During my time as an International Pilot Training Centre instructor, we made it a habit to check navaids prior to every instrument flight. It did not matter if we were flying in VMC or in IMC, all of the navaids were checked. We didn’t just comply with the 30 day VOR check requirement either. Every navaid was tuned, identified, twisted and checked for proper operations. Now that I am back flying with students in our FAA program, I have noticed that most pilots rarely check any of the navaids. Only about half of the students that I have flown with, even bother checking to see if the VOR was checked within 30 days. The most critical time for proper navaid operation is when you can’t see outside. Now your life hangs in the balance of whether or not that navaid will work correctly.

A couple of weeks ago I had the opportunity to fly in IMC on a 86 EoC check. One of my favorite questions to ask pilots is whether the VOR is in date (referring to the VOR 30 day check). The pilot actually did check it; it was in date. Now we are ready to fly into cloud. But were we really ready? The first approach was the GPS-A into Three Rivers (KHAI). Although the student had loaded and activated the approach on the ground, including direct to the IAF (AZO VOR), the student elected to proceed direct to the initial using the VOR system. Although it is legal to do this, why did the student waste $14.75 on the ground setting up the approach when it could have been setup in the air? Anyway, once over the VOR, the student used the GPS for the holding pattern reversal. GPS was set to OBS mode and the inbound course was twisted. So far so good. ATC made us stay in the hold so that inbound traffic to runway 35 could get out of our way. This resulted in three circuits in the hold. Each time the student turned inbound, ATC asked us if we were outbound in the hold. Any time ATC asks you multiple times about your position (remember they do have radar), then something must be wrong. You either have a forgetful controller or you are not where you think you are. When we turned inbound the second time, I thought that we should have been west of the course line, but the GPS indication (read on the VOR head) indicated that we were east of the course line. Nothing made sense until I compared the VOR head OBS setting with the GPS OBS readout. The two were over 90° apart. What should have been a hold north of the VOR, turned into a hold on the west side. We ended up 5nm west of the VOR. ATC had no idea what we were doing, but they didn’t tell us we were off course either.

Since we had a navaid failure, the exam was terminated and an uneventful VOR approach was completed into Battle Creek. What went wrong? We trusted our lives to a ‘black box’ and it was wrong. When a GPS unit is swapped out of an airplane for repair, the replacement has to be calibrated. Maintenance did not calibrate the new unit with the airplanes OBS sensor. Had we bothered to check the GPS self-test page, we could have compared the external indicator (VOR head) with the GPS readout. How many of us actually check this? Everyone has been taught to push OK three times. Time to slow down. Check the GPS and the external indicator during the GPS self-test mode. While you are at it, check the other navaids as well. Here is how you do it:

VOR—Select, Ident, Twist (center the needle TO the station). Compare the position of the aircraft and VOR on the field with the OBS readout.

NDB—Select, Ident. The needle should point to the station. NDB signals are not line of sight, so any station will work.

ILS—Select, Ident, Twist (twist through 360°). The needle should be displaced to one side and not affected by twisting the OBS. Glide slope will be full scale above you (if you get a signal).

Remember, you are trusting your life to these navaids. Make sure that they work.
THE BACK SIDE

Plogs

Since we are talking about GPS, it is time to consider the use of a plog for cross country flying. In our new Cirrus aircraft, a paperless concept was used. Everything that a pilot needs for flying is on an LCD screen. Is this the concept that we want to employ here at WMU? In order to answer this, we need to understand the concept of the planning log.

First of all, preflight planning is required by the FARs. The FARs are focused on fuel requirements for a given flight. Some type of planning occurs where the pilot plots a course, uses wind information from the weather brief, determines the en route time and calculates required mission fuel. There are other practical uses of the navigation log. Having one will save you money on an exam flight (see week 22). The plog will help you to not get lost. Planning your flight and using a log will allow you to get to know the course, fixes and pertinent landmarks ahead of time. Keeping the plog updated in flight will also allow you know the planned arrival time at your destination. And finally, using the plog is required on the checkride. The applicant is expected to record the differences between preflight calculations and inflight actual conditions.

The basis for using a plog is rooted in our past. I know that the past did not have any fancy GPS or FMS or MOUSE for that matter, but the rationale for plogs does not change with the advent of new technology. The pilot still needs to know what heading to fly, how long it will take to get somewhere, and how much fuel is required to get their. All of this needs to occur before even entering the airplane and programming the GPS.

Do experienced pilots use plogs? The answer to this is maybe. When I was flown to Duluth last October for initial Cirrus training, the PIC used a plog. I flew back with an experienced Cirrus training pilot and he did not use one. When I flew to Duluth and back in February, I used a plog and kept track of my times at each fix. On my last trip in April, the PIC did not use one.

You make the call. GPS is a wonderful technology and will ease the workload in the cockpit. Decision making will improve greatly with PFDs and MFDs giving us updated information continuously. Overall pilots will be safer in the Cirrus. What troubles me about the new technology is losing important pilotage and ded-reckoning skills. When the new technology fails in flight, will you be able to revert back to basic techniques? Knowing how to use the old techniques and technology allowed me to recognize a problem with the GPS hold (page 1). The student never knew that there was a problem. Embrace the new technology, but hang on to the skills of yesterday. You will need them in the future.

Quiz Time

Today’s question will cover the GPS self-test that so many pilots skip.

What four things should the pilot verify prior to programming the GPS before the flight?

See Dominic for the answer.