

# What Role Should Avionics Play in Your Aircraft Purchasing Decision?

BY DALE SMITH

**C**ongratulations! You're finally going to achieve every pilot's dream: buying your own airplane. Choosing which model, type and year to buy is the fun part, so we won't interfere with those decisions.

However, when you start to get serious about a particular airplane, there are three major elements to consider when deciding if it's a "deal or no deal." And, for the sake of brevity, let's say all the airframes you are considering are in good shape — no massive corrosion or damage problems.

With that in mind, the big three elements needing careful consideration are the engine, avionics and cosmetics.

The engine is the most expensive item to upgrade. Not much to think about there. If it's mid-time, you probably can fly it for years. If it's run-out, there's nothing you can do but overhaul the engine.

The cosmetics — paint, interior and the like — are purely personal items. A flying "rat trap" probably will serve you just as well as the same airplane with a custom paint job and a new leather interior — you just might have to park on the far away side of the ramp.

What we're going to concentrate on is what role the aircraft's



current avionics should play in your final buy/don't-buy decision. To make that decision, use the same criteria you used to choose the type and model of airplane in the first place — you did make the decision based on a logical set of criteria, didn't you?

"The importance of the current avionics suite to the buying decision depends heavily on the type of airplane it is," said Barron Thomas, an aircraft dealer and president of Barron Thomas Aviation.

"If you are looking at a late-model, high-performance retractable, the avionics are a huge part of the decision process because the buyer is buying an airplane to deliver a certain degree of perfor-

mance, and the avionics need to complement that need," he said.

Thomas said the avionics need to support the mission for which the airplane was designed.

"When you are looking at an older 172, for example, the avionics are not that important to its capability," he said. "The guy is probably just buying a fun VFR airplane. So, hard IFR capabilities aren't important."

Balancing the aircraft's capabilities with those of the installed avionics is a good starting point. But be careful, too much capability can be worse, or at least more expensive, than too little capability.

"You can look at a lot of airplanes and the way they are

being equipped today — a lot of them are over-equipped for their capability,” said Russ Lougheed, a certified aircraft appraiser and manager of Bow Aviation.

“If you are putting a Garmin 430/530 stack in a Cessna 172, that is a little overkill considering you are really limited by the airplane itself,” he said.

However, if you plan to lease the airplane back to a flight school, the added cost of the more modern avionics can be made up through higher rental rates and increased usage.

“The other thing most people don’t consider is that all these new avionics require constant database upgrades to be useful,” Lougheed said. “That can cost you anywhere from \$500 to \$1,500 a year — or more — just in updates alone.

“Having Nexrad weather in the cockpit isn’t going to do you any good if the subscription isn’t up to date — and I see that all the time,” he said.

Thomas said the decision to buy a particular aircraft with particular avionics should be based on the pilot’s needs and the capabilities of the airplane.

“The more sophisticated the airplane, the more the avionics have to be in sync with that,” Thomas said.

The capability-to-performance equation does have its exceptions. For example, the avionics in a 2000 Mooney are not looked at the same way you would look at what’s in a 1975 Mooney. Yes, they are both high-performance airplanes, but their daily missions probably are far from the same.

“Any airplane that is 25 years or older is generally bought more for enjoyment and fun than a serious traveling machine,” Thomas said. “It’s not the day-in, day-out business traveler that has to go. The reliability of the airplane and the avionics are not there to do that. So, the installed equipment doesn’t have to be top of the line.”

### **One Pilot’s Ceiling is Another Pilot’s Floor**

Let’s say you have found two basically identical airplanes — engines and airframes are flip-a-coin close. The big differences are in the panels, and the prices reflect the differences. But both are within your budget.

One of the airplanes has a nice 10-year-old King stack, and the other has a 1-year-old Garmin stack. They both provide the same basic capabilities to fit your type of flying; so, which is the best value buy for you?

Let’s first look at airplane No. 1 with the King radios.

“If you’re looking at an older installation, you can safely say it’s about \$1,000 a box,” Lougheed said. “If the radios are newer, you can go to any of the used avionics websites and get an approximate value on what you have.”

However, even those numbers should be taken with a grain of salt. Sellers often put more value on the product than the buyer.

“Another thing people need to consider is the cost to maintain those avionics,” Lougheed said. “It’s one thing to buy an older airplane, but those older avionics are extremely expensive to maintain.”

Repairing older avionics, especially flight directors and autopilots, can run \$8,000 to more than \$10,000 — if you can find the parts.

Lougheed said buyers should decide if it is more economical to fix a particular item or buy new.

Perhaps you’re not worried about needing to make repairs to an airplane you’re considering buying because when you flew it everything worked perfectly. Maybe so, but electronics are born with gremlins in them.

A friend of mine just bought a Piper Lance, and when he and his mechanic flew it a few times everything worked fine — until the day it was delivered to his home airport. On his first flight as the new owner, the OEM autopilot decided to retire — permanently.

Now, let’s look at airplane No. 2. Those Garmin radios sure are sweet, but they do come with a cost. So, the \$10,000 question is, just how much are they really worth?

“When I appraise an airplane, the avionics are probably going to be worth 40 percent of what they cost new, including installation,” Lougheed said. “That’s a big hit.”

According to Thomas, the avionics depreciate approximately 50 percent the first year, then a bit more each year after that.

“The cheapest radios you will ever buy are the radios that are already installed in that panel because they have already taken the big depreciation,” Thomas said. “The work is already done, and so, from a cost, time and trouble standpoint, if you need a

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serious IFR panel you are generally better off to buy an airplane that already has it installed.”

Lougheed also said a buyer might be better off finding an airplane with the avionics he or she wants already installed.

“But what you will find is, the guy selling it will want to get full value of what it cost him to put them in. That just doesn’t happen,” Lougheed said. “As a buyer, you have to educate yourself. Do your due diligence and see what you really need from the airplane and avionics.

“Pay too much for the airplane now and you’re never going to get it back.”

One way to make sure you don’t get stuck is to get a pre-buy appraisal or market analysis by a qualified aircraft appraiser.

“If you’re serious, you are better off having it appraised early on,” Lougheed said. “You will find out what the airplane is worth and what the avionics are worth, then you can make your purchase or offer based on the facts.”

With the average appraisal for a piston single costing between \$300 and \$500, it’s inexpensive insurance against making a “best-guess” decision that could cost you to the tune of thousands of dollars.

### Looks Can Be Deceiving

So, you’ve found the right airplane at the right price with the right avionics, and you’re itching to whip out your checkbook before someone beats you to the deal. But there’s still one more very important step to take: You need a detailed pre-buy avionics inspection.

Sure, you’re getting an overall pre-buy performed through your

mechanic, but that’s not enough. With all the variables found in today’s panels, even the best airframe and engine shop isn’t a good source for judging if the avionics and all their associated sensors, wires, connectors and the like are up to snuff.

It all starts with a thorough check to make certain everything does what it is supposed to do. Just because a particular box is installed in the panel, don’t assume it is installed correctly and will deliver the functionality you want. Push every button and turn every knob — twice.

“You go out and turn everything on and make sure it is coupling up and functioning like it should,” Thomas said. “If you’re not familiar with the operation of these particular units, get an instrument instructor who is sharp to do the test flight with you.”

Never take anything for granted with a pre-owned airplane — and that goes double for avionics and electronics. Even if you think everything is working, have an avionics expert take a second look.

“On the surface, everything may look like it’s working properly, but the nubs may be five degrees off or out of tolerance in some way,” said Adam Parish, regional sales manager for aircraft services at Cutter Aviation in Phoenix, Ariz. “It can easily cost you a couple thousand dollars to get that fixed.”

Don’t let the look of a panel sway you away from demanding a proper check. Too many buyers have fallen in love with the look of a freshly minted avionics installation only to discover, after it’s too late, the beautiful panel hid a laundry list of problems.

“Even if you are buying an airplane with a new installation

that’s working just fine, it’s worth a look behind the panel,” Parish said. “In a couple of hours, an avionics technician can save you a lot of grief.

“We’ve seen a lot — we’ve pulled out new avionics and found all kinds of things. They may use the wrong gauge wiring or the wrong connector sizes in there. There are so many potential problems you won’t even know about unless you have someone look behind the panel at what’s there.

“It’s the only way to find existing or potential problems before they become seriously expensive issues,” Parish said.

### Pick a Plan; Upgrade Later

Another option is to purchase the airplane you like, then upgrade the radios to fit your particular needs.

“Just make sure the airplane fits your mission and is a good airplane — the airframe and engine are sound and it is priced accordingly,” Thomas said. “It’s easier for most pilots to live with older radios than it is with high-time engines or airframe issues.

“But, in a practical sense, if you do a full avionics upgrade, you need to plan on keeping that airplane for eight to 10 years to get your money out of it and be worth the effort.”

Whether you are talking about engines, cosmetics or avionics upgrades, perhaps the only way to guarantee an increase in the value of an airplane is to fly it.

“The more proficient you are with your airplane, the more you will use it and the more you will enjoy owning it,” Thomas said. “You’ll be spending more money doing something you want to do anyway — and what better value for your money is there than that?” ■