

## DATA ITEM DESCRIPTION

**TITLE:** Temporary Non-Standard Modification Documentation and Marking Requirements for Test Equipment in Aerospace Vehicles and Related Ground Support Equipment.

**Number:** DI-MISC-81562

**Approval Date:** 19980518

**AMSC Number:** F7307

**Limitation:**

**DTIC Applicable:** No

**GIDEP Applicable:** No

**Office of Primary Responsibility:**F-11

**Applicable Forms:** DD Form 365-1 (Chart A) Aug 96

DD Form 365-3 (Chart C) Aug 96

**USE/RELATIONSHIPS:** The Temporary Non-Standard Modification Documentation and Marking Requirements are used for evaluation, design, fabrication, test, checkout, maintenance, operations and technical review of temporary non-standard modifications. This Data Item Description (DID) addresses the unique safety issues associated with temporary non-standard modifications and the need to assure airworthiness of all modified systems. These modified systems often present special maintenance, inspection, operational, configuration control and flight safety management issues, and the modified system features must be readily distinguishable to flight and maintenance crews. This DID is applicable to modification(s) of aerospace vehicles and related ground support equipment in support of research, development, test and evaluation activities. This document provides requirements for the procurement of temporary non-standard modification data.

- a. Tailoring of this DID to specific program(s) shall be accomplished by the procuring organization in coordination with the modification organization, responsible test organization, reviewing organization and other interested organizations, as appropriate.
- b. This DID contains the format, content and intended use information for the data deliverable resulting from the work tasks described in paragraphs 4.2.1 thru 4.3.5 of MIL-STD-27733C and is applicable to the acquisition of military systems and related ground support equipment.
- c. This DID interrelates with DI-MISC-80678, DI-NDTI-80809B, DI-DRPR-81001A, 81002A, 81003A, DI-SDMP-81493, DI-SAFT-80101B, 80102B, 80103B, 80104B, 80105B, 80106B, 81299A, 81300A, DI-MISC-81414, DI-EMCS-81295A, DI-MISC-80508, DI-QCIC-81536, DI-MGMT-81501, 81502, 81503, 81504, DI-GDRQ-80198A.

## REQUIREMENTS:

1. Reference Documents: The applicable issue of the documents cited herein, including the approval dates of any applicable amendments, notices and revisions, shall be as cited in the current issue of the Department of Defense Index of Specifications and Standards (DODISS) at the time of the solicitation; or for non DODISS—listed documents, as stated herein.
  - a. Technical Order—1-1B-40, 1 Jan 83 Basic, Change 14, 1 Sep 97 (Air Force Only).

## DI-MISC-81562

b. Technical Order—1-1B-50, 1 Mar 83 Basic, Change 13, 18 Jun 97 (Air Force Only).  
(Application for copies should be addressed to OC-ALC/TILDT, Tinker AFB, OK 73145-3042)

2. Content. Temporary non-standard modification documentation shall contain the following:

2.1 Certification Data. Shall identify all aerospace vehicle modifications and affected component design requirements. It shall correlate the design requirements with those tests, analysis and inspections which constitute certification, that the aerospace vehicle and related ground support equipment and its installed modification(s) component(s) are safe to operate in the intended environment and at design conditions (see DI-MISC-80678 for content guidance).

2.2 Test Requirements. Full documentation for test requirements for airworthiness, systems and subsystems testing for the aerospace vehicle temporary non-standard modification(s) (see DI-QCIC-81536 for content guidance).

2.3 Airworthiness Flight Test Data. The results of airworthiness flight test. A description of the test evaluation of the modification(s) conclusions and recommendations, and appendices to include: test item descriptions, test methods, test data, test instrumentation, flight log, and any other pertinent data developed during flight test (see DI-NDTI-80809B for content guidance).

2.4 Component Certificate of Airworthiness. Identification of all affected components installed, as certified airworthy and safe to operate in the intended design conditions. All associated hazards and limitations shall be indicated in the certificate (see DI-MISC-80678 for content guidance).

2.5 Aerospace Vehicle Certificate of Airworthiness. Any flight restrictions imposed as the result of temporary non-standard modification(s) and that the aerospace vehicle has been certified safe to operate in the intended environment and at design conditions (see DI-NDTI-80809B for content guidance).

2.6 Software Documentation. Full documentation of any software that was developed or modified as the result of the temporary modification(s) to the aerospace vehicle or related ground support equipment shall be fully documented. Software changes that affect any of the aircrew equipment inputs, aerospace vehicle control inputs, or displays viewed by the aircrew, shall be fully described in the aerospace vehicle's partial flight manual, paragraph 2.9 below (see MIL-STD-498 for guidance).

2.7 Design Drawings, Diagrams, Photographs and Project Equipment List. Full documentation necessary to support fabrication, assembly, installation, operation and maintenance of the temporary non-standard modification(s) (see MIL-DTL-31000 and DI-DRPR-81001A, 81002A, 81003A, DI-SDMP-81493 for content guidance).

## DI-MISC-81562

2.8 System Safety. Subsystems Hazard Analysis, System Hazard Analysis and Operating Hazard Analysis data; A summary of all identified hazards and action taken to eliminate or control them (see MIL-STD-882 and DI-SAFT-80101B, 80102B, 80103B, 80104B, 80105B, 80106B, 81299A, 81300A for content guidance).

2.9 Operation, Maintenance and Inspection Instructions. Instructions in the form of a partial flight manual, supplements to existing technical publications and changes to maintenance instructions shall reflect ground and flight operations, maintenance and inspection of the aerospace vehicle and related ground support equipment and installed modification(s), (hardware and software). Aircrew operating procedures shall be in sufficient detail to describe the function and use of each aircrew-operated control or switch associated with the modification(s). Maintenance instructions, shall identify all test fixtures, special tools, and test units required; and complete information for adjustment, alignment and calibration. for affected components. Special aerospace vehicle inspection requirements as a result of the modification(s) shall be included. The updated partial flight manual shall include changes to performance, stability and control, as a result of the modification(s) (see DI-MISC-81414 for content guidance).

2.10 Mission Support Equipment Tests Data. The results of electromagnetic compatibility, subsystem compatibility, and other ground tests conducted in conjunction with this modification(s) effort (see DI-NDTI-80809B for content guidance).

2.11 Electromagnetic Compatibility, Subsystems Compatibility and Other Ground Tests Data. The results of the ground testing of all equipment required to be operated during the airworthiness flight test (see DI-EMCS-81295A, DI-NDTI-80809B for content guidance).

2.12 Power (pneumatic, hydraulic, electrical, etc.), Subsystems Compatibility and Electrical Load Analysis Data. A description of the additional load(s) (pneumatic, hydraulic, electrical, etc.) to be imposed on any system by the modification(s) and the power that shall be available under worst case operating conditions with the modification(s) installed. The electrical load analysis shall be in sufficient detail to permit an evaluation by comparison with the original electrical load analysis furnished by the manufacturer and subsequent analysis furnished for the aerospace vehicle. An explanation of how the modification(s) equipment interferes with the proper operation of other equipment in the aerospace vehicle, and proposed corrective action (see MIL-E-7016 DI-MISC-80508 for content guidance).

2.13 Performance, Stability and Control Data. Summary of the results of analysis and tests evaluating changes to the performance of the aerospace vehicle shall be summarized. Estimated performance charts and stability and control characteristics applicable to the partial flight manual (See DI-QCIC-81536 for content guidance).

2.14 Analysis and Tests Data. An analysis required to substantiate the structural integrity, aeromechanical compatibility and environmental compatibility of the modification(s) on the aerospace vehicle. These detailed analysis shall include, loading conditions, design loads,

## DI-MISC-81562

stresses; acoustic, vibration, temperature, humidity and other environmental parameters; the determination of damage tolerance (safety), durability (economic life) and fatigue (service life) limits; flutter, divergence, and other aeromechanic considerations associated with the modification(s). Any assumptions made during these analysis shall be clearly specified (see MIL-A-8591, 8860B, 8868, 8870C, AFGS-87221, DI-NDTI-80809B for content guidance).

2.15 Mass Properties Data. Mass properties analysis identify the weight, moment, center of gravity and inertia changes to the aerospace vehicle as a result of the proposed modification(s), in accordance with Technical Orders 1-1B-40 and 1-1B-50. The data shall be sufficient in scope to summarize the overall impact of the proposed modification(s). It shall contain: (see DI-MGMT-81501, 81502, 81503, 81504 for content guidance).

- a. Verification of the actual modified aerospace vehicle configuration and mass properties after modification(s) and prior to flight test.
- b. The change to the aerospace vehicle basic weight, useful load(s) and design mission takeoff weight(s) due to the actual modification(s).
- c. Sufficient calculated or actual balance data to verify that the center of gravity change, due to the actual modification(s), falls within the maximum allowable center of gravity limits for the basic aerospace vehicle, and any flight loading clearances. The section shall include a discussion of the actual ballast installation, fuel sequence change, loading restrictions, etc., if these means are required to meet allowable center of gravity limits.
- d. DD Form 365-1, "Chart A", form for each modification(s) as required by Technical Order 1-1B-50. These "Chart A" forms shall depict test equipment separate from standard aerospace vehicle equipment. A "Chart A" numbering system shall be used to keep the compartment and item numbers separate from standard aerospace vehicle equipment. An orange border shall be drawn on the test item "Chart A" to further differentiate it from standard data. DD Form 365-3, "Chart C" entries shall be as specified in Technical Order 1-1B-40.

2.16 External Store Compatibility Data. A description of the compatibility and safe separation of externally mounted stores for all conditions within the flight test envelope of the aerospace vehicle (See DI-GDRQ-80198A for content guidance).

3. End of DI-MISC-81562