

Class 1, Class 2 EFB Operational Approval: Two Roads for Part 91F Operators

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While the term “electronic flight bag” only came into fashion in the late 1990s, the concept of using portable computing equipment to improve aircraft flight operations has been around for more than three decades.

Devices like the electronic E6B have greatly reduced pilot workload and improved flight safety, and Part 91 operators, since as early as 1963, have been able to approve the use of these devices under the authority (and responsibility) granted by Title 14 CFR Part 91.21, “Portable Electronic Devices.”

Using Part 91.21 authority, the Part 91 operator or pilot in command (PIC) may approve the use of portable electronic devices (PEDs) as long as he determines the PED does not interfere with the proper function of the aircraft. FAA Advisory Circular 92.21-1A, “Use of Portable Electronic Devices,” provides guidance on how the PIC or operator can determine non-interference under Part 91.21 rules.

With advances in microprocessor technology, PEDs increased in capability and complexity at a startling rate. Relatively simple electronic devices, such as the pocket calculator, became valuable aviation tools. Within a relatively short period of time, the pocket calculator evolved into the electronic E6B and, ultimately, the EFB. As with the electronic E6B, Part 91 operators continue to use the Part 91.21 authority to approve the use of EFBs.

Operators governed by OpSpecs and MSpecs faced higher hurdles in

their attempts to use these devices. A lack of guidance for inspectors, Flight Standards District Offices (FSDOs) and the operators themselves made approval of EFBs (and other PEDs) difficult, particularly for operators who desired to use the EFB during critical phases of flight or to replace paper information sources with electronic information sources.

Effective in March 2003, to clarify EFB operational and airworthiness issues for all operators, the FAA issued Advisory Circular 120-76A, “Guidelines for the Certification Airworthiness and Operational Approval of Electronic Flight Bag Computing Devices.” Primarily written to address installation issues and operational approval for holders of OpSpecs (Part 135, Part 121, Part 125) or MSpecs (Part 91, Subpart K), AC 120-76A describes how operators and inspectors can apply the existing OpSpec and MSpec approval process to EFBs.

Despite AC 120-76A’s best efforts, it leaves many questions unanswered for inspectors and OpSpec or MSpec holders. The adoption of Class 1 and Class 2 EFB solutions by these operators proved difficult using only guidance found in the EFB advisory circular. Some large charter operators and airlines began carving their way through AC 120-76A, but most small and mid-size operators chose to wait for further clarification.

While EFB operational approval through the EFB advisory circular for OpSpecs and MSpec holders remains

a challenge, AC 120-76A simplifies EFB operational approval for Part 91F operators by clearly stating: “As defined in this AC, Class 1 and 2 EFBs are considered PEDs.”

Because PED operational approval already is authorized under Part 91.21, further FAA operational approval to use Class 1 and Class 2 EFBs in Part 91 operations is not required as long as the EFB does not replace any required systems or equipment. This reaffirmation of Part 91 operational authority spurred rapid adoption of EFB technology among Part 91 operators, and AC 120-76A continues to serve as an excellent “best practices” document for these operators as they design and implement their own EFB programs.

Operators flying large and turbine-powered aircraft under Part 91 Subpart F rules also recognize the significant advantages in adopting EFBs. While the prospect of eliminating mounds of paper charts (and the cumbersome revision process) is incentive enough for many Part 91F operators, the potential for increased safety and operational efficiency EFBs offer is difficult to ignore.

Unfortunately, initial adoption of EFBs by these operators proved difficult because of the following statement in AC 120-76A: “This guidance material also applies to operators of large and turbine-powered multi-engine aircraft operating under 14 CFR Part 91, Subpart F where the operating regulations require specific functionality and/or equipage.”

The “specific functionality and/

or equipment” required by Part 91F operators is detailed in Title 14 CFR Part 91.503, and includes (emphasis added):

(a) The pilot in command of an airplane shall ensure that the following flying equipment and aeronautical charts and data, in current and appropriate form, are accessible for each flight at the pilot station of the airplane:

(1) A flashlight having at least two “D” cells, or the equivalent, that is in good working order.

(2) A cockpit checklist containing the procedures required by paragraph (b) of this section.

(3) Pertinent aeronautical charts.

(4) For IFR, VFR over-the-top, or night operations, each pertinent navigational en route, terminal area, and approach and letdown chart.

(5) In the case of multi-engine airplanes, one-engine inoperative climb performance data.
(b) Each cockpit checklist must contain the following procedures and shall be used by the flight crewmembers when operating the airplane:

- (1) before starting engines,
- (2) before takeoff,
- (3) cruise,
- (4) before landing,
- (5) after landing,
- (6) stopping engines, and
- (7) emergencies.

(c) Each emergency cockpit checklist procedure required by paragraph (b)(7) of this section must contain the following procedures, as appropriate:

(1) Emergency operation of fuel, hydraulic, electrical and mechanical systems.

(2) Emergency operation of instruments and controls.

(3) Engine inoperative procedures.

(4) Any other procedures necessary for safety.

(d) The equipment, charts and data prescribed in this section shall be used by the pilot in command and

other members of the flight crew, when pertinent.

Interpreting Specific Equipment

Neither AC 120-76A, nor any other FAA regulations or policy, explains how the specific equipment requirements listed in Part 91.503 apply to Class 1 and Class 2 EFB usage.

As a result of this lack of additional guidance or clarification, and based on historical common practices, operators and FSDOs developed the following widely accepted interpretation of the 91F “specific equipment” statement in AC 120-76A:

- Title 14 CFR, Part 91.503 states aeronautical charts are required “in current and appropriate form.” The FAA does not define “current and appropriate form,” nor does it specify chart medium, nor are any chart publications in paper format officially “blessed” by the FAA. The PIC or operator bears the responsibility and authority for determining what “current and appropriate” means under Part 91.503. If the Part 91F operator determines the chart information is current (such as clearly indicated revision cycle) and provides all necessary information in an understandable format, or is trusted by the operator as accurate and complete, then the operator is in compliance Part 91.503.

- Part 91F operators still fall under the auspices of Part 91, and so retain both the authority and responsibility under Part 91.21 for approving the use of PEDs, including electronic E6Bs, cabin laptops, and Class 1 or Class 2 EFBs.

- FSDOs have neither the authority, nor responsibility, nor process for issuing the operational approval for a PED unless the PED alters or replaces equipment or systems required under Part 91, or if it alters the specific equipment or functionality required under Part 91, Subpart F.

- Because Part 91 and Part 91F oper-

ators do not have OpSpecs, FSDOs do not have a mechanism for issuing specific operational approvals to Part 91 and Part 91F operators other than a letter of authorization (LOA) necessitated by a change in Part 91.503 equipment or functionality, or other change in Part 91 operating requirements.

Because the other operational guidance in AC 120-76A cannot be directly applied to Part 91F operators, application of AC 120-76A for Part 91F operators is limited to maintenance functions (such as installing power sources or mounting brackets), or to serve as a “best-practices” document used to develop their own internal procedures, operational evaluation and approval under Part 91.21 and Part 91.503 rules.

According to AC 102-76A, the advisory circular itself “does not constitute a regulation but sets forth an acceptable means, but not the only means, for operators...to obtain both certification and approval for the operational use of EFBs.” Because AC 120-76A is not regulatory in nature, and other means for achieving operational approval have been clearly established, Part 91F operators may utilize those means to facilitate EFB operational approval.

Thousands of Part 91F operators have used their Part 91.21 authority in compliance with Part 91.503 to operationally approve the use of Class 1 and Class 2 EFBs, and have logged countless flight hours using these EFBs as their primary source of charts. These operators, based on existing FARs and industry “best practices,” have established an effective and legal means of operationally approving Class 1 and Class 2 EFBs.

AC 120-76A continues to serve as an excellent source of reference for these operators as they develop their own internal EFB operational policies and procedures.

Where the guidance in AC 120-76A

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does not clearly apply to Part 91F operators, these operators must refer back to the following statement in the EFB advisory circular (emphasis added):

“This AC does not constitute a regulation but sets forth an acceptable means, but not the only means, for operators conducting flight operations under Title 14 of the Code of Federal Regulations (14 CFR) Part 91, 121, 125, 129 or 135, to obtain both certification and approval for the operational use of EFBs.”

Recognizing the need for additional clarification of AC 120-76A, in October 2006, the FAA released Notice N 8200.98, “Electronic Flight Bag Job Aid,” to FSDOs across the country. Intended primarily for use by FAA principal inspectors (PIs), the job aid resolves many questions pertaining to EFB installation and operational approval for air carriers and OpSpecs holders. Unfortunately, the new guidance can prove confusing or misleading to operators of large and turbine-powered aircraft flying under Part 91 rules.

The benefits of the EFB job aid for OpSpecs and MSpecs holders is clear: It clarifies the approval process, provides a series of comprehensive checklists so inspectors and operators know what is required in an EFB program, and gives numerous useful examples and scenarios for operators and inspectors to follow.

In summary, this new streamlined process includes:

- The operator submitting a letter indicating a desire to receive EFB operational approval.
- The operator developing and submitting an EFB approval plan.
- The FAA reviewing and approving the plan.
- The operator implementing the plan (which could include a six-month

evaluation period).

- The FAA issuing final approval in the form of an OpSpecs or MSpecs amendment.

The ultimate result for the operator is a well-executed, comprehensive EFB program officially “blessed” by the FAA via OpSpec A025 (for Part 135, 121 and 125 operators) or MSpec M025 (for Part 91K operators).

Seeking Operational Approval

According to the EFB job aid, Part 91F operators also may seek EFB operational approval using the process described in the job aid, but with some modification to accommodate the differences between Part 91 operators and operators with OpSpecs or MSpecs.

According to the EFB job aid:

“91F operators may have requirements specified by an aircraft certification TC/STC and/or in an FSB report. At the moment, the only documentation for Part 91F operators would be evidence of compliance with the requirements associated with TC/STC and/or FSB Report(s).”

For Part 91F operators seeking operational approval via the EFB job aid, the Flight Standardization Board (FSB) report is the authorizing mechanism. To generate an FSB report, an inspector assigned to the board for the particular type-certificated aircraft evaluates a combination of EFB hardware, software, mounting provisions, power provisions, data-link connectivity, and operational backup for that particular airframe. Because variations in any of these areas can significantly affect operational use, each variation to be used must be specifically evaluated in a separate FSB report for each airframe.

For instance, identical EFB hardware and software are installed on a Cessna Citation X and a Bombardier Aerospace Challenger 604. Despite

identical functionality of the EFBs, differences in mounting locations or flight-deck configurations require different egress procedures. Differences in aircraft power provisions require different operational backup procedures. Variations in mounting devices used on the same airframe can affect normal system operation as well as operation of the system during emergency procedures. The FSB report is a formal mechanism for identifying these issues and providing recommendations as to how they can be operationally mitigated on a particular airframe.

Considering the thousands of general and business aviation operators using or planning to use Class 1 and Class 2 EFBs in large and turbine-powered aircraft, many Part 91F operators have expressed concern regarding the FAA’s capacity to perform these FSB evaluations. Under current FAA policy, the Flight Standardization Board has no mechanism to delegate FSB evaluations to DER test pilots or other inspectors, and FSB members for the particular aircraft type certificate must perform these evaluations as their schedules permit.

While much of the actual FSB evaluation can be performed with the EFB equipment and applications in a simulated environment, some procedures might require flight-testing or additional in-depth evaluations. Considering the number of Part 135, 121 and 125 operators pursuing operational approval under the guidance of the EFB job aid, FSB inspectors face a potential bottleneck in the FSB report workload as more Part 91F operators pursue approval through the FSB report.

Unlike the approved model list (AML) STC process, there is no mechanism to allow a single FSB report for a particular EFB model to cover multiple airframes. Additionally, EFB manufacturers have no direct route to pur-

sue FSB evaluations without working through an operator. With thousands of Part 91F operators flying more than 100 different type-certificated aircraft using dozens of EFB platforms (which also might change every six to 12 months) and constantly evolving software applications, the FAA and FSB face significant challenges in meeting the additional demand from Part 91F EFB users.

Regardless of these, the resulting FSB report addresses critical issues Part 91F operators should address when implementing EFBs in their particular aircraft. Because Part 91F operators lack OpSpecs or MSpecs, their operational approval process concludes once the recommendations of the FSB report are met.

Unlike a letter of authorization, which provides specific authorization to deviate from standard operating regulations (such as RVSM authorization), the FSB report does not explicitly grant operational approval for Part 91F operators. Instead, it provides an acceptable means of demonstrating an equivalent level of safety compared to using paper-based information sources and can be used to support their EFB usage during a “ramp check.”

Ultimately, Part 91F operators who apply for operational approval for Class 1 or Class 2 EFBs through the EFB job aid conclude the process by exercising their pilot-in-command authority to approve the use of a PED under Part 91.21 rules. The FSB report provides the supporting documentation to demonstrate EFB applications do not alter the specific equipment and operating requirements under Part 91.503. Any EFB application that does alter Part 91.503 requirements would require an LOA or other specific authorization.

Regardless of whether Part 91F operators choose to seek Class 1 or Class 2 EFB operational approval via the formal process outlined in the EFB job aid, or whether they choose

operational approval using their Part 91.21 authority, the single overriding requirement for all operators is they must demonstrate an equivalent level of safety when transitioning from traditional paper-based information sources to electronic sources. The EFB job aid’s FSB evaluation provides a means of ensuring the equivalent level of safety is met, and the FSB report document is clear proof to field inspectors the equivalent level of safety is met.

Operators independently using their Part 91.21 authority to authorize Class 1 and Class 2 EFBs should be prepared to demonstrate more than non-interference per Part 91.21 when “ramp checked” — they also should be prepared to demonstrate any information required under Part 91.503 is just as complete, accurate, current and reliable in electronic format as it is in paper.

For operators who choose not to utilize the EFB job aid process, the burden falls on the operator to perform a complete and thorough evaluation of the EFB hardware and software in his aircraft, and to develop the necessary policies and procedures to ensure all pilots are adequately trained, all information is current, and an equivalent level of safety is maintained at all times.

AC 120-76A and the EFB job aid are excellent “best practices” documents for Part 91F operators to use during their own independent operational approval of Class 1 and Class 2 EFBs. □