually the culprit that compounds errors in the amount of fuel believed to be onboard. These errors are often caused by a pilot's misconception of how to use the red mixture knob. A little optimism in the quantity of fuel on board and failure to lean, or improper leaning during some of the level flight and descent portions of the flight would easily explain why the engines were starved of fuel.

The pilot of this Baron was certainly qualified. Perhaps his familiarity with the aircraft created complacency in either fuel burn management or his method of calculating the amount of fuel on board. After all, this was going to be short flight.

It's not about being paranoid, but a healthy dose of planning and verification is always in order whenever we fly. Evaluating fuel quantity via the gauges and eyeballs through the tank opening is risky business. Running out of fuel, especially on a flight which is well within the endurance limits of the aircraft, is always an avoidable "accident". Further, launching into IMC with only a belief of the time which is left in the tanks, well that is simply a game of Russian roulette.

Armand Vilches is a commercial pilot, instructor and FAASTeam member who lives in Brentwood, TN. He brings an extensive background in risk management and insurance to aviation and flight instruction.

MY G1000 WISH LIST

We're big fans of the Garmin G1000 system. It's well established, reliable and, in many ways, the standard for glass panels. . . but sometimes we wish. . .

by Fred Simonds

The Garmin G1000 has proven immensely popular and effective as thousands of pilots have come to rely on it day in and day out. Which, of course, means that it is time for users such as I, to start talking about how it might be made even better.

Inserting Minimums

When loading an approach, you get down to a line where it asks you for minimums. This interrupts your flow while you look up the number.

The G1000 should offer you straight-in or circling minimums for the approach and category of aircraft you are flying. Almost all of us are flying Category A speeds anyway, so why not make that the default? If you are flying B, C or D, those choices could be set in the AUX page group.

Holding Calculator

As far as I know, the Garmin GNS-480 is the only GPS with a holding calculator for unpublished holds. You simply hit "Direct-to the fix" where you want to hold. Then the GNS-480 asks you for the inbound course, outbound leg length or leg time inbound and whether you want right or left turns. Presto, the machine tells you the proper entry and will even fly it for you if equipped.

The G1000 already has an internal holding calculator. It would be easy to add the ability to enter your own parameters. I also wish the G1000 could fly published en route holds in those units with the airways database.

Choice in Default Approach

When you hit PROC, the G1000 brings up the nearest airport regardless of whether it has an instrument approach (Figure 1). This is contradictory, as when you press PROC you expect to see a procedure. There is no use showing you airport 51K in Olathe, KS which has no instrument approaches. Let the default choice be the nearest airport with an IAP. That's where I would want to go if it were IMC and I needed to land.

Where are the LPs?

I recently flew to Peter O. Knight airport in Tampa, FL. It has one of the newest kind of GPS approaches, an LP, the equivalent of a localizer-only approach, in this case the RNAV GPS 36. However, the G1000 did not offer the LP, only the LNAV+V. I looked up several other locations where the FAA has announced LP approaches and again did not find them in the database even though they are published.

Warning When Data Link Fails

Data link failures are insidious because they give no overt warning. When the data link fails, there will be no NEXRAD, no airport weather and, most particularly, no TFR warnings or mapping of TFR boundaries.

I was flying past the Lakeland, FL Airport when it was hosting the Sun 'n-Fun fly-in and air show. There was a TFR around the airport.

For a time it showed clearly on the G1000. Suddenly it disappeared. I thought that strange since the TFR

IFRR_1207.indd 8 6/1/2012 8:29:27 AM

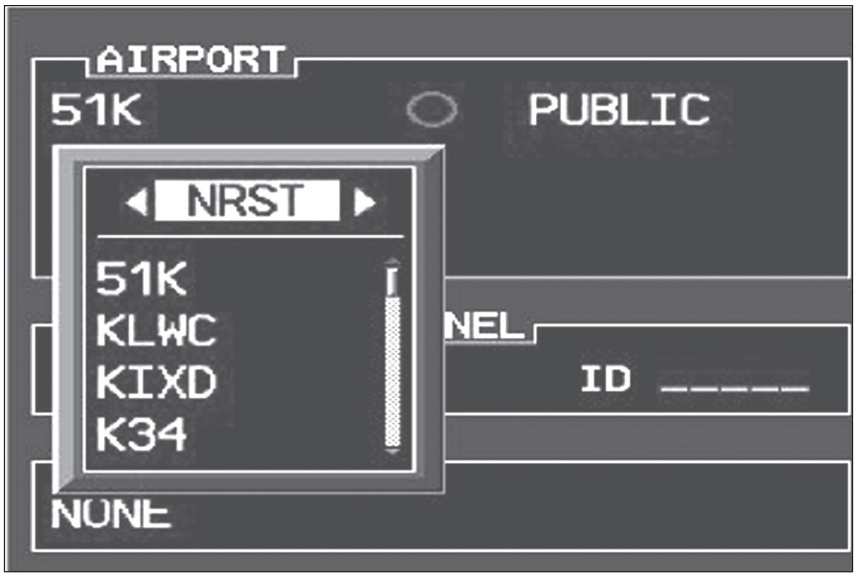


Figure 1. Hitting PROC brings up the nearest airports regardless of whether they have an Instrument Approach PROCedure.

was still in effect. I tried to bring up the weather for a large, nearby airport. No METAR, no TAF, nothing. There was no NEXRAD weather showing. Finally, I went to the AUX – XM Information page and found the Data and Audio Signal Strength showing "Check Antenna."

There was no red X on the Systems page because the GDL data link unit itself had not failed. It was an antenna/cable issue. Even so, it seems to me that the G1000 should report loss of signal. You don't need much imagination to envision how you could fly into weather or bust a TFR and never know it, and not have the FAA believe your story when called on the carpet.

A Common Mistake

Many G1000 pilots think they must insert a destination airport in order to pull up an approach. It is not necessary. You can hit PROC and enter any airport you like. Sometimes the PROC page opens with a drop-down menu for transition type in the middle of the page instead of opening at the top.

When that happens, you must hit "Clear" briefly, for less than two seconds, or else the MFD will take you back to the main map page. The PROC function should open at the top of the page.

Awkward Flight Plan

The good news is that when you specify a destination airport, you can select a procedure for that airport. The bad news is that the G1000 takes you literally. It will take you to the airport and then to the initial approach fix, resulting in the mess shown in Figures 2 and 2A which takes you to the Stuart, FL Airport regardless of the fact that IVETY was chosen as the initial approach fix for the GPS 12 approach to Stuart.

The display of the GPS 12 approach is further complicated by the G1000's insistence on showing the direct path to the airport from IVETY which is unnecessary and, in my opinion, creates a flight risk if someone flies it by mistake instead of going to PETNE (Figures 2 and 2A).

I think the G1000 should automatically delete the airport from the flight plan once an IAP and IAF are chosen from the PROCedure page.

IFR REFRESHER
READER SERVICES:

FOR BACK ISSUES, ARTICLES:
Phone us at:
(203) 857-3143
Fax us at:
(203) 857-3103

FOR QUESTIONS ABOUT YOUR SUBSCRIPTION:
Please call (800) 829-9156
or mail us at
IFR REFRESHER
P.O. BOX 8535
BIG SANDY, TX 75755-8535

TO CHANGE YOUR ADDRESS:
Attach your present mailing label to this form (or a copy of this form), enter your new address below and mail to:
IFR REFRESHER
P.O. BOX 8535
BIG SANDY, TX 75755-8535

Name_____
Company_____
Address_____
Address 2_____
City_____
State_____ ZIP_____
E-mail_____

TO ORDER OR RENEW A SUBSCRIPTION:
Enter your name and address above and check the subscription term that you prefer:

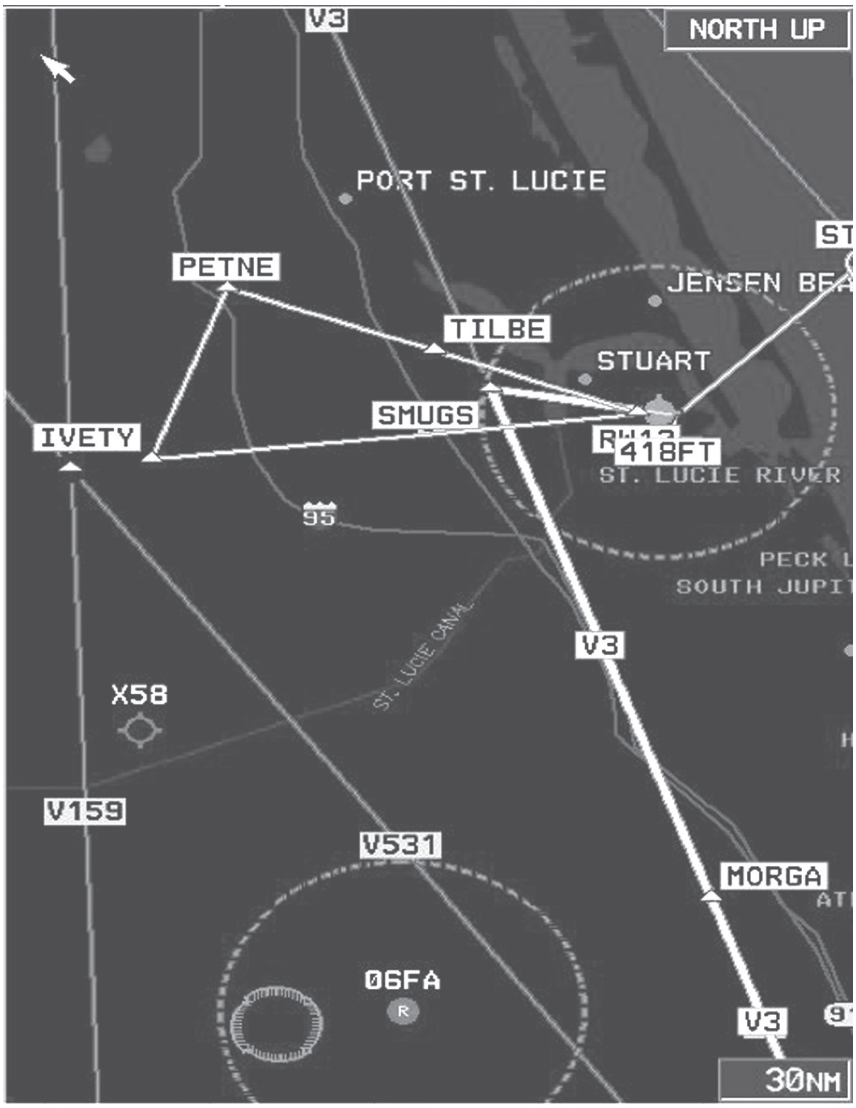
☐ 1 year (12 issues) $59
☐ 6 months (6 issues) $30

For all other countries:
1 year, US $69; 6 months, US $35

☐ Check enclosed ☐ AMEX
☐ MasterCard ☐ VISA

Card #_____
Expiration Date_____
Signature_____

IFRR_1207.indd 9 6/1/2012 8:29:28 AM



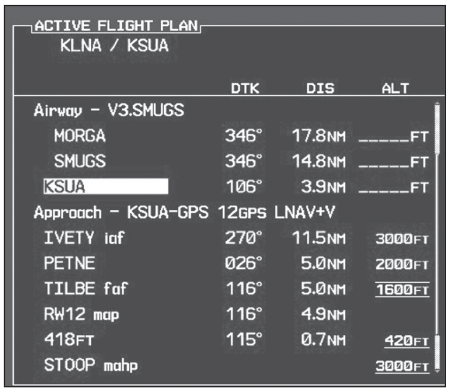


Figure 2 (left) and 2A (above) show that for the GPS 12 approach to Stuart, FL, the G1000 will take you to the airport first, then to the IVETY initial approach fix.

Nits

I think it would be an improvement to have a waypoint map underneath the HSI compass rose as in Aspen and Avidyne Entegra systems. This is very handy because one look gives you instant situational awareness.

Sometimes the Flight Director command bars go haywire for unexplained reasons. The only way to get it straight is to turn the FD off and on again.

The G1000 should exit Go Around mode automatically. The only way I know how to do this without engaging the autopilot is to turn off the flight director. If you don't do one or the other, the G1000 will stay in GA mode forever.

A lesser-known but handy feature that can save a lot of knob-twisting is to turn the small knob left when seeking an airport or waypoint as in Figure 2. You get one shot at this. If you turn the small knob right then you commit yourself to doing it the hard way.

Cursor On - Aw Nuts

With the cursor on, you cannot navigate away from a page because the outer FMS knob is being used for cursor control instead of chapter selection. This causes much frustration and is characteristic of the GNS430/530 as well. There should be a separate knob.

If you select a page within the Map, Waypoint, Aux or Nearest chapter below the first page, the G1000 returns you to that page when you return to that chapter. It does not reset itself to the top page, which is what I would expect. I want to start every chapter at the top.

The G1000 remains unable to intercept a ground track between fixes. It is designed to fly from fix to fix.

There seems to be too many empty softkey buttons, which forces reliance on the Menu, thus requiring additional keystrokes.

The AUX Manual page makes no allowance for wind. You must calculate groundspeed by other means and plug it in. I would like to see Garmin add a groundspeed calculator to make the function self-sufficient.

All told, in my opinion, the G1000 is one of the finest EFIS available. Just a few cleanups would make it that much better. What do you think?

Fred Simonds is a Gold Seal CFII, check airman and factory-certified G1000 instructor. Contact him at fred@fredonflying.com.

IFRR_1207.indd 10 6/1/2012 8:29:28 AM