

What's New With Electronic Flight Bags?

BY DALE SMITH



Sure, Electronic Flight Bags promise to reduce weight and workload, but what do you really have to know to keep your “paperless” cockpit solution from becoming a \$5,000 paperweight?

Today's Electronic Flight Bags (EFBs) have come a long way in a very short time. Sure they give you instant access to electronic versions of your approach plates—and virtually eliminate paper from your cockpit—but they can do a whole lot more. You can load up your EFB with all sorts of aircraft performance software, weight and balance information, flight planning forms, aircraft checklists and more. Heck, you can even use them to check your email when you get to your hotel room. Yes, today's EFBs seem like the ideal solution for every flying need. But does every pilot need one?

“They are great tools for the charter or corporate pilot on every level, and even for a G.A. pilot who flies a lot of IFR. They can greatly reduce his workload and improve his situational awareness,” explained Jim Kantor, president, Eastern Avionics International Inc. “On the other hand, a guy who flies one or two IFR flights a month may not want to spend thousands of dollars on a dedicated EFB right now. If they're patient, the prices are surely going to come down.”

The ABCs of EFBs.

“One thing that even the infrequent flier might want to keep in

mind is that many of today's EFBs are really fully featured portable PCs,” Kantor added. “So if you're in the market for a new portable PC anyway, now may be the time to select a unit that will help you in your office and in the cockpit.”

OK, so let's say you've decided that an EFB is a tool you really need to have. How do you select the one that's best for you without blowing your bankroll? The first step is to understand the differences between the three types of EFBs that are available today.

Department store brands

The commercial-off-the-shelf or COTS types are the least expensive of your EFB choices. You simply buy a laptop or pentablet PC and load the appropriate electronic approach plates, charts and other flight planning software. But, while they may be the least expensive to buy, they can often be the most difficult to use unless you are very computer savvy. Just ask the salesperson at your computer retailer how to integrate the PC with your Garmin GPS and see what look you get.

And another drawback to the 'do-them-yourself' COTS EFBs is most of them have a 10-plus-inch screen, which may seem like a

benefit, but their size can be cumbersome in most cockpits.

Hybrids

Hybrid EFBs begin life as a COTS PC, but then are modified by their resellers to be more “pilot friendly.” The reseller has already loaded the appropriate software, and included any hardware that you will need to allow your EFB to work with the avionics, particularly the GPS, in your airplane. The hybrids, which are those sold by most EFB suppliers, are priced from around \$3,500 to \$7,000. Not cheap, but they do offer the best balance of price and functionality for the average pilot user.

Avionics-Types

As you would guess, the avionics-type EFBs are purpose-designed and built for use in the cockpit. And with that purpose building comes an appropriate avionics-purpose price—upwards to \$10,000. Also, the avionics-types are hard wired into the aircraft’s avionics suite, which means you also have to pay for an approved mounting bracket and installation—one supplier quoted a price of \$30,000 for a 9-g articulating arm and installation in a large business jet—ouch! If you’re flying anything smaller than a GII you probably don’t need to consider this category.

And, let’s not forget that once you have your shiny new EFB you’re also going to have to pay a

monthly fee for electronic chart updates. Currently, pilots who subscribe to Jeppesen’s electronic approach plate and chart update services will pay pretty close to what they’re paying for the paper versions. But they will be making their flying lives a whole lot easier by eliminating the tedious task of manually replacing outdated approach plates with new ones. All you do with an EFB is slide in the CD-ROM, press a couple of keys and it’s all done for you in less time than it took to read this paragraph. And because it’s all loaded on the EFB’s internal hard drive you’ll never accidentally leave home without the right disk.

Another word of caution when shopping for your EFB is to steer clear of the ‘no-name’ suppliers. Unfortunately, a couple of companies that were in the business a year or so ago aren’t anymore. So, if for nothing more than the peace-of-mind of having a warranty you can count on, shop the established companies and providers.



How the FAA defines EFBs

Now that we’ve put each of the three categories of EFBs in perspective, it’s time to take a look at how the FAA determines which operational Class the types fit into. It’s important to know so you can make sure the EFB you buy will be “legal” to use for your type of flying. Oh, and while we’re very limited in space here, the best way to ensure that you’re following the letter of the law is to go by AC 120-76A. It has all the latest information. Get it, read it, and if you have any questions ask your local FSDO representative.

“Class 1 and 2 EFBs are basically portable devices that are not purpose built for aircraft operations, but they do have to meet non-interference requirements,” explained Paul DeHerrera, director North American Sales & Marketing, Universal Avionics. “And the biggest difference is the class 2 units can be mounted to the aircraft’s yoke or by a mounting bracket during flight operations. And to be legal, that mounting bracket has to be FAA approved.”

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Or as it is written in the Advisory Circular: "Class 2 EFB systems power, data connectivity, and mounting devices require aircraft evaluation group (AEG) evaluation and certification approval from AIR."

"The Class 3 EFB is really something you'd only find in air carriers and larger corporate operators. They are basically hard-wired into the aircraft's avionics suite," he continued. "It has to meet the same certification requirements of any avionics product. Especially when you get into the software criticality levels. You need Class C software criticality which is basically the same level used to certify an FMS."

Which EFB is right for you?

If you take the time to talk to a variety of EFB producers, you'll quickly hear a common recommendation when it comes to buying the perfect EFB for you. And that is to take your time and get a real demonstration about how each one works. Sure, they may all look basically the same, but take it from the professionals, they all don't work the same. Remember, you're going to be using them in your cockpit in IFR conditions and that's no place to figure out that you don't like something.

One manufacturer had a great suggestion: when you're trying out any EFB, imagine that you are shooting an IFR approach. How intuitive are its functions and how quickly can you make a change if you're forced to select another approach at the last minute? Or how easy is it to call up another airport? If it's too hard to work, it's not only going to

quickly become excess baggage, it can be a hazard by taking your attention away from critical cockpit duties.

Also, don't overlook the simple things. Are the buttons backlit? You'd be amazed how important that is if you fly a lot at night. Speaking of buttons, look at how you enter and access information. Does it have a keypad or do you have to use a non-familiar data entry method? Again, ease-of-use and familiarity are two big keys to getting the most out of any EFB. Also, find out how long the battery will last? There may come a time when you're forced to operate your EFB off of internal power, at night, and in IFR conditions. In fact, a spare battery is always a great investment.

Lastly, don't let size determine which unit is best for you. Too small is just as inconvenient to use as a big flip-top laptop. Just imagine yourself trying to read an approach plate or airport diagram on a tiny PDA while you're bouncing along in turbulence. Again, you have to be careful to choose the right tool for you and your type of flying or you're just throwing your money away.

You've got your EFB. Now when can you use it?

From pre-flight planning, to displaying approach plates, to the capability to display real-time flight tracking, today's EFBs offer you an amazing list of capabilities. But, the question is: where does the FAA draw the line of when you can and cannot use your EFB?

Well, the answer to that totally depends on what you want to use your EFB for and what type of flying you do. The simplest way to look at it is if you fly under

FAR Part 91 regulations, you can pretty much switch your EFB on a start-up and use it all the way through to shutdown. It can replace all of your printed charts and plates, although you'd probably want to have print outs of your destination on hand in case you get ramp checked. The FAA representative will want to know that you've thought out your fallback scenario and that you have a plan. You'd probably also want to have a copy of the Advisory Circular on hand to show the inspector that you are really legal.

"More and more pilots want to use their EFBs to 'back-up' their on-board systems," said Robert Hinerman, managing principal, eflight Systems, LLC. "It's not a primary source of navigation. It's more of a source of reference. It's a great tool for improving overall situational awareness."

And a number of EFB manufacturers are touting real-time navigational capabilities as great benefits, but the FAA wants you to be careful and make sure you're not buying something you can't legally use. "Once you put 'own ship' position displays on them (EFBs), as you would if you wanted to use them during IFR flight, they are no longer really electronic flight bags," explained Hank Cabler, manager, Flight Technology Requirements Branch, FAA Flight Standards Service. "They now fall more under the certification guidance for electronic displays for navigation systems.

"The key thing to consider is whether you are using it for situational awareness or navigation," he continued. "Situational awareness in this context doesn't constitute navigational equipment. But once you get into the navigational

use, you bring in a whole new set of certification requirements.”

Cabler also said that at the time of this writing, the RTCA is working on a document, DO257A, which will establish guidelines for the certification levels for ‘own ship’ position and moving map displays and how it will affect EFB users. “Right now it’s not quite clear exactly which way that will go,” he added. But it’s something any prospective EFB user will want to check out before they spend hard money on software they may not be able to use.

Will that be paper or plastic?

The big selling point behind EFBs is being able to replace paper charts and approach plates with plastic multifunction display units. “Part 91, general aviation pilots can make the transition in any way they see fit,” Cabler said. “In fact, if you read the FARs closely, you’ll see that, to do IFR flight for Part 91 operations, all you need is the ‘appropriate information.’ But there’s nothing that says what that information is or where it comes from. So an EFB is just as proper as any printed chart or plate.”

Pilots operating under FAR Parts 121 or 135 can replace their printed plates with an EFB, but they need to have a proven backup in place. Or as stated in AC 120-76A; “During the transition period to a paperless cockpit, an operator will need to establish a reliable backup means of providing the information regulations to the flight crew. During the period, an EFB system must demonstrate that it produces records that are as available and reliable as those provided by the current paper informa-

tion system.”

Some of the ‘acceptable processes’ outlined by the FAA for transitioning to a paperless cockpit include:

- Separate and backup power sources;
- Redundant EFB applications hosted on different EFB platforms;
- Paper products carried by selected crewmembers;
- Complete set of selected paper backups in the cockpit, and/or other procedural means.

“A lot of pilots who are transitioning into a paperless cockpit environment are carrying small pentablocks with the same data that’s on their regular EFBs,” Murphy explained. “But, right now, the majority of users are still just printing out the plates for the primary destination airport and their alternate airports. It’s a quick and easy solution.

“Also there’s still some ‘transition anxiety’ to getting rid of familiar paper charts and relying totally on electronics,” he added. “While there may be some initial hesitation, once a pilot uses the EFB for a while, it’s more like, ‘Gosh why didn’t we do this sooner?’”

Wx for EFBs

Ever since EFBs were introduced, pilots have asked the same question: When will they be able to display weather? Well, the answer is now. All of the EFB manufacturers interviewed for this story said they have seen increased interest from infrequent IFR pilots and even a growing number of VFR pilots who want the added safety and situational awareness that ‘real-time’ weather displays bring into their cockpits.

“Seven-thousand dollars to get NEXRAD weather in the cockpit is a lot cheaper and easier than putting a panel-mounted radar in your airplane,” one representative said. “In fact, for planning, it’s even better than an airborne unit because it gives you a much bigger picture of what’s happening throughout the area.”

And, just like the EFBs themselves, there are a variety of ways to have weather information delivered to your cockpit including satellite and ground-based uplink services. In fact, if your airplane is equipped with an AirCell phone, any day now you’ll be able to dial a number and get weather displays on your EFB. Pretty cool! And with most weather providers quoting around \$50 a month for service, it’s pretty cheap insurance.

Papa’s got a brand new bag ... Electronic Flight Bag that is.

So, how long before there’s an EFB in your cockpit? With all the features and capabilities they offer, probably not too long at all. As one representative put it, “Today’s EFB technologies have really graduated into being a truly useful tool and a very compelling solution for any pilot who flies IFR or VFR on a regular basis—and it’s only going to get better.” ■