The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
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AEROSPACE RECOMMENDED PRACTICE

SAE ARP4102/15

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ELECTRONIC LIBRARY SYSTEM (ELS)

1. SCOPE:

This document recommends criteria for an Electronic Library System (ELS) for use on the flight deck of transport aircraft. The ELS may be the primary, and in some cases sole, on board source of documentation and information for flight operations, engineering, aircraft maintenance and training. This document addresses flight operations applications only.

2. REFERENCES:

2.1 Applicable Documents:

2.1.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

This document should be used in conjunction with

SAE S-7 ARP 4102	Flight Deck Controls and Displays
SAE S-7 ARP 4101	Flight Deck Layout and Facilities
SAE S-7 ARP 4105	Abbreviations and Acronyms
SAE S-7 ARP 4102/14	Full Format Printer

2.2 Definitions:

INFORMATION: Entire content, including alpha-numerics and graphics.

PAT (PILOTS ACCESS TERMINAL): A display unit and its associated control facilities.

3. OPERATIONAL REQUIREMENTS:

3.1 General:

3.1.1 Whenever the ELS replaces printed documentation, the information required for the safe conduct of the flight shall be available throughout the flight.

3.1.2 The ELS information shall be accessible and usable on the aircraft both in flight and on the ground.

3.1.3 The ELS should accommodate connection to ground networks for data exchange.

3.1.4 The ELS shall allow fast and easy access and display only the requested information.

Information relative to emergency and abnormal procedures shall be available in a time frame at least commensurate with current paper checklists.

3.1.5 Operation of the ELS shall not require any special skills.

3.1.6 An ELS terminal shall be provided for each crewmember. If a single unit is installed for the pilots, it shall be accessible to both pilots.

3.1.7 The system shall be capable of prioritizing user terminals, with the pilot's terminal having the highest priority.

3.1.8 The display shall only change in response to pilot action.

3.2 Functional Requirements:

3.2.1 Reference Information:

The ELS shall contain selected reference information to support the operation of the aircraft. The information may include but is not limited to:

a. Operating environment requirements and procedures, such as

(1) Navigational information
(2) Airport information
(3) ATC requirements/procedures
(4) Weather requirements/procedures
(5) FAR and A17

3.2.1 (Continued):

b. Aircraft specific information, such as

(1) Limitations, procedures
(2) Procedures
(3) Minimum equipment list/CDL
(4) Performance
(5) Technical log book
(6) System schematics
(7) Weight and balance

c. Company information

3.2.2 Form Filling:

3.2.3 Revision Service:

3.2.3.1 The Data Base shall accommodate periodic revisions. Revised information shall be identifiable. Means shall be provided to enable the users to verify the revision status of the data.

3.2.3.2 The ELS shall accommodate short-term revisions. A revision validity check shall be provided. Relevant changes shall be annunciated to the user.

3.2.3.3 Revisions should be automatically integrated into the displayed ELS information. If not practicable, e.g., in case of a temporary revision, the displayed information affected by a revision shall be clearly annunciated, as well as the means to display the revised information.

3.2.4 Information Structure:

3.2.4.1 It should be possible to display and/or print information in customized formats, such as units, (meters, feet, HPA), procedures, etc.

3.2.5 Information Retrieval:

3.2.5.1 The method of retrieving data shall be self-evident.

3.2.5.2 The time to search and display requested information should be less than 1 s. The time to print information should be less than 10 s per page.

3.2.5.3 Means shall be provided to retrieve all information related to a specific task. It shall be possible to retain retrieved information for cross-reference. Hyperlink techniques or other state-of-the-art data base manipulations are encouraged.

3.2.5.4 It shall be possible to select and store information for later quick and easy use (notebook, clipboard).

3.2.6 Information Access:

3.2.6.1 The ELS shall provide for hierarchical menu driven access as well as direct access methods such as word search.

3.2.6.2 Access to ELS information should be possible from other terminals; however, certain users may be restricted to specific information.

3.2.7 Configuration Control:

3.2.7.1 The information displayed on the ELS shall be restricted to that appropriate to the actual aircraft configuration or actual individual.

3.2.8 Flight Deck Printing:

3.2.8.1 A function to print the displayed information shall be provided.

3.2.8.2 It shall be possible to print preselected information independent of screen displayed information. The display shall not be frozen during the print process.

3.2.8.3 Graphics should not extend over more than one sheet of paper.

3.2.8.4 It should be possible to vary the length of the printed page.

3.2.8.5 Form printout may be in one of three ways:

a. Form with data
b. Form without data
c. Data only

3.2.8.6 All printed matter shall show the time and date of when the information was printed, as well as aircraft identification.

4. PANELS:

Open.

5. CONTROLS:

5.1 Pilots Access Terminal (PAT):

5.1.1 Control Unit:

5.1.1.1 Multiple access methods and interfaces such as track balls, line selector keys, function keys, etc., should be considered. The chosen method shall be consistent throughout the flight deck.

6. DISPLAYS:

6.1 Display Unit (DU):