DATA ITEM DESCRIPTION

1. TITLE	2. IDENTIFICATION NUMBER
FIRMWARE SUPPORT MANUAL (FSM)	DID-FAA-026-22

3. DESCRIPTION/PURPOSE

3.1 This Data Item Description (DID) contains the format and content preparation instructions for the data generated under the work task described by specific requirements as delineated in the contract.

The FSM provides the information necessary to load software or data into firmware components of a system. It is equally applicable to read only memory (ROMs), Programmable ROMs (PROMs), Erasable PROMs (EPROMs) and other firmware devices. It also includes the procedures needed to erase firmware devices, load software into the firmware devices, and verify the load processes.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTC APPLICABLE	6b. GIDEP APPLICABLE
NONE	AIO-2/ASU-500	N/A	N/A

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by specific and discrete task requirements as delineated in the contract.

7.2 This DID is used when the developer is tasked to identify and record information needed to program and reprogram firmware devices in which software resides.

7.3 The Contract Data Requirements List (CDRL) (DD 1423 or equivalent) should specify whether deliverable data are to be delivered on paper or electronic media; are to be in a given electronic form (such as ASCII, , or compatible with a specified word processor or other support software); may be delivered in developer format rather than in the format specified herein; and may reside in a computer-aided software engineering (CASE) or other automated tool rather than in the form of a traditional document.

8. APPROVAL LIMITATION	9a. REFERENCES	9b. AMSC NUMBER
NONE	FAA-STD-026	N/A

10. PREPARATION INSTRUCTIONS

10.1 General instructions.

a. Automated techniques. Use of automated techniques is encouraged. The term "document" in this DID means a collection of data regardless of its medium.

b. Alternate presentation styles. Diagrams, tables, matrices, and other presentation styles are acceptable substitutes for text when data required by this DID can be made more readable using these styles.

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11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

c. Title page or identifier. The document shall include a title page containing, as applicable: document number; volume number; version/revision indicator; security markings or other restrictions on the handling of the document; date; document title; name, abbreviation, and any other identifier for the system, subsystem, or item to which the document applies; contract number; CDRL item number; organization for which the document has been prepared; name and address of the preparing organization; and distribution statement. For data in a database or other alternative form, this information shall be included on external and internal labels or by equivalent identification methods.

d. Table of contents and index. The document shall contain a table of contents providing the number, title, and page number of each titled paragraph, figure, table, and appendix, and an index providing an alphabetic listing of key terms and concepts covered in the document and the pages or paragraphs in which the terms or concepts are covered. For data in a database or other alternative form, this information shall consist of an internal or external table of contents containing pointers to, or instructions for accessing, each paragraph, figure, table, and appendix or their equivalents.

e. Page numbering/labeling. Each page shall contain a unique page number and display the document number, including version, volume, and date, as applicable. For data in a database or other alternative form, files, screens, or other entities shall be assigned names or numbers in such a way that desired data can be indexed and accessed.

f. Response to tailoring instructions. If a paragraph is tailored out of this DID, the resulting document shall contain the corresponding paragraph number and title, followed by "This paragraph has been tailored out." For data in a database or other alternative form, this representation need occur only in the table of contents or equivalent.

g. Multiple paragraphs and subparagraphs. Any section, paragraph, or subparagraph in this DID may be written as multiple paragraphs or subparagraphs to enhance readability.

h. Standard data descriptions. If a data description required by this DID has been published in a standard data element dictionary specified in the contract, reference to an entry in that dictionary is preferred over including the description itself.

i. Substitution of existing documents. Commercial or other existing documents may be substituted for all or part of the document if they contain the required data.

10.2 Content requirements. Content requirements begin on the following page. The numbers shown designate the paragraph numbers to be used in the document. Each such number is understood to have the prefix "10.2" within this DID. For example, the paragraph numbered 1.1 is understood to be paragraph 10.2.1.1 within this DID.

1. Scope. This section shall be numbered 1 and shall be divided into the following paragraphs.

1.1 Identification. This paragraph shall be numbered 1.1 and shall contain the approved identification number, version numbers, CSCI revision number, title, and abbreviation, if applicable, of the computer system to which this FSM applies. This paragraph shall also identify by name and number, all firmware components to which this FSM applies.

1.2 System overview. . This paragraph shall be numbered 1.2 and shall briefly state the purpose of the system and the software to which this FSM applies.

1.3 Document overview. This paragraph shall be numbered 1.3 and summarize the purpose and contents of this FSM.

1.4 Referenced documents. This paragraph shall be numbered 2 and list the document number and title all documents referenced in this manual.

2 Firmware device information. This paragraph shall be numbered 3 and shall be divided into the following paragraphs to describe the firmware devices.

2.1 Device description. This paragraph shall be numbered 3.1 and shall contain a complete physical description of the firmware components of the system or subsystem. This paragraph shall provide the following for each device:

a. Device name and manufacturer's identification and number
b. Memory size
c. Operating characteristics (e.g. access time, power requirements, logic levels)
d. Pin functional descriptions
e. Logic interfaces (e.g. addressing scheme, chip selection, etc.)
f. Internal and external identification scheme used with each device, and
g. Timing diagrams

2.2 Software to be programmed into the device. This paragraph shall be numbered 3.2 and shall identify by project-unique identifier(s) the software to be programmed into the firmware device.

2.3 Programming equipment. . This paragraph shall be numbered 3.3 and shall describe the equipment to be used for programming and reprogramming the firmware device. It shall include computer equipment, general purpose equipment, and special equipment to be used for device erasure, loading, verification, and marking, as applicable. Each piece of equipment shall be identified by manufacturer's name, model number, and any other pertinent information that uniquely identifies that piece of equipment. A description of each piece of equipment shall be provided, including it's purpose, usage, and major capabilities.

2.4 Programming Hardware. This paragraph shall be numbered 3.4 and shall describe the equipment to be used for programming and reprogramming each firmware device. It shall include computer peripherals, general purpose equipment, and special equipment used for device loading, burn-in, and test (including verification that the proper content is stored). Each piece of equipment shall be identified by manufacture, manufacturer's designation, and any other pertinent 10.2

information that uniquely identifies that piece of equipment. A description of each piece of equipment shall be provided, including it's purpose, usage, and major capabilities.

2.5 Programming software. This paragraph shall be numbered 3.5 and shall describe the software to be used for programming and reprogramming the firmware. It shall include software to be used for device erasure, loading, verification, and marking, as applicable. Each software item shall be identified by vendor's name, software name, version/release, and any other pertinent information that uniquely identifies the software item. A description of each software item shall be provided, including it's purpose, usage, and major capabilities.

2.6 Programming procedures. This paragraph shall be numbered 3.6 and shall describe the Procedures to be used for programming and reprogramming the firmware device. It shall include software to be used for device erasure, loading, verification, and marking, as applicable. All equipment and software necessary for each procedure shall be identified, together with any security and privacy measures to be applied.

3. Installation and repair procedures. This paragraph shall be numbered 4.0 and shall contain the installation, replacement, and repair procedures for the firmware device. This paragraph shall also include remove and replace procedures, device addressing scheme and implementation, description of the host board layout, and the procedures for ensuring continuity of operations in the event of emergencies. Safety precautions, marked by WARNING or CAUTION, shall be included where applicable.

4. Subcontractor or Vendor Information. This paragraph shall be numbered 5.0 and shall include or reference any relevant information supplied by the subcontractor(s) or vendor(s) of the firmware device, programming equipment, or programming software.

5. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (e.g. background information, charts, classified data). Each appendix shall be listed in the table of contents, and in the main body of the FSM. Appendices shall be numbered alphabetically (e.g. A,B,C, etc.) and pages number using the prefix of that appendix (e.g. A-1, B-1, C-1, etc.).