When making a purchase decision about your avionics, have you considered the training? No matter what the brochures say about how easy it is to use, you still need to learn the controls and what the displays are attempting to tell you. Gaining the skill to operate that new piece of avionics is not just something that happens by circumstance, it takes a conscious effort to either learn the avionics on your own or solicit help from an expert. And it’s not easy. It’s also not cheap. Good training material or time with a competent flight instructor cost money, but the reward allows you to gain the most out of your new avionics investment.

Avionics usually come with a manual, but aircraft on the used market often lack those important tomes of avionics knowledge. Those manuals can also seem pretty intimidating, often exceeding the weight of the entire airplane flight manual. More often than not, these manuals are written by the engineers who designed the equipment. These engineers, who are no doubt very competent when it comes to designing circuits, are just not trained to teach. It takes a certain separation between
designer and trainer to create a
good training manual.

The avionics industry has
enjoyed phenomenal growth in
the past few decades, but why is
it that pilots are still struggling
with the proper training for these
advanced avionics? The level of
required training just hasn’t kept
up with the need. Many ASRS
(NASA) reports cite the problems
that pilots are having with their
avionics—busted altitudes, way-
point fumbles, missed radio calls
to just name a few. All this
because the pilot wasn’t properly
or sufficiently trained.

There have been a few studies
on the problem over the past few
years and the results are not sur-
prising. Pilots are not using their
avionics to anywhere near their
full capability. The results vary
slightly, but pilots are generally
using their avionics to about 15
to 25 percent of the unit capabili-
ty. So, in essence, a pilot is only
receiving a 25 percent return on
the investment —about a $4,000
return from a panel mount GPS
that costs over $15,000 to install.
The rest is thrown away.

Why do you need training?
Just as with any new skill, you
need to learn the theory behind
why something does what it
does. And operating a new piece
of avionics is a skill that must be
learned. This can be done in
many ways. Self-taught with the
paper manual, check flights with
a knowledgeable trainer or vari-
ous multi-media courses offered
on the market. The goal is to
know the equipment to its fullest
potential. This reduces the
heads-down time required to
actually operate the unit and
allows more time for more impor-
tant piloting duties. You should
know it so well that the operation
becomes second nature when it
counts the most, under the high-
workload conditions of flight.

Avionics training is often
“included” in the post installation
check-out by the avionics shop
manager, but these quickie
checkouts usually leave the new
owner more confused than
before. Not because of the qualifi-
cations of the trainer, but it’s just
difficult for the pilot to absorb so
much information in such a short
time. Much like drinking from a
fire hose.

Take a GPS for example.
These new approach-approved
GPS receivers have more fea-
tures than most pilots will ever
use, yet a pilot must be com-
pletely familiar with the operation
before even attempting a prac-
tice approach in VFR conditions.
It usually takes at least 20 hours
of dedicated training to be com-
fortable with a new GPS.

A few training sources are
available, but developing courses
specifically for avionics has its
challenges. Mostly because a
course developer has a difficult
time keeping up with all the
changes and it takes part engi-
neer to even try to comprehend
what the avionics are attempting
to do.

But help is available. The few
training sources that are avail-
able must be sought-out and
enough time must be dedicated
to them to make a difference.
The first source of information is
the paper manual that accompa-
nies the unit. These definitely
provide the information, but when
the avionics manual is three
times as thick as the entire air-
plane flight manual, it gets pretty
daunting. Besides, operating a
piece of avionics is a dynamic

Continued on following page…
hour check flight to learn the new approach approved GPS is not nearly enough time to learn about flying an approach, even with a pilot who has previously used a GPS.

Weekend classroom courses are available in some areas, and many pilots feel more comfortable in this environment. The interaction from classmates and a live instructor offer the hangar flying stories and personal instruction that really contributes to the experience. Some people learn much better with the human interaction of an instructor-led classroom environment. Focused answers to pilot inquiries often provide a much more comprehensive learning environment, especially when the classroom is full of pilots with varying backgrounds. These classroom courses are a great opportunity, but unfortunately they’re not offered in enough areas to be effective.

Flight instructors are looked upon as a source for avionics training. The one-on-one instruction is tailored to the specific avionics in your aircraft, and those flight instructors are extremely helpful when learning the integration between multiple units. The instructors also provide the all important feedback so necessary when learning a new skill. Unfortunately, they have the same difficulty in learning the avionics as most pilots. The avionics change so often, and comprehensive training is so difficult to obtain, that instructors cannot always offer the necessary training. An instructor that works closely with an avionics shop has an advantage in that the shop keeps the instructor up on all the latest gear. Always ask your avionics shop if they work closely with a flight instructor.

Video courses are available for the more popular units, such as GPS, and provide a good overview of the more common tasks. But these are merely just a walk-through demonstration of the more popular features. They don’t offer any interactivity or feedback, but they may be the only training available.

Computer Based Training, or just CBT, is training provided on a personal computer to provide an interactive, structured and self-paced learning environment. CBT has the capability to play animations, 3-D graphics, or videos, thus allowing the course designer options in presenting information in the most efficient manner. Sometimes, trying to explain a concept or procedure with words and still pictures in a paper manual just leaves the pilot confused. The multimedia capability of CBT can explain the procedure with animated computer graphics or videos. Thus, the pilot gains the perspective from the view of the operator, instead of an abstract view of the component.

The CBT provides a focused lesson that is both timely and pertinent. For instance, if a pilot knows that the next flight may involve a GPS Arc approach, that specific topic can be reviewed the night before. The menu structure of CBT allows the pilot to review just that section and not waste any time searching for the answers.

The CBT program is constantly monitoring the pilot. For instance, if a question is missed, the program can provide instant feed-

back of the right or wrong answer. If the topic is important, multiple methods to convey that information are presented. So the pilot leaves the CBT with a thorough understanding of the material.

By nature, pilots enjoy, and need, the hands-on approach when learning about a new piece of equipment. They need to touch it and feel it before the training becomes real. Computer Based Training can only provide a picture or video of the real thing, limiting the pilot’s curiosity and comprehension of the material.

Fortunately, the delivery of a CBT course can be interrupted with periodic hands-on training under the watchful eye of an instructor or experienced pilot.

Training is very important, not only so you get the maximum amount of utility out of your new purchase, but so that trying to learn the new avionics on the fly doesn’t compromise safety. Your avionics shop manager may feel that the training is so important, that it’s included in your bill as part of the installation. As much as the avionics are promoted to be easy to use, the reality is that using these new features is not easy and requires a lot of effort to learn correctly. A good installation or check-out in new aircraft is not complete without proper and thorough avionics training.

The initial purchase of an avionics training course may seem expensive and not necessary, but viewed from the longevity and ability to gain 100 percent utility out of the installation, the long-term costs are much more reasonable. How much is it worth to eliminate six months or more of utter frustration?