

DATA ITEM DESCRIPTION

Title: Human Engineering Design Approach Document-Maintainer

Number: DI-HFAC-80747B

AMSC Number: A7321

Approval Date: 19980708

DTIC Applicable:

Limitation:

Office of Primary Responsibility: A/AMCOM GIDEP Applicable:

Applicable Forms:

Use/Relationship: The Human Engineering Design Approach Document-Maintainer (HEDAD-M) describes equipment which interface with maintainers. This document provides a source of data to evaluate the extent to which equipment having an interface with maintainers meets human performance requirements and human engineering criteria.

a. This data item description (DID) contains the format and content preparation instructions for HEDAD-M resulting from applicable tasks delineated by the SOW.

b. This DID supersedes DI-HFAC-80747A.

Requirements :

1. Reference documents . The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions shall be as cited in the current issue of the DODISS at the time of the solicitation.

2. General . The HEDAD-M shall describe the characteristics, layout, and installation of all equipment having a maintainer interface (excluding depot level maintenance actions); it shall also describe maintainer tasks associated with the equipment. The HEDAD-M shall describe the extent to which the requirements and applicable human engineering design criteria (e.g., MIL-STD-1472) have been incorporated into the design, layout, and installation of equipment having a maintainer interface. Results from analysis of maintainer tasks shall be presented as part of the rationale supporting the layout, design, and installation of the equipment. The requirement for this information is predicated on the assumption that as analytic and study information, it is developed sufficiently early to influence the formulation of other system data, such as maintenance allocation, special repair parts, tool lists, and other logistic support

data. If a task inventory or task analysis exists, it shall be referenced or appended to the HEDAD-M along with appropriate supplementary information fulfilling the intent of this provision.

3. Format. The HEDAD-M format shall be contractor selected. Unless effective presentation would be degraded, the initially used format arrangement shall be used for all subsequent submissions. The HEDAD-M format shall present the information in two major parts:

a. Information pertaining to maintenance actions performed at the organizational level.

b. Information pertaining to maintenance actions performed at the Field/Intermediate Maintenance Activity (IMA) level.

4. Content. The HEDAD-M shall contain the following:

a. Equipment List. A list of each item of equipment having a maintainer interface at the organizational and Field/IMA level, and a brief statement of the purpose of each item of equipment and types of maintenance required on each item of equipment (e.g., troubleshoot, remove, inspect, test, repair.)

b. Specification and drawing list. A list of specifications and drawings, approved by human engineering at the time of HEDAD-M preparation. The list shall also address documents where human engineering approval is planned.

c. System equipment description. Description(s) of system equipment, emphasizing human engineering design features. The following aspects of each crew station shall be described.

(1) Layout and arrangement. The location and layout of all system equipment requiring maintenance with emphasis on human engineering features which facilitate maintenance. Equipment located in areas assessed through common doors, panels, openings, etc., shall be indicated. The location of each item of equipment shall also be noted in terms of three-dimensional space (e.g., X,Y, and Z coordinates); the reference point for each item of equipment shall be its center as viewed by the maintainer while gaining access to the equipment.

(2) Design of equipment . The design of each item of equipment with emphasis on human engineering features which facilitate maintenance, such as handles, self-test capability, labeling, connector spacing, and keying.

(3) Installation of equipment . The installation of each item of equipment with emphasis on human engineering features which facilitate maintenance such as fasteners; clearances, relationship between accessibility and failure rate (or scheduled maintenance frequency) of each item of equipment, and visual access afforded.

d. Rationale . The specific consideration of equipment maintenance requirements (e.g., frequency, criticality, equipment failure rate), maintainer requirements (e.g., personnel selection, training, and skills), maintainer tasks requirements, environmental considerations, safety, and limitations imposed by the procuring activity or state-of-the-art. The basis for reaching specific design, layout, and installation decisions shall also be presented (e.g., MIL-STD-1472 criteria, human engineering requirements or guidelines specified in the contract, human engineering studies, trade-off analyses, mock-up results, and human engineering test results).

e. Special tools, support equipment, and aids . A list of special tools, support equipment, and job aids/devices required for maintenance of each item of equipment.

f. Analysis of maintainer tasks . Results from analysis of maintainer tasks (see critical tasks in MIL-HDBK-1908) shall be presented as part of the rationale supporting layout, design, and installation of items of equipment. Analysis of maintainer tasks analyses shall consist of the following: task number, task title, task frequency (for scheduled maintenance actions) or estimated task frequency (based on equipment mean-time-between-failure for unscheduled maintenance actions), data source used (e.g., drawing number, sketch number, development hardware, actual production equipment, detailed task sequence (see task analysis in MIL-HDBK-1908), support equipment required, tools required, job aids required, estimated task time; estimated personnel requirements (e.g., number of personnel required, skills and knowledge required) and human engineering considerations which reflect specific human engineering requirements incorporated into the design (e.g., maintainer fatigue, potential hazards, safety or protective

DI-HFAC-80747B

clothing/equipment required or recommended, access problems, maintainer communication requirements, special task sequence requirements, labeling). As applicable, the following types of maintainer tasks shall be addressed by the analyses of maintainer tasks; remove/replace, troubleshoot (fault location), repair, adjust, inspect, service, and test. Critical tasks (see MIL-HDBK-1908) shall be clearly identified.

g. Maintainer interface depiction's . A sketch, drawing, or photograph of each item of equipment having a maintainer interface. Each item of equipment shall be depicted:

(a) by itself from top, front, and side (three-view trimetric or exploded trimetric view) and

(b) installed as the maintainer would normally view it during maintenance.

h. Alternative installations or layouts . A sketch, drawing, or photograph of each item of equipment being considered as an alternative to the selected, or baseline design. A sketch, drawing, or photograph of alternative equipment installations or layouts which exist at the time of HEDAD-M preparation shall also be provided.

i. Design changes . Design, installation, or layout changes which have been made since the last HEDAD-M preparation, shall be described.

5. End of DI-HFAC-80747B.