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DETAIL SPECIFICATION

MANUALS, TECHNICAL, EQUIPMENT OPERATION AND/OR MAINTENANCE INSTRUCTIONS, TECHNICAL CONTENT REQUIREMENTS (WORK PACKAGE CONCEPT)

This specification is approved for use by the Naval Air Warfare Center, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense, within the distribution limitations noted at the bottom of this page.

1. SCOPE

1.1 Scope. This specification prescribes the technical content requirements for the preparation of technical manuals in work package (WP) concept for the operation and/or maintenance instructions of NAVAIR non-aircraft systems and equipment, aircraft equipment, airborne weapons/equipment, and related support equipment (SE). The manuals will normally include an integrated illustrated parts breakdown (IPB).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Air Warfare Center Aircraft Division, Code 414100B120-3, Highway 547, Lakehurst, NJ 08733- 5100 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A AREA TMSS

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

1.2 Classification. The type of manual is a combination of the technical content (functional elements covered)and the assigned level(s) of maintenance to be covered. The maintenance level(s) covered is identified by using a prefix for the applicable functional element(s), as the first part of the publication title, as prescribed in MIL-DTL-81927. The assigned maintenance level(s) and functional elements to be covered will be as prescribed in the contract.

2. APPLICABLE DOCUMENTS.

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents in other sections of this specification or recommendation for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

DEPARTMENT OF DEFENSE

MIL-DTL-15014	-	Manual, Technical: Separate Illustrated Parts Breakdown, Technical Content Requirements (Work Package Concept).
MIL-DTL-81927	-	Manuals, Technical: Work Package Style, Format, and Common Technical Content Requirements; General Specification for (Work Package Concept).
MIL-DTL-81929	-	Manuals, Technical: Illustrated Parts Breakdown Figures; Technical Content Requirements (Work Package Concept).

(Unless otherwise indicated, copies of the above specifications, standards and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094).

2.2.2 Other government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

PUBLICATIONS

NAVAL AIR SYSTEMS COMMAND

NAVAIR 00-25-700	-	Guide to General Style and Format of Work Package Technical Manuals.
NAVAIR 01-1A-23	-	Standard Maintenance Practices for Miniature/Micro-miniature (2M) Electronic Assembly Repair.

NAVAL SUPPLY SYSTEMS COMMAND

NAVSUP 700	-	Naval Inventory Control Point Packaging Data. (Note: For Government use only.)
NAVSUP 701	-	Naval Inventory Control Point Packaging Data. (Note: Unlimited distribution.)

(Copies of NAVAIR manuals are available by request to: Commanding Officer, Naval Air Technical Services Facility (NATSF), 700 Robbins Avenue, Philadelphia, PA 19111-5097. Copies of NAVSUP 700 and 701 are available by request to: Commander, Naval Inventory Control Point, Code 05411, 5450 Carlisle Pike, P.O. Box 2020, Mechanicsburg, PA 17055-0788).

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General.

3.1.1 Copyrights and advertising. Copyright material shall not be included in any publication prepared in accordance with this specification without written permission of the copyright owner. Proprietary legends shall not be shown. The manual shall not contain advertising matter. All material prepared in accordance with this specification shall be Government property.

3.1.2 Proprietary data. The Government shall have unlimited right to the data prepared under this specification. Proprietary legends are not acceptable in technical manuals. The preparing activity shall disclose, in narrative or pictorial display, that information necessary to fulfill the requirements of this specification without disclosing that portion of the manufacturing process that the preparing activity wishes to safeguard.

3.1.3 Conflict between specifications. When conflict exists between MIL-DTL-81927 and the technical content requirements described herein, this specification shall take precedence. When conflict exists between the contract and this specification, the contract shall take precedence.

3.1.4 General style, format, and technical content. Manuals shall be prepared to WP concept. General style, format, and technical content shall be as specified in MIL-DTL-81927. MIL-DTL-81927 also provides the common requirements for WP concept manuals in the following areas:

a. Technical manuals using WP concept.

b. Style of writing.

c. Referencing requirements.

d. General format.

e. Technical manual arrangement.

f. Front matter (composite requirements).

g. Indexes (composite requirements).

h. Introduction (composite requirements).

i. Technical content WP (composite requirements).

(1) Title page (composite requirements).

(a) Title block.

(b) Reference material list.

(c) Alphabetical index.

(d) Record of technical directives.

(2) SE required lists.

(3) Material required lists.

j. Artwork requirements.

k. Changes/revisions.

3.1.5 IPB.

3.1.5.1 Relationship between the IPB and the WP concept. The IPB is an integral part of the technical data to be prepared in support of maintenance tasks. Therefore, it is essential that the intent of the WP concept is followed in the development of the supporting IPB. Emphasis shall be placed on the accessibility of data, comprehensibility of supporting illustrations, and the use of the information presented. The IPB data shall be prepared in accordance with MIL-DTL-15014 or MIL-DTL-81929, as applicable. The IPB figure(s) shall be an integral part of the maintenance element.

3.1.5.2 IPB figures. The format of IPB figures shall be compatible with all reproduction media. This shall be accomplished through control of legibility of the Group Assembly Parts List (GAPL), proper line art techniques in the preparation of supporting illustrations, and coordinated GAPL entries with illustrations (see MIL-DTL-81927 and NAVAIR 00-25-700).

3.1.6 Common requirements. Documentation prepared in accordance with this specification shall contain instructions for organizational, intermediate, and/or depot level maintenance. Mandatory compliance standard shop practices and techniques given in general maintenance engineering series manuals shall not be duplicated. Appropriate references shall be made to other manuals when required. Prepared documentation shall follow the approved maintenance plan and level of repair analysis for the end item covered. Only authorized SE, at the appropriate level of maintenance, shall be included in the maintenance instructions. Sound engineering principles, performance data, and available reliability data shall be used in the preparation of maintenance procedures.

3.1.6.1 Development and presentation. All technical data prepared in WP format shall be specifically designed to respond to functional work tasks.

3.1.6.1.1 Technical manual organization and functional elements. WP technical manual organization shall be by system or equipment and arranged by functional element in logical task order sequence. Functional elements and related data shall include but are not limited to:

a. Description and principles of operation, including controls and indicators.

b. Preparation for use, including initial installation if not performed by a support activity.

c. Operation Instructions (end item), if required.

d. Testing and Troubleshooting (with reference to schematics and wiring data).

e. Maintenance with integrated IPB.

f. Preparation for storage or shipment (end item).

g. Local manufacturing and assembly instructions.

h. SE maintenance instructions, when not covered by another manual.

i. General maintenance procedures, when applicable to multiple WPs and coverage is not contained in a NAVAIR general series manual.

j. Servicing Instructions.

3.1.6.1.2 Type of manual - definition. The type of manual is a combination of the technical content and the assigned level(s) of maintenance to be covered. The maintenance level(s) covered is identified by using a prefix for the applicable functional element(s), e.g., "Intermediate and Depot Maintenance Instructions with IPB". The following types of manuals represent the majority of NAVAIR technical manuals being developed in WP Format.

3.1.6.1.3 Separate Operation Instructions manual or WP. Separate Operation Instructions manuals or WPs shall be developed when the related functional tasks are to be preformed by different personnel or work centers. Separate Operation instructions manuals or WPs may also be developed to provide standard basic operating procedures when the equipment is used for testing or maintenance of multiple items, e.g., Automatic Test Equipment (ATE), hydraulic test stands, and portable or mobile power supplies. Separate Operation Instructions manuals or WPs may be developed when the operation and maintenance related functional tasks are to be performed by the same personnel and are required in support of multiple WPs contained different manuals.

a. Separate manual(s). Separate Operation Instructions manuals shall be developed when:

(1) The depth and scope of the coverage exceeds the useability requirements of a WP and there is no logical division of the data that will improve the usability or establish a direct relationship with different WPs.

(2) Separate Operation Instructions manuals shall be developed when required in support of multiple WPs contained different manuals.

b. Separate WP(s). Separate WP(s) shall be prepared when a WP or series of WPs can provide all related operation instructions required in support of multiple WPs contained in different manuals. One or more of these WPs can be added to different manuals to provide the complete coverage as required.

3.1.6.1.4 Maintenance Instructions. The term "Maintenance Instructions" includes all related functional elements as listed in 3.1.1.1 above, except "Operating Instructions". The IPB is a part of the maintenance WP, but is identified by "with IPB" for clarity, e.g., "Maintenance Instructions with IPB" or "Maintenance with IPB".

3.1.6.1.5 Separate Operation and Maintenance Instructions manuals. Separate Operation Instructions and Maintenance Instructions with IPB manuals shall be developed when the related functional tasks are to be performed by different personnel or work centers or when required in support of multiple WPs. When separate manuals are developed:

a. Operation Instructions. Operation Instructions shall include but not limited to the following coverage, as required:

(1) Description and principles of operation, including controls and indicators;

(2) Operating instructions;

(3) Operator's maintenance, if required;

(4) Preparation for use, storage, and/or shipment, if required.

b. Maintenance Instructions. The Maintenance Instructions shall provide but not be limited to the following coverage, as required:

(1) Description and principles of operation, including controls and indicators. The separate Operator's Instructions manual shall not be referenced.

(2) Preparation for use (end item and/or related SE), including initial installation when not performed by a support activity.

(3) Testing and troubleshooting.

(4) Maintenance with integrated IPB.

(5) Preparation for storage or shipment (end item).

(6) Local manufacturing and assembly instructions.

(7) SE maintenance instructions, when requested.

(8) General maintenance procedures, when applicable to multiple WPs.

(9) Servicing instructions.

3.1.6.1.6 Combined Operation and Maintenance Instructions. Combined Operation and Maintenance Instructions shall be developed when the operation and maintenance is performed by the same personnel. Combined manuals shall provide coverage for all applicable functional elements listed in 3.1.1.5.

3.1.6.2 Layout and arrangement of maintenance information. Manuals shall be prepared as Operation Instructions and/or Maintenance Instructions with IPBs. The criteria for determining technical manual requirements shall be based on the approved Maintenance Plan (MP) or the Level of Repair Analysis (LORA) . The analysis of coverage requirements and related task analysis (see NAVAIR 00-25-700) shall determine the depth of coverage, its complexity, information volume (bulk) and environmental usability. The development of the Numerical Index of Part Numbers, Numerical Index of Reference Designations, and the technical content of the IPB shall be in accordance with MIL-DTL-81927. The development of other technical content shall be as specified herein.

3.1.6.2.1 Repairable assembly maintenance WPs. When the LORA/MP directs, WPs shall be created to provide coverage for the repairable (at manual's maintenance level) assemblies that are contained in the equipment. Repairable assembly/subassembly WPs shall contain principles of operation, testing and troubleshooting, and maintenance instructions with IPB to the bit/piece component. Depending on testing method, the internal circuits, their relationship to each other, input and output signals, waveforms, and time-phase relationship of waveforms shall be included. A separate WP shall be created to support each repairable assembly/subassembly. When the task analysis requires, selected coverage may be located, as separate coverage, within the WP for the next higher assembly (see Task Analysis in NAVAIR 00-25-700).

3.1.7 Multimanual coverage. (See "Multivolume and Multimanual Sets" in MIL-DTL-81927.) The coverage may be provided as a combined manual or divided into a set of manuals. This division may be required for reasons of data element usability, or if the anticipated page count of the resultant manual requires such a division.

3.1.8 Multilevel maintenance coverage. More than one level of maintenance may be addressed in a manual or a set of manuals. Manual division shall be by subject matter or levels of

maintenance or as specified in the contract. The maintenance procedures shall reflect the approved MP and parts provisioning data at the appropriate maintenance level coverage. See 3.1.5.2.

3.1.9 General technical content.

3.1.9.1 Standard shop practices and techniques. Mandatory compliance standard shop practices and techniques available in general maintenance series manuals shall not be included. When applicable, appropriate reference shall be made to these manuals in accordance with MIL-DTL-81927.

3.1.9.2 Maintenance level coverage. When one or more levels of maintenance coverage are presented in a single manual or in a set of manuals, the coverage shall be as directed by the requiring activity. Maintenance level coverage may be presented as follows:

a. When the end item is provisioned for intermediate level repair, the manual shall contain complete intermediate maintenance procedures without reference to the depot maintenance manual for continuation or completion of the procedure. Operator and organizational level authorized actions shall also be included, e.g., fuse, lamp, or knob replacement. Other references required shall be prepared in accordance with MIL-DTL-81927.

b. When the equipment is provisioned for depot level, the manual shall be prepared in support of depot level maintenance and shall contain complete depot level maintenance procedures. If intermediate maintenance is authorized, the depot level manual shall reference the intermediate maintenance procedures.

c. When the equipment is provisioned for repair at both intermediate and depot levels, the manual may be prepared to support both intermediate and depot level maintenance and contain complete maintenance procedures.

(1) The differences in maintenance level coverage shall be noted in the text or by separate WP.

(2) Normally this option will be exercised when either one or both levels of maintenance covered are limited in scope.

(3) When a few items of SE are not authorized for intermediate level maintenance, the restriction shall be annotated in the "SE Required" listing.

(4) When the basic SE is not approved at both levels, the coverage shall not be contained in the same manual.

3.1.10 Task development. The task development phase of the technical manual preparation is critical because it will establish the arrangement and organization of the technical information and, together with the task analysis, will establish the depth and scope of the coverage. Based on the requirements identified by the task analysis, all tasks for end item operation (if required) and the testing, troubleshooting, and maintenance coverage requirements at the appropriate maintenance level(s) can be established. Once the basic operation and maintenance tasks are established, the depth and scope of the supporting data can be identified, e.g., description, principles of operation, local assembly and manufacturing procedures, wiring data, etc. The final output of the task development phase is the technical manual outline (refer to NAVAIR 00-25-700 and MIL-DTL-81927).

3.2 Task analysis. Normally the complexity of a item is considered to be its design sophistication. However, in terms of technical manual coverage requirements, complexity is measured during task analysis in relationship to impact on the technical manual's coverage requirements, e.g., testing (operational checkout), troubleshooting (fault isolation), testing and troubleshooting access requirements, maintenance, SE required and supporting data requirements. The logistics support requirements are frequently driven by the cost of the required SE and technical documentation. Under most conditions, the depth and scope of the total coverage requirements will be primarily determined by the testing and troubleshooting requirements. See NAVAIR 00-25-700.

3.2.1 Review of existing related technical manuals. Upon completion of the task analysis, a review of existing related documentation, including commercial manuals, shall be conducted to determine if the minimum coverage requirements (1) can be met by reference to a NAVAIR manual, (2) included in the manual(s) being developed, or (3) added to the NAVAIR technical manual inventory. Documents that are considered part of the related hardware (such as Test Program Instructions) shall contain all or part of the Testing and troubleshooting instructions shall be referenced. If all or part of the minimum requirements as determined by the task analysis are not included in the referenced material or other related documentation, the contractor shall notify the requiring activity. The requiring activity will determine if the missing data will be added to the referenced material or the manual under preparation.

3.3 Separate Maintenance Instructions manual. A separate Maintenance Instructions manual includes all related functional elements, except "Operating Instructions." The IPB is a part of the maintenance WP, but is identified by "with IPB" for clarity, e.g., "Maintenance Instructions with IPB" or "Maintenance with IPB". Maintenance Instructions includes all applicable functional elements, with related supporting data:

3.3.1 Description and principles of operation. The description and principles of operation WP shall contain two primary paragraphs, "Description" and "Principles of Operation". The description and principles of operation may also be divided into separate WPs, depending on the complexity of the equipment.

3.3.1.1 Description. The description shall cover physical and electrical characteristics of the equipment. The description shall include the materials, shape, etc., and shall list major component parts, each preferably being a part which has some particular function. The description shall reference a table giving the physical (dimensions, weight, etc.) and electrical (power requirements, output, etc.) characteristics of the equipment. The description shall be supported by one or two 3/4 view (isometric) illustrations. The views depicted shall indicate the placement, verbiage, and appropriate indexing for color requirements of all stenciled or painted markings. The description shall contain the functional element of "controls and indicators". A separate operation instruction manual shall not be referenced for "controls and indicators".

3.3.1.1.1 Controls and indicators. The functional element of "Controls and Indicators" shall provide the purpose, use, and function of all operating controls and auxiliary equipment, or attachments furnished with the equipment. The coverage shall also provide interpretation of typical instrument readings (with acceptable limits stated) and indictor presentations to inform the operator what recognizable results should be expected during each mode of operation. The data shall be presented by an illustration and related table, referenced from a brief paragraph explaining the purpose and scope of the coverage, as required:

a. Illustration. (See MIL-DTL-81927.) The purpose of the illustration is to identify each control and indicator, placard data, and location. The figure title shall identify the end item nomenclature and "Controls and Indicators". Each control or indicator shall be identified by an index number (with leader line) identifying the location and related placard data. Index numbers shall be assigned in logical sequence related to location of the item. The illustration may be a partial-page, full-page, multiple view, or foldout illustration, as best suited to the combined presentation requirements.

b. Table. (See MIL-DTL-81927.) The purpose of the table is to provide the required data for each control and indicator. The table shall be prepared as a full-page-width numbered table in accordance with MIL-DTL-81927. The table title shall identify the end item nomenclature and "Controls and Indicators" (identical to the figure title). The table shall provide, but not be limited to, the following coverage:

(1) "Figure (*)/ Index No." column. (* Insert figure number of related illustration.) This column establishes the content of the table. Each index number contained on the illustration shall be listed in numerical sequence.

(2) "Ref Des" column. The item's reference designation shall be entered:

(3) "Nomenclature" column. The complete item nomenclature shall be listed. Complete placard data shall be listed below the nomenclature in parenthesis. Complete placard data shall include the appropriate functional (section and/or group) prefix(s).

(4) "Position/Mode" column. When the item has more than one position or mode of operation, each position and mode shall be listed and the specific function aligned to the appropriate combination of mode and position. When the specific function is controlled by the mode, and the mode is controlled by a different control, the related mode with the controlling data may be entered in the "Function" column and the "Position/Mode" entry shall be aligned with the related function. If necessary for clarification, a notation may be made in the column and provided below the table or by reference to text with appropriate illustration(s), including a matrix of the modes and positions to function.

(5) "Function" column. The following shall be entered: purpose, use, and function of all operating controls and auxiliary equipment, or attachments furnished with the equipment. The coverage shall also provide interpretation of typical instrument readings (with acceptable limits stated) and indictor presentations to inform the operator what recognizable results should be expected during each mode of operation. When the item has more than one function (position or mode), the function shall be aligned by the position and/or mode entry and provide only the related data. If necessary for clarification, a notation may be identified the column and provided below the table or by reference to text with appropriate illustration(s), including a matrix of the modes and positions to function.

3.3.1.2 Principles of operation. The intent of this subject is to support the qualified maintenance technician with reference material that may be required to troubleshoot and to support on-the-job training of less qualified maintenance personnel. The principles of operation paragraph, or WP(s), shall contain a functional block diagram that depicts the operation of the equipment and the text shall be written to, and in support of, the functional block diagram. The principles of operation shall define the purpose and functions of the equipment, the technical characteristics and other general information to be used by maintenance personnel to enable understanding of the equipment and its related systems. If the manual covers more than one model, the significant differences shall be explained.

3.3.1.2.1 Presentation. The principles of operation shall consist of a functional narrative written to help understanding of the equipment operation (electrical/electronic, hydraulic, pneumatic, and mechanical). This narrative shall be to the depth necessary to support fault isolation to the level directed by the Logistic Support Analysis (LSA) and/or MP. The operation of the equipment and related system/components shall be presented in a logical flow. Significant input, output, and control signals, supply voltages and power supply output voltages shall be identified. Functional block diagrams shall be provided. If the equipment operates in more than one mode, each mode shall be explained and supported by a functional block diagram. When the LSA/MP directs fault isolation to the bit and piece component(s), the principles of operation shall describe detailed circuitry supported by block diagrams showing pertinent components only.

Internal circuits, their relationship to each other, input and output signals, waveforms and time-phase relationship to significant waveforms shall be included when required to understand detailed equipment operation. Basic theory, normally found in textbooks, shall not be included.

3.3.1.2.2 Complex equipment presentation. If the relative complexity of the equipment is such that it is reasonable to first present the principles of operation of the end item as a unit or system and then present the principles of operation of its major subassemblies or subsystems, it shall be presented in a series of WPs. Supporting block diagrams and other required illustrations shall appear in the same WP with the required text. The prime consideration in the makeup of principles of operation WPs shall be the usability of the data by the maintenance technician.

3.3.2 Equipment preparation for use (end item and/or SE), if required. Step-by-step procedures required to prepare the equipment for use, including special procedures for unpacking, removing protective coatings, and setting up equipment furnished in a partially assembled state shall be included. When the equipment is intended to be anchored or mounted in a fixed location and installed by a supporting facility, installation procedures are not required. All information required to make the equipment fully operable shall be included. The following items shall be included: instructions for cabling or plumbing that must be made up from bulk items and tests required during installation. A quality assurance reference to the operational checkout of the equipment shall be provided in accordance with MIL-DTL-81927.

3.3.3 Testing and troubleshooting. Testing and troubleshooting data shall be developed to support either manual test or automatic test procedures (automatic test procedures are those which utilize Automatic Test Equipment (ATE)). Separate procedures shall be provided for each major assembly, assembly, and subassembly identified to be replaced at the maintenance level(s) covered by the manual. Testing and troubleshooting shall include but not be limited to:

3.3.3.1 General requirements.

a. Introduction. Introduction, including an explanation of the testing and troubleshooting format and techniques.

b. Depth and scope of coverage requirements. The testing and troubleshooting procedures are determined by the complexity of the test requirements, complex or non-complex. The complexity of the test requirements is determined by the task analysis.

3.3.3.2 Operational checkout (testing) requirements:

a. Operational circuit tests. The maximum use of operational circuits using the appropriate SE and:

(1) Built-in tests,

(2) Power supply and power distribution indications,

(3) Functional modes of operation, and

(4) All available controls and indicators.

b. Test sequence. The operational checkout shall be sequenced to establish:

(1) An increasing confidence in the circuit/unit under test.

(2) That passing previous test ensures proper input requirements for the test being performed.

(3) A logical entry point for fault isolation.

(4) A fault isolation entry point for each test indication.

(5) That successful completion of the operational checkout verifies proper operation.

c. Fault isolation reference methods. A fault isolation entry point may reference:

(1) Logic text format. Combined testing and troubleshooting (logic text) format:

(a) "Yes" or "No" column entries shall only reference another procedural step,

(b) A procedural step may reference appropriate action, including separate fault isolation procedures.

(2) Logic tree format. Using separate testing and troubleshooting (logic tree) format, the operational checkout (testing) shall reference:

(a) Entry point on a logic tree troubleshooting diagram,

(b) Separate fault isolation procedures, or

(c) Direct reference to appropriate action.

d. Separate fault isolation/maintenance procedures. Separate fault isolation or maintenance procedures may be provided as, but not limited to:

(1) Step-by-step test access or item/circuit isolation procedure,

(2) Test result(s) to appropriate fault isolation procedure matrix table,

(3) Separate logic text format procedures,

(4) Additional entry point or separate logic tree troubleshooting diagram,

(5) Any combination of the above procedures.

e. Separate procedure usage. Separate fault isolation procedures shall be used when:

(1) Extensive pre-test setup and/or test access procedures are required.

(2) Lengthy step-by-step fault isolation procedures are required.

3.3.3.3 Common requirements.

a. SE and material required identification. "Support Equipment Required" and "Material Required" lists shall be prepared in accordance with MIL-DTL-81927. Only approved SE required for the maintenance level(s) covered, shall be listed or used in the procedures.

b. Step-by-step procedures. Step-by-step procedures, supported with appropriate illustrations, shall be provided for all pre-test setup, testing, troubleshooting, and post-test teardown procedures.

c. References. See MIL-DTL-81927.

d. Adjustment or alignment procedures. Adjustment/alignment procedures shall be integrated into the testing (checkout) or troubleshooting (fault isolation) procedures at the point of observation, if possible. When extensive access or different setup procedures are required, the procedure(s) shall be referenced.

3.3.3.4 Manual test procedures.

a. Pre-test setup procedures. Pre-test setup procedures, including pre-test setup illustrations, as required, e.g., test equipment interconnection diagram.

b. Testing and troubleshooting procedures. Testing and troubleshooting procedures may be integrated into one procedure using "logic text format" or may be written as separate procedures.

(1) Separate testing (operational checkout), procedures shall use logic tree format procedural text with fault isolation entry points established to reference.

(2) Separate troubleshooting (fault isolation) procedures shall be based on the operational checkout established entry points. Troubleshooting (fault isolation) procedures may be provided using any of the following formats as required for most effective presentation:

(a) Logic tree diagram format figures,

(b) Logic text format full page tables,

(c) Separate paragraphs or tables.

c. Post-test teardown procedures.

3.3.3.5 Automatic (using ATE) test procedures.

a. Testing and troubleshooting are basically the same as complex manual test procedures. However, the procedures are normally documented in Test Program Instructions and shall not be duplicated. Manual procedures may be required when the task analysis identifies that required coverage will not be provided in the Test Program Set.

b. The Test Program Set index shall be referenced for testing and troubleshooting.

c. A schematic of the Unit Under Test (UUT) shall be provided or referenced as backup data. Normally, the schematic will be provided as part of the Test Program Set.

3.3.3.6 Testing and troubleshooting procedures. Testing and troubleshooting procedures (included in the WP or in reference material) shall include the following, as applicable to the UUT:

a. SE and Materials Required lists.

b. Instructions for setup and use of special tools and test equipment, including instructions for operation.

c. When interconnection of equipment is not obvious, an interconnection diagram shall be included.

d. Instructions required to prepare the SE and its components for test.

e. Illustrations of scope displays when required for clear understanding of the test.

f. Test values of permissible tolerances.

g. Adjustments required during test, such as regulating component gain, signal level or adjusting pressures.

h. Instructions to replace components, for example: "Replace O2AR2". Reference shall be made to the location of the replacement instructions.

i. If logic tree troubleshooting format is prepared, the testing shall be presented so that the technician may conveniently refer to the applicable portion of the logic tree to perform required troubleshooting. If a fault logic text format is prepared, the procedure shall be integrated within the test.

j. Supporting documents, or reference to supporting documents, such as schematics, wiring diagrams, and wire lists.

3.3.4 Preparation for storage or shipment. Preparation for storage and/or storage instructions shall be provided when special storage requirements are applicable. Only special instructions or precautions relative to storage procedures such as corrosion prevention, draining fluids, or purging which are peculiar to the component/equipment, shall be included.

a. Standard packaging procedures contained in other manuals and related documentation shall not be included, but shall be referenced. Packaging and preservation requirements for Naval Inventory Control Point (NAVICP) and NAVAIR repairable assemblies shall reference NAVSUP 701 (or NAVSUP 700), as applicable.

b. Preparation for shipment, when a special shipping container is used, shall be provided.

c. Refer to NAVAIR 01-1A-23 (WP 005 00) for handling when an item is ESD sensitive.

3.3.5 Maintenance with IPB. The functional element of maintenance with IPB includes all of the following maintenance tasks, as applicable:

3.3.5.1 General coverage requirements. These may be provided as separate WPs or as integrated maintenance procedures, depending on the depth and scope of the required coverage.

a. General maintenance procedures. See MIL-DTL-81927.

b. SE maintenance instructions. (See 3.2.6.) When requested, SE maintenance instructions may be provided, when not covered by another manual.

c. Local manufacturing and assembly instructions.

(1) Fabrication procedures for items source coded as "Make From" or "Assemble From" at the organizational or intermediate maintenance level shall be provided.

(2) Simple procedures, adequately depicted in the IPB, shall not be covered.

d. Periodic (scheduled) maintenance. Periodic maintenance not including operator's maintenance. Operator's maintenance is included in "Operating Instructions."

3.3.5.2 Common coverage requirements.

a. Calibration procedures. Calibration procedures shall not be included under "Maintenance" and shall be provided in separate calibration procedures or manuals.

b. SE and material required identification. "Support Equipment Required" and "Material Required" lists shall be prepared in accordance with MIL-DTL-81927. Only approved, for the maintenance level(s) covered, SE required shall be listed or used in the procedures.

c. Step-by-step procedures. Step-by-step procedures, supported with appropriate illustrations, shall be referenced or provided for all maintenance procedures.

d. References. See MIL-DTL-81927.

e. Maintenance analysis. Procedures shall include an assessment of the reported/actual problem and the action required to accomplish repair.

f. Repairable assemblies. Normally a repairable assembly would require complete coverage in a separate WP. However, when testing and troubleshooting are not required, a simple assembly or subassembly can be properly covered under the coverage of the next higher assembly. When the task analysis determined that the testing and troubleshooting is required to be accomplished using the next higher assembly, the complete coverage may be contained in a separate WP or in the WP for the next higher assembly. When complete separate coverage is co-located with the next higher assembly, procedures shall stand alone. The technical manual outline shall reflect the intended coverage.

g. Special procedures. Specific instructions for any precautions, or special maintenance required for items susceptible to electrostatic discharge or hardness critical processes shall be included.

h. Special processes. Information shall be included for any special process required under extreme environmental or operational conditions within the design limits of the equipment.

i. IPB. IPBs and GAPLs shall appear in the same WP as procedural maintenance steps. Procedural maintenance steps will utilize the IPB illustration. Other maintenance illustrations may be required where a critical measurement, dimension, alignment, or inspection location must be identified to facilitate assembly. Minimum acceptable technical content is as follows:

(1) The IPB shall include parts provisioned for the applicable maintenance level(s) support of the item.

(2) An organizational level IPB shall contain and illustrate items replaceable at the organizational level that do not affect the integrity of equipment provisioned for complete repair at a higher level of maintenance, for example: knobs, lens covers, light bulbs, reflectors, and fuses. These items will also be listed and illustrated in the appropriate level of maintenance data in accordance with the complete repair code assigned.

(3) Source documentation shall determine the scope and depth of coverage required. SM&R codes will be assigned by the government and shall be listed in the IPB to identify the source of spares, repair parts, and SE and the levels of maintenance authorized to maintain, repair, overhaul, or condemn them.

j. Illustrations. Illustrations shall be prepared in accordance with MIL-DTL-81927 and the specific technical content requirements specified herein.

(1) IPB illustrations. IPB illustrations shall be prepared in accordance with MIL-DTL-81927 and either MIL-DTL-81929 or MIL-DTL-15014, as applicable. When separate IPB manuals are authorized by the contract, the maintenance procedures shall not reference the separate IPBs. Separate maintenance illustrations shall be developed using, to the maximum amount possible, the separate IPB illustrations. Refer to MIL-DTL-81927 (Multiple use of illustrations) and either MIL-DTL-81929 or MIL-DTL-15014, as applicable.

(2) Separate maintenance illustrations. When separate maintenance illustrations are required, they shall be reproductions of illustrations prepared for the IPB except for marginal copy, figure numbers, and titles. The layout of illustrations shall take into consideration the possible dual usage. Clarity of maintenance instructions shall be the prime consideration. Reproduction of all "parts" of an IPB figure, when only one or more "parts" of the total illustration is required, is not acceptable. The reproduction shall also be modified as required for clarity, for example, removal of index numbers and leader lines not used in maintenance. Additional illustrations required for support of procedures shall be prepared, when required for clarity.

3.3.5.3 End item maintenance procedures. The following paragraphs are intended to provide guidance for preparing applicable maintenance procedures. These instructions are not intended to restrict additional coverage that may be required. The procedures shall reflect the approved MP, and/or LSA, and provisioning documentation for each level of maintenance authorized. End item maintenance procedures shall include, but not be limited to the following functional tasks arranged in logical task order:

a. Removal procedures. Complete step-by-step removal procedures for assemblies and components identified by test or inspection as being faulty shall be in one WP or series of WPs. Removal/installation procedures shall be written for assemblies/components individually rather than a top-to-bottom breakdown.

b. Cleaning and corrosion control procedures. Peculiar instructions for cleaning the equipment and components shall be included. Only approved cleaning materials shall be used. Precautions to be observed and hazardous material icons shall be included as applicable.

c. Inspection procedures. Instructions for inspection of the equipment and components during maintenance shall be prepared. Inspection methods, equipment required, allowable service limits, and adequate standards for determining when parts should be replaced or repaired shall be included.

d. Repair procedures. Instructions for the repair of the equipment and its components are required to the extent authorized by the approved MP. Tables of acceptable tolerances and limits shall be included when applicable. The tables shall serve as a standard and shall list the tolerance range that is acceptable for continued operation without affecting the reliability of the equipment, including:

    (1) Part replacement or reconditioning, including installation of repair kits.

    (2) Wiring and connector repair.

e. Local manufacturing and assembly instructions.

    (1) Fabrication procedures for items source coded as "Make From" or "Assemble From" at the organizational or intermediate maintenance level shall be provided.

    (2) Simple procedures, adequately depicted in the IPB, shall not be covered.

f. Preparation for storage or shipment. Only special instructions or precautions relative to storage procedures such as corrosion prevention, draining fluids, or purging which are peculiar to the component/equipment, shall be included.

(1) Standard packaging procedures contained in other manuals and related documentation shall not be included, but shall be referenced. Packaging and preservation requirements for NAVICP and NAVAIR repairable assemblies shall reference NAVSUP 701 (or NAVSUP 700), as applicable.

(2) Preparation for shipment, when a special shipping container is used.

(3) Reference to NAVAIR 01-1A-23 (WP 005 00) for handling when item is ESD sensitive.

g. Installation, assemblies and repair parts, including;

(1) pre-installation setup, if required.

(2) alignment, adjustment, rigging.

(3) servicing, including:

(a) Environmental conditioning.

(b) Lubrication.

(4) Quality assurance reference. Last procedural step, reference to testing or pre-test requirement, e.g., end item alignment, different WP.

h. IPB. See either MIL-DTL-81929 or MIL-DTL-15014, as applicable.

3.3.5.4 Repairable assembly or subassembly maintenance procedures. Repairable assembly or subassembly maintenance procedures shall include, but not be limited to the following functional tasks arranged in logical task order:

a. Removal procedures. Complete step-by-step removal procedures for subassemblies and components identified by test or inspection as being faulty shall be in one WP or a series of WPs. Removal/installation procedures shall be written for assemblies/components individually rather than a top-to-bottom breakdown.

b. Disassembly. Procedures required for disassembly of a repairable assembly or components shall be presented in a logical sequence. Disassembly procedures for complex assemblies or components shall be in individual WPs. Illustrations required for support of procedures shall be prepared when required for clarity.

c. Cleaning and corrosion control procedures. Peculiar instructions for cleaning the equipment and components shall be included. Only approved cleaning materials shall be used. Precautions to be observed and hazardous material icons shall be included as applicable.

d. Inspection procedures. Instructions for inspection of the equipment and components during maintenance shall be prepared. Inspection methods, equipment required, allowable service limits, and adequate standards for determining when parts should be replaced or repaired shall be included.

e. Repair procedures. Instructions for the repair of the equipment and its components is required to the extent authorized by the approved MP. Tables of acceptable tolerances and limits shall be included when applicable. The tables shall serve as a standard and shall list the tolerance range that is acceptable for continued operation without affecting the reliability of the equipment, including:

(1) Part replacement or reconditioning, including installation of repair kits.

(2) Wiring and connector repair.

f. Local manufacturing and assembly instructions.

(1) Fabrication procedures for items source coded as "Make From" or "Assemble From" at the organizational or intermediate maintenance level shall be provided.

(2) Simple procedures, adequately depicted in the IPB, shall not be covered.

g. Preparation for storage or shipment. Only special instructions or precautions relative to storage procedures such as corrosion prevention, draining fluids, or purging which are peculiar to the component/equipment, shall be included.

(1) Standard packaging procedures contained in other manuals and related documentation shall not be included, but shall be referenced. Packaging and preservation requirements for NAVICP and NAVAIR repairable assemblies shall reference NAVSUP 701 (or NAVSUP 700), as applicable.

(2) Preparation for shipment, when a special shipping container is used.

(3) Refer to NAVAIR 01-1A-23 (WP 005 00) for handling when item is ESD sensitive.

h. Assembly procedures. Procedures required for assembly of the repairable assemblies/ subassemblies/components of the equipment shall be included. Assembly instructions shall contain all pertinent assembly criteria, including clearances, back-lash dimensions, torque values, and similar data. Procedures describing required alignment, adjustment, rigging, lubrication, painting, etc., shall be included. Instructions such as "assemble in reverse order of disassembly" are not acceptable.

i. Installation, assemblies and repair parts, including;

(1) pre-installation setup, if required.

(2) alignment, adjustment, rigging.

(3) servicing, including:

(a) Environmental conditioning.

(b) Lubrication.

(4) Quality assurance reference. Last procedural step, reference to testing or pre-test requirement, e.g., end item alignment, different WP.

j. IPB. See either MIL-DTL-81929 or MIL-DTL-15014, as applicable.

3.3.6 SE for SE maintenance. Maintenance procedures for SE required for SE maintenance shall be provided in separate WPs if not covered in separate maintenance manuals. The procedures shall reflect the approved maintenance plan and provisioning documentation at each level of maintenance authorized. If a piece of SE of this category is applicable to two or more systems covered in different volumes of the end item SE manuals, the WP shall not be duplicated.

3.3.7 Local manufacturing and assembly instructions. When a repairable assembly is source coded as "Make From" or "Assemble From" at the organizational or intermediate maintenance level, separate WP coverage shall be provided. When multiple items have common coverage requirements, the items may be covered in the same WP or series of WPs, e.g., cable assemblies.

3.3.8 Wiring diagrams and wire lists. Wiring diagrams are preferred over wire lists as maintenance data. Wire lists may be prepared in lieu of wiring diagrams when such lists adequately contain the maintenance data required by the technician to complete the task. A

combination of wire lists and wiring diagrams may be prepared. However, a wire list and a wiring diagram listing and illustrating the same end item shall not be prepared. When a combination of wire lists and wiring diagrams is prepared, certain wire numbers will appear on both data elements. This is acceptable. Wire lists and wiring diagrams shall be prepared in accordance with MIL-DTL-81927.

3.3.9 Schematic diagrams (multiple WP application foldouts). When a foldout schematic diagram (functional block, signal flow, electrical or electronic diagrams, etc.) or other foldout supporting illustrations are used by more than one WP, placement in the last WP or a separate manual will greatly improve the useability of the data. A foldout illustration shall follow any related text or usage, e.g., description, principles of operation, testing, and troubleshooting. A foldout illustration shall also follow related data required to be used with the foldout illustration, e.g., test point identification, including the IPB when used for test point identification and related wire lists.

3.4 Separate operation instructions manual or WP. Separate operation instructions manuals or WPs shall be developed when the related functional tasks are to be preformed by different personnel or work centers. Separate operation instructions manuals or WPs may also be developed to provide standard basic operating procedures when the equipment is used for testing or maintenance of multiple items, e.g., ATE, hydraulic test stands, and portable or mobile power supplies. Separate operation instructions manuals or WPs may be developed when the operation and maintenance related functional tasks are to be preformed by the same personnel and are required in support of multiple WPs contained different manuals.

3.4.1 Description and principles of operation. The description and principles of operation WP shall contain two primary paragraphs, "Description" and "Principles of Operation". The description and principles of operation may also be divided into separate WPs, depending on the complexity of the equipment.

3.4.1.1 Description. The description shall cover physical and electrical characteristics of the equipment. The description shall include the materials, shape, etc., and list major component parts, each preferably being a part which has some particular function. The description shall reference a table giving the physical (dimensions, weight, etc.) and electrical (power requirements, output, etc.) characteristics of the equipment. The description shall be supported by one or two 3/4 view (isometric) illustrations. The views depicted shall indicate the placement, verbiage, and appropriate indexing for color requirements of all stenciled or painted markings. The description shall contain the functional element of "controls and indicators". A separate operation instruction manual shall not be referenced for "controls and indicators".

3.4.1.1.1 Controls and indicators. The functional element of "Controls and Indicators" shall provide the purpose, use, and function of all operating controls and auxiliary equipment, or attachments furnished with the equipment. The coverage shall also provide interpretation of

typical instrument readings (with acceptable limits stated) and indictor presentations to inform the operator what recognizable results should be expected during each mode of operation. The data shall be presented by an illustration and related table, referenced from a brief paragraph explaining the purpose and scope of the coverage, as required:

a. Illustration. Refer to MIL-DTL-81927. The purpose of the illustration is to identify each control and indicator, placard data, and location. The figure title shall identify the end item nomenclature and "Controls and Indicators". Each control or indicator shall be identified by an index number (with leader line) identifying the location and related placard data. Index numbers shall be assigned in logical sequence related to location of the item. The illustration may be a partial-page, full-page, multiple view, or foldout illustration, as best suited to the combined presentation requirements.

b. Table. Refer to MIL-DTL-81927. The purpose of the table is to provide the required data for each control and indicator. The table shall be prepared as a full-page-width numbered table in accordance with MIL-DTL-81927. The table title shall identify the end item nomenclature and "Controls and Indicators" (identical to the figure title). The table shall provide, but not be limited, to the following coverage:

(1) "Figure (*)/ Index No." column. (* Insert figure number of related illustration.) This column establishes the content of the table. Each index number contained on the illustration shall be listed in numerical sequence.

(2) "Ref Des" column. The item's reference designation shall be entered.

(3) "Nomenclature" column. The complete item nomenclature shall be listed. Complete placard data shall be listed below the nomenclature in parenthesis. Complete placard data will include the appropriate functional (section and/or group) prefix(s).

(4) "Position/Mode" column. When the item has more than one position or mode of operation, each position and mode shall be listed and the specific function aligned to the appropriate combination of mode and position. When the specific function is controlled by the mode, and the mode is controlled by a different control, the related mode with the controlling data may be entered in the "Function" column and the "Position/Mode" entry shall be aligned with the related function. If necessary for clarification, a notation may be made in the column and provided below the table or by reference to text with appropriate illustration(s), including a matrix of the modes and positions to function.

(5) "Function" column. The following shall be entered: purpose, use, and function of all operating controls and auxiliary equipment, or attachments furnished with the equipment. The coverage shall also provide interpretation of typical instrument

readings (with acceptable limits stated) and indictor presentations to inform the operator what recognizable results should be expected during each mode of operation. When the item has more than one function (position or mode), the function shall be aligned by the position and/or mode entry and provide only the related data. If necessary for clarification, a notation may be identified the column and provided below the table or by reference to text with appropriate illustration(s), including a matrix of the modes and positions to function.

3.4.1.2 Principles of operation. The intent of this subject is to support the qualified maintenance technician with reference material that may be required to troubleshoot and to support on-the-job training of less qualified maintenance personnel. The principles of operation paragraph, or WP(s), shall contain a functional block diagram that depicts the operation of the equipment and the text shall be written to, and in support of, the functional block diagram. The principles of operation shall define the purpose and functions of the equipment, the technical characteristics and other general information to be used by maintenance personnel to enable understanding of the equipment and its related systems. If the manual covers more than one model, the significant differences shall be explained.

3.4.1.2.1 Presentation. The principles of operation shall consist of a functional narrative written to help understanding of the equipment operation (electrical/electronic, hydraulic, pneumatic, and mechanical). This narrative shall be to the depth necessary to support fault isolation to the level directed by the LSA and/or MP. The operation of the equipment and related system/components shall be presented in a logical flow. Significant input, output, and control signals, supply voltages and power supply output voltages shall be identified. Functional block diagrams shall be provided. If the equipment operates in more than one mode, each mode shall be explained and supported by a functional block diagram. When the LSA/MP directs fault isolation to the bit and piece component(s), the principles of operation shall describe detailed circuitry supported by block diagrams showing pertinent components only. Internal circuits, their relationship to each other, input and output signals, waveforms and time-phase relationship to significant waveforms shall be included when required to understand detailed equipment operation. Basic theory, normally found in textbooks, shall not be included.

3.4.1.2.2 Complex equipment presentation. If the relative complexity of the equipment is such that it is reasonable to first present the principles of operation of the end item as a unit or system and then present the principles of operation of its major subassemblies or subsystems, it shall be presented in a series of WPs. Supporting block diagrams and other required illustrations shall appear in the same WP with the required text. The prime consideration in the makeup of principles of operation WPs shall be the usability of the data by the maintenance technician.

3.4.2 Equipment preparation for use (end item and/or SE), if required. Step-by-step procedures required to prepare the equipment for use, including special procedures for unpacking, removing protective coatings, and setting up equipment furnished in a partially assembled state

shall be included. When the equipment is intended to be anchored or mounted in a fixed location and installed by a supporting facility, installation procedures are not required. All information required to make the equipment fully operable shall be included. The following items shall be included: instructions for cabling or plumbing that must be made up from bulk items and tests required during installation. A quality assurance reference to the operational checkout of the equipment shall be provided in accordance with MIL-DTL-81927.

3.4.3 Operating instructions (end item). This functional element shall contain step-by-step operation instructions for the equipment, including all safety precautions, covering the complete pre-operational to post-operational cycle. The procedures shall identify all normal and abnormal observations or indications, including appropriate action is to be taken. The coverage shall include, but not be limited to, the following procedures, as required:

a. Pre-operational setup procedures. Pre-operational setup procedures, including pre-operational setup illustrations and initial switch settings to prepare the equipment for operation, if required.

b. Start-up information. The start-up information is normally part of the operating procedures and/or pre-operational setup.

c. Built-in-test or self-test procedures. Procedures for self-testing the equipment when built-in-test (BIT) feature or self-test capability is provided. These procedures are normally integrated into the operating procedures, but may be required as part of the pre-operational setup procedures. If this information is contained in another document, reference shall be made to the applicable document.

d. Operating procedures (normal sequence of operation). Step-by-step procedures for operation of the equipment in normal sequence of operation. If this information is contained in a test program instruction or another technical manual, reference shall be made to the applicable document.

e. Emergency operation. Step-by-step procedures by "functional mode" or "emergency condition", detailing the operating procedures with proper warnings or cautions, that can be performed without further damage to the equipment. The procedures shall identify any different indications or observations, with appropriate actions to be taken. When the equipment should not be operated with a specific "functional mode(s)" or "emergency condition", this requirement shall be clearly identified with appropriate warning or caution.

f. Emergency shut-down procedures. Emergency shut-down procedures with cautions to be observed, including warning as to safety of operations to prevent injury to operating personnel.

g. Post-operational shut-down procedures. Procedures to return the equipment to its normal configuration, prior to pre-operational setup, if required.

3.4.4 Operator's maintenance, if required.

a. Scheduled maintenance procedures shall be provided when not covered by separate maintenance requirement cards.

b. When covered by separate maintenance requirement cards, reference shall be made to the applicable document.

3.4.5 Preparation for storage or shipment. Only special instructions or precautions relative to storage procedures such as corrosion prevention, draining fluids, or purging which are peculiar to the component/equipment, shall be included.

a. Standard packaging procedures contained in other manuals and related documentation shall not be included, but shall be referenced. Packaging and preservation requirements for NAVICP and NAVAIR repairable assemblies shall reference NAVSUP 701 (or NAVSUP 700), as applicable.

b. Preparation for shipment, when a special shipping container is used.

c. Refer to NAVAIR 01-1A-23 (WP 005 00) for handling when item is ESD sensitive.

3.5 Combined Operation and Maintenance Instructions manuals. Combined Operation Instructions and Maintenance Instructions with IPB manuals shall be developed when the related functional tasks are to be performed by the same personnel or work centers. When combined manuals are developed, the following basic sequence may be used:

a. Description and principles of operation, including controls and indicators.

b. Preparation for use, including initial installation if not performed by a support activity.

c. Operation instructions (end item), if required.

d. Testing and troubleshooting (with reference to schematics and wiring data).

e. Maintenance with integrated IPB.

f. Preparation for storage or shipment.

g. Local manufacturing and assembly instructions.

h. SE maintenance instructions, when not covered by another manual.

i. General maintenance procedures, when applicable to multiple WPs and coverage is not contained in a NAVAIR general series manual.

j. Servicing instructions.

4. VERIFICATION

4.1 Verification. Verification shall be conducted as prescribed in the contract.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DOD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature which may be helpful but is not mandatory.)

6.1 Intended Use. Technical manuals prepared in accordance with this specification are intended for use in the operation and maintenance of non-aircraft systems and equipment, aircraft equipment, airborne weapons/equipment, and related SE.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.

b. Type(s) of manuals to be prepared (see 1.2).

c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2).

d. Packaging requirements (see 5.1).

6.3 Technical manuals. The requirements for technical manuals must be considered when this specification is applied on a contract. If technical manuals are required, specifications and standards that have been cleared and listed in DoD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL) must be listed on a separate Contract Data Requirements List (DD Form 1423), which is included as an exhibit to the contract. The technical manuals must be acquired under separate contract line item in the contract.

6.4 Specification figures. The figures previously included in this specification were intended to illustrate methods of presentation of technical data. They are being revised for incorporation into NAVAIR 00-25-700. Sample illustrations can be provided by the requiring activity, if requested. The sample figures must not be interpreted as limiting the technical content requirements that are established by the text. The text will take precedence over all examples shown in the sample figures.

6.5 Subject term (key word) listing.

Repair procedures
Inspection procedures
Illustrated parts

6.6 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

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CONCLUDING MATERIAL

Preparing activity:
Navy - AS

(Project TMSS-N267)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete blocks 4, 5, 6, and 7.

3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-DTL-81919C	2. DOCUMENT DATE (*YYMMDD*) 971126

3. DOCUMENT TITLE
MANUALS, TECHNICAL, EQUIPMENT OPERATION AND/OR MAINTENANCE INSTRUCTIONS, TECHNICAL CONTENT REQUIREMENTS

4. NATURE OF CHANGE (*Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.*)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (*Last, First, Middle Initial*)	b. ORGANIZATION	
c. ADDRESS (*Include Zip Code*)	d. TELEPHONE (*Include Area Code*) (1) Commercial: (2) DSN: (*If Applicable*)	7. DATE SUBMITTED (*YYMMDD*)

8. PREPARING ACTIVITY

a. NAME COMMANDER NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION	b. TELEPHONE NUMBER (*Include Area Code*) (1) Commercial (732) 323-2947 (2) DSN 624-2947
c. ADDRESS (*Include Zip Code*) CODE 414100B120-3 HIGHWAY 547 LAKEHURST, NJ 08733-5100	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office, 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 DSN 289-2340