

NOT
MEASUREMENT
SENSITIVE

MIL-DTL-81927C(AS)
26 November 1997
SUPERSEDING
MIL-M-81927B(AS)
5 APRIL 1989

DETAIL SPECIFICATION

MANUALS, TECHNICAL: WORK PACKAGE STYLE, FORMAT, AND COMMON TECHNICAL CONTENT REQUIREMENTS; GENERAL SPECIFICATION FOR (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 general style, format, and common technical content requirements for the preparation of technical manuals using the work package (WP) concept. This specification should be used to prepare aircraft weapon systems, aeronautical equipment, airborne weapons/equipment, and related support equipment technical manuals (in page format) when logistics support is to be provided.

1.2 Classification (type of manuals). 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)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document shall 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.

MIL-DTL-81927C(AS)

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:

1.2.1 Organizational level. WP organizational level manuals may be either a single manual or a series of manuals covering organizational level operations and maintenance and its associated illustrated parts breakdown (IPB) data. Organizational level information shall normally be defined as "on" aircraft or equipment tasks arranged on a systems concept. "Off" aircraft organizational level tasks include component and support equipment repair, manufacturing, and assembly.

1.2.2 Intermediate and depot level. WP intermediate and depot level manuals should be prepared as either individual maintenance level coverage or combined maintenance level coverage manuals, and associated IPB data, based on their application and the approved maintenance plan or logistics support analysis (LSA). The documents will normally cover "off" aircraft or "off" equipment tasks arranged by weapons repairable assembly (WRA). That is, component or assembly maintenance shall be covered instead of the system concept used at organizational level.

1.2.3 Combined maintenance levels. WP format manuals may consist of any combination of level coverage and associated IPB data, predicated on the approved maintenance plan or the LSA, facility requirements, support equipment required, and the volume of information to be presented. Combined maintenance level manuals are most practical when maintenance requirements at each level are fairly consistent, the same support equipment is applied, the same facility requirements are used, and when the overall data volume permits. Organizational level normally shall not be combined with intermediate or depot level data.

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 shall be those listed in the issue of the Department of

MIL-DTL-81927C(AS)

Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

DEPARTMENT OF DEFENSE

| | |
|-----------------|---|
| MIL-DTL-15014 - | Manuals, Technical: Separate Illustrated Parts Breakdown, Technical Content Requirements (Work Package Concept). |
| MIL-DTL-81218 - | Manuals, Technical: Aircraft Engine Intermediate and Depot Maintenance, Preparation of. |
| MIL-DTL-81919 - | Manuals, Technical: Equipment Operation and/or Maintenance Instructions, Technical Content Requirements (Work Package Concept). |
| MIL-DTL-81928 - | Manuals, Technical: Aircraft Maintenance Instructions, Technical Content Requirements (Work Package Concept). |
| MIL-DTL-81929 - | Manuals, Technical: Illustrated Parts Breakdown Figures; Technical Content Requirements (Work Package Concept). |
| MIL-DTL-85383 - | Manuals, Technical: Aircraft Structure Repair; Preparation of (Work Package Concept). |

STANDARDS

FEDERAL

| | |
|---------------|---|
| FED-STD-313 - | Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities. |
|---------------|---|

(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.

MIL-DTL-81927C(AS)

PUBLICATIONS

FEDERAL

- | | | |
|----------------------------|---|--|
| Cataloging Handbooks H4/H8 | - | Commercial and Government Entity (CAGE) Codes. |
| Cataloging Handbook H-6 | - | Federal Item Name Directory for Supply Cataloging. |

NAVAL SEA SYSTEMS COMMAND

- | | | |
|-------------------------|---|--|
| N0000-00-IDX-000/-TMINS | - | Description and Application Guide and Index for Standard Technical Manual Identification Numbering System (TMINS). |
|-------------------------|---|--|

NAVAL AIR SYSTEMS COMMAND

- | | | |
|------------------|---|--|
| NAVAIR 00-25-100 | - | Technical Manual Program. |
| NAVAIR 00-25-300 | - | Technical Directives System. |
| NAVAIR 00-25-700 | - | Guide to General Style and Format of Work Package Technical Manuals. |

(Copies of Cataloging Handbooks H-4, H-6, and H-8 are available from the Commander, Defense Logistic Service Center, Battle Creek, MI 49017-3084. Copies of manuals are available by request to: Commanding Officer, Naval Air Technical Services Facility (NATSF), 700 Robbins Avenue, Philadelphia, PA 19111-5097.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)

- | | | |
|-----------------------|---|--|
| ANSI Y10.5 (IEEE 280) | - | Letter Symbols for Quantities Used in Electrical Science and Electrical Engineering. |
| ANSI Y14.2 | - | Line Conventions and Lettering. |
| ANSI Y14.5 | - | Dimensioning and Tolerancing. |
| ANSI Y14.15 | - | Electrical and Electronics Diagrams. |

MIL-DTL-81927C(AS)

(Application for copies should be addressed to American National Standards Institute, 11 West 42nd Street, New York, NY, 10036.)

LIBRARY OF CONGRESS

CATALOG No. Z 253.U58 - U.S. Government Printing Office Style Manual.

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, North Capitol and H Streets NW, Washington, DC 20402-0002.)

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

| | | |
|--------------------------------|---|---|
| ANSI/IEEE Std. 91-84 | - | Graph Symbols for Logic Functions. |
| IEEE Std. 200 (ANSI Y32.16) | - | Reference Designation for Electrical and Electronics Parts and Equipment. |
| ANSI/IEEE Std. 260 | - | Letter Symbols for Units of Measurement. |
| IEEE Std. 315 (ANSI Y32.2) | - | Graphic Symbols for Electrical and Electronic Diagrams Including Reference Designation Class Letters. |
| ANSI/IEEE Std. 315A | - | Graphic Symbols Supplement. |

(Application for copies should be addressed to IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.)

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA

| | | |
|--------------------------------|---|---|
| AECMA Document PSC-85-16598 | - | AECMA Simplified English: A Guide for the Preparation of Aircraft Maintenance Documentation in the International Aerospace Maintenance Language. |
|--------------------------------|---|---|

(Application for copies should be addressed to Aerospace Industries Association of America, 1250 I Street NW, Washington, DC 20005-3924.)

MIL-DTL-81927C(AS)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein (except for related associated specifications), 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 should 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 Associated specifications. The individual item requirements shall be as specified herein and in accordance with the applicable associated specification. In the event of any conflict between the requirements of this specification and the associated specifications, the latter shall govern.

| | |
|-----------------|---|
| MIL-DTL-15014 - | Manual, Technical: Separate Illustrated Parts Breakdown, Technical Content Requirements (Work Package Concept). |
| MIL-DTL-81218 - | Manuals, Technical; Aircraft Engine Intermediate and Depot Maintenance, Preparation of. |
| MIL-DTL-81919 - | Manuals, Technical, Equipment Operation and/or Maintenance Instructions, Technical Content Requirements (Work Package Concept). |
| MIL-DTL-81928 - | Manuals, Technical, Aircraft Maintenance Instructions, Technical Content Requirements (Work Package Concept). |

MIL-DTL-81927C(AS)

| | |
|-----------------|---|
| MIL-DTL-81929 - | Manuals, Technical: Illustrated Parts Breakdown Figures; Technical Content Requirements (Work Package Concept). |
| MIL-DTL-85383 - | Manuals, Technical: Aircraft Structure Repair; Preparation of (Work Package Concept). |

3.2 Technical manuals using work package format.

3.2.1 WP concept. A WP concept technical manual is specifically designed to respond to work tasks or to provide direct support of work tasks. The usability of the TM is the direct result of applying coordinated techniques to improve access of technical information and simplifying presentation methods. This is accomplished through controlled text legibility, highly visible primary and secondary headings, coordinated and consolidated text and illustrations by task, improved line art presentation and more effective indices requirements. WP concept is defined as a logical combination of requirements analysis and improved presentation techniques. It has been specifically designed to enhance documentation usability in performance of aeronautical maintenance. TM usability is keyed to three primary elements:

- a. A logical organization and arrangement,
- b. An easily understood comprehensive style,
- c. A highly visible, eye attracting format.

3.2.1.1 Technical manual organization and functional elements. WP concept technical manual organization shall be by system or equipment and arranged by functional element in logical task order sequence. Refer to technical content specification for detailed coverage requirements. Functional elements and related data 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 (reference to schematics and wiring data).
- e. Maintenance with integrated IPB.

MIL-DTL-81927C(AS)

- f. Preparation for storage or shipment (end item).
- g. Local manufacturing and assembly instructions.
- h. Support equipment maintenance instructions, when authorized.
- i. General maintenance procedures, when applicable to multiple WPs and coverage is not contained in a NAVAIR general series manual.
- j. Servicing Instructions.

3.2.1.2 Technical manual organizational arrangement:

- a. Information shall functionally divided into individual task packages in the logical order of work sequence.
- b. These WPs shall be stand alone data units containing all information required for directing/supporting task performance.
- c. The data arrangement shall be responsive to the needs of the user.
- d. It shall reflect the engineering design, the approved maintenance plan/LSA, and the defined maintenance concept.
- e. It shall accurately reflect the requirements of each maintenance level, the environment, and skills for each task performance.
- f. Testing, troubleshooting, and maintenance shall be described using:
 - (1) approved support equipment,
 - (2) established facility requirements, and
 - (3) applicable parts replacement as identified by the item source selection criteria (provisioning).

MIL-DTL-81927C(AS)

3.2.1.2.1 Operation instructions. Operation instructions shall be developed when the equipment is designed to be operated by a dedicated Operator. Refer to technical content specification for detailed coverage requirements. The operation of support equipment shall be integrated into the testing (checkout) procedures using the support equipment. Operating instructions shall 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. Operation instructions shall include the following coverage if the equipment is operated by a dedicated operator:

- a. Description and principles of operation, including controls and indicators;
- b. Operating instructions;
- c. Operator's maintenance, if required;
- d. Preparation for use, storage, and/or shipment, if required.

3.2.1.2.2 Maintenance Instructions. The term "Maintenance Instructions" includes all related Functional elements as listed in 3.2.1.1, except "Operating Instructions". The IPB is a part of the maintenance TM, but is identified by "with IPB" for clarity, e.g., "Maintenance Instructions with Illustrated Parts Breakdown" or "Maintenance Instructions with IPB". Refer to technical content specification for detailed coverage requirements.

3.2.1.2.3 Separate Operation and Maintenance Instructions manuals. Separate Operation Instructions and Maintenance Instructions with Illustrated Parts Breakdown 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. Refer to technical content specification for detailed coverage requirements.

3.2.1.2.4 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 3.2.1.1.

3.2.1.3 WP definition. Based on the criteria presented above, WP concept documents shall be defined as follows:

- a. A WP manual consists of a functionally assembled technical manual containing individual WPs covering independent tasks grouped by system or equipment.

MIL-DTL-81927C(AS)

- b. A WP shall consist of an individual unit of information containing all data necessary for a technician to perform a specific task. There shall be minimum referencing.
Referencing within direct procedural steps should not occur except as defined in 3.5.1.

3.2.2 WP technical manual preparation. The preparing activity must concentrate and apply the requirement of system or equipment engineering design to the development of the technical data. The guidelines set forth in the LSA or the approved maintenance plan shall also apply. General guidelines for planning and preparation of WP manuals are defined in NAVAIR 00-25-700.

3.2.2.1 Task development. The task development phase of technical manual preparation is critical, because it will reflect the arrangement and organization of technical information. Based on maintenance requirements identified by the task analysis, all tasks and support data should reflect end item operation and fault isolation/maintenance criteria at the appropriate level(s) of maintenance. As required in NAVAIR 00-25-700, task analysis is the most appropriate method of establishing a matrix of task requirements and the sequence of task actions. The depth and scope of required coverage depends on complexity of the required tasks and the magnitude of effort defined in the task analysis. Refer to technical content specification for detailed task analysis and development requirements.

3.2.3 Division of technical content. The division of the total technical content by multiple manuals and/or within a manual is primarily determined by the volume of data required to provide the proper depth and scope of coverage for the end item to be supported. The top-down breakdown of data is as follows:

- a. Multimanual set. (See 3.7.3.2.) When the task analysis indicates that more than one manual is required, coverage may be divided into a set of manuals.
- b. Manual. A manual can be of any authorized size that is useable in the user's environment. One of the primary factors of usability is thickness; the manual is required to fit into a available protective binder. When a manual exceeds maximum binder size (3 inches), it shall be divided into two or more manuals. When the user's environment limits the page size of the manual, a smaller manual size can be authorized (see 3.6.2.2).
- c. WP. A WP is the first major division within a manual. There is no limit to the number of WPs within a manual, other than physical size. Normally at least one WP is assigned for each repairable assembly. Refer to technical content specification for detailed coverage requirements.

MIL-DTL-81927C(AS)

- (1) Related WPs. When there is a major difference of coverage for the same task, related WPs shall be used to divide a WP into logical related tasks or functional elements, e.g., configuration difference (effectivity), maintenance levels, system/subsystem or system/assembly/ subassembly relationship and alternate procedures, including the use of different support equipment.
- (2) WP division. If the WP will exceed reasonable size, see 3.2.4.1.1.1.

3.2.3.1 Paragraph division and headings (sideheads). Paragraphs are referred to as titled and untitled paragraphs. Titled paragraphs are referred to as "sideheads", (primary sidehead, secondary sidehead, tertiary sidehead, quaternary sidehead). Technical content shall contain one or more primary paragraphs which shall be divided into subordinate paragraphs, as required. Titled paragraphs shall have a brief title heading describing the content or action portrayed. All sideheads shall appear in normal bold type.

- a. Primary sideheads. Primary sideheads are used to divide the text into primary subjects. There shall be at least two primary sideheads in each WP containing text. Primary sideheads shall stand alone (not run in with text), shall appear in all capital letters, and shall be underlined.
- b. Secondary sideheads. Secondary sideheads are used to divide text where there are two or more subjects covered under one primary sidehead. Secondary sideheads shall be run in with text, shall appear in all capital letters, and shall not be underlined.
- c. Tertiary sideheads. Tertiary sideheads are used to divide text where there are two or more subjects covered under one secondary sidehead. Tertiary sideheads shall be run in with text, shall appear in upper and lower case letters, and shall be underlined.
- d. Quaternary sideheads. Quaternary sideheads are used to divide text where there are two or more subjects covered under one tertiary sidehead. Quaternary sideheads shall be run in with text, shall appear in upper and lower case letters, and shall not be underlined.
- e. Untitled paragraphs. Untitled paragraphs are used to divide text that does not warrant the assignment of sideheads.

3.2.3.1.1 Procedural steps. The contents of a paragraph may be divided into procedural steps. Lead-in sentences are not required when the paragraph title is self-explanatory. Procedural steps are normally used to present step-by-step procedures, such as testing, disassembly, alignment, and removal procedures. Procedural steps may also be used to establish the relationship of text or sequential operation. Procedural steps may be divided into subordinate steps.

MIL-DTL-81927C(AS)

3.2.4 Task grouping within a WP. Ideally, each WP in the manual will be an independent, self-contained data unit. Following the criteria defined in NAVAIR 00-25-700, the writer will be required to group some tasks and divide others into WPs of suitable length. Division or selection of coverage will depend on the item covered, such as operational modes, complexity of maintenance actions, level(s) of maintenance covered, and the specific requirements of the applicable detailed content specification.

3.2.4.1 Page count of a WP. Each WP shall contain only that data which is essential to the performance of the task covered by the WP. The desired maximum page count of a WP is 30 pages.

3.2.4.1.1 WP that exceeds 30 pages. When it is determined that a WP will exceed this limit, the coverage shall be reviewed for a logical division of the data that would improve the access to data. These limitations do not apply to the alphabetical index, numerical index of part numbers, numerical index of reference designations, or wire lists.

3.2.4.1.1.1 WP division. Normal division of a WP will be by primary paragraphs or functional element. Frequently, however, access to data is improved by developing separate WP(s) for supporting data, e.g., wiring diagrams, wire lists, or fault isolation diagrams.

- a. Division will improve access to data. When division of a WP will improve access to data, the division shall be accomplished.
- b. Division will not improve access to data. When a division of a WP will not improve access to data, clarify the relationship, or improve usability of the data, the WP should not be divided just to reduce the page count of a WP.

3.2.5 Technical manual outline. The first step in the construction of a WP manual is the development of an outline to be reviewed and approved by the requiring activity.

- a. The outline shall be developed from an analysis of available source data.
- b. The most appropriate method of determining maintenance requirements and the sequencing of maintenance tasks is a task analysis, as required in NAVAIR 00-25-700.
- c. Normally, the source of information used for the task analysis is the LSA. If an LSA has not been performed, the preparing activity shall follow the approved maintenance plan/concept identified by the requiring activity.
- d. The depth and scope of the task analysis will depend on the sophistication of the design of the equipment and the depth of the required maintenance coverage as determined by the task analysis.

MIL-DTL-81927C(AS)

3.2.5.1 Content of manual outlines. A manual outline shall list all WP candidates by WP title in the proposed order of arrangement.

- a. It shall identify, by appropriate title and number, the intended coverage of each WP within a manual.
- b. Outlines for a single WP manual shall substitute paragraph titles for WP titles.
- c. The approved outline shall include changes/corrections requested by the requiring activity following review.
- d. The approved outline may be revised with mutual contractor/requiring activity concurrence until final delivery of the manual.

3.2.6 Digital TM format or digital copy requirements. The digital technical manual format or digital copy requirements shall be in accordance with the contract.

3.3 Illustrated Parts Breakdown.

3.3.1 Relationship between the Illustrated Parts Breakdown and the WP concept. The Illustrated Parts Breakdown (IPB) is an integral part of the technical manual 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 IPB technical content specification.

3.3.2 Illustrated Parts Breakdown 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 3.9 and NAVAIR 00-25-700).

3.4 Style of writing.

3.4.1 Response to intended user. The style of writing shall be in accordance with NAVAIR 00-25-700 and the techniques used to produce readable and comprehensive technical data shall be commensurate with the capability of the targeted audience for which they are intended:

- a. Text shall be factual, concise and readily understandable. Unnecessary lead-in sentences, descriptive phrases, and vague and ambiguous terms shall not be used.

MIL-DTL-81927C(AS)

- b. Technical phraseology, requiring specialized knowledge, shall be used only when no other word or phrase will convey the intended meaning.
- c. Words which have more than one meaning such as "check" instead of "checkout", shall not be used.
- d. Third person indicative mood shall be used for descriptive text. Second person imperative mood shall be used for instructions and shall be written as commands, for example: "install power supply."
- e. Articles shall be omitted except when required to prevent ambiguity or to facilitate understanding of the instruction.
- f. When space conservation is desirable, the verb may also be omitted; for example: "power switch ON." The verb may be omitted only if the intent of the statement is clear to the user.
- g. The rules and features of simplified English written in AECMA Document PSC-85-16598 may also be used as guidelines in the preparation of technical manuals.

3.4.1.1 Comprehensibility. Comprehensibility is mandatory in the preparation of all text and illustrations. It is imperative that documents be prepared in an easily understood manner to permit rapid detection and comprehension of all procedures.

- a. Paragraphs and sentences. Concentration shall be exercised during the writing phase to ensure adequate paragraphing and sentence structuring. Sentencing shall be directive in nature, short, clear and concise so it supports data retention.
- b. Arrangement. Arrangement of information in procedural step format vice narrative descriptive material also enhances comprehension. Text and illustrations shall be closely coordinated.
- c. Graphic data. Graphics data is of equal importance to text. Simple, clear graphics reduce text requirement and raise the level of comprehension.

3.4.1.2 Readability. Readability is measured using criteria based on the readers/users ability to comprehend and retain the written information. To ensure that text material is both readable and comprehensive, the overall writing style shall be directed toward specific standards that will guarantee accomplishment of these objectives. Controlling factors include word length, sentence length, paragraphing, and word usage. Prepared text shall conform to the following readability standards:

MIL-DTL-81927C(AS)

- a. Word length. The length of a word is measured by its number of syllables. Simple common words of a few syllables shall be used to convey the intended meaning. The average word length shall not exceed 1.60 syllables. The desired average word length is 1 to 1.5 syllables, but 1.51 to 1.60 is acceptable. Military terms and mandatory technical words are excluded from this restriction.
- b. Sentence length. Sentences should be short and concise in order to facilitate ease of understanding and retention of thought. The average sentence length shall not exceed 20 words. The desired average is 17 words or less, but 18 to 20 words is acceptable. The use of compound and complex sentences should be avoided in order to achieve maximum comprehensibility.
- c. Paragraphing. Paragraphs should deal with a single subject and shall include only as much information as the average reader can comfortably retain. The desired paragraph length is three to four sentences, but five to six sentences is acceptable.
- d. Word usage. It is important to choose the correct word for each meaning, situation, or occasion. The consistent choice of correct words and the use of simple or preferred words will reduce a potential source of confusion. Verbs should be selected using the preferred verbs listing contained in NAVAIR 00-25-700. The quality of sentence structure and the correct choice and position of words in a sentence will reduce sentence complexity.
- e. Use of Shall, Will, Shall, and May. Use the word "shall" to express a mandatory or binding provision. "Will" may be used to express declaration of purpose. It may be necessary to use "will" in cases where simple futurity is required, such as: "power to the bombing mode will be provided through the navigational system. Use "shall" and "may" whenever it is necessary to express nonmandatory provisions, or an acceptable or preferred means of accomplishment. "Shall" may also designate the proper result of an action, e.g., POWER lamp shall light.
- f. Use of indefinite words. Indefinite words (such as approximately and about) shall not be used to express specific limits, such as measurements, tolerances and values.
- g. Tolerances, limits, and torque values. Tolerances, limits, and torque values shall be expressed in limit dimensions and in terms compatible with the equipment authorized at the maintenance level to which the tolerances and limits apply.
 - (1) In a procedural step, the acceptable range of a measurement, reading, or similar value shall be expressed using specific limits (e.g., "between 1.5 and 2.5") rather than using a tolerance.

MIL-DTL-81927C(AS)

- (2) Alternatively, a tolerance window may be used to indicate a range and the preferred value. A measurement or adjustment factor (rising, drooping, flat, etc.) may be added if appropriate (example, [2.5 **2.6** 3.5] rising).
- h. Weights and measures. Weights and measures shall be in U.S. standard units and speed, distance, and meter readings as indicated on the equipment. Conversion to U.S. standards shall follow in parentheses if the equipment is designed and manufactured to the metric system. Metric values are not required unless the equipment is designed and manufactured to the metric system.
 - i. Temperature readings. Temperature readings shall be given as indicated on the equipment. General temperature readings should be given in degrees Fahrenheit with Celsius in parentheses.
 - j. Verb list. NAVAIR 00-25-700 lists preferred verbs commonly used in technical manuals to promote clear understanding of the intent of a command or descriptive sentence. Each verb listed is defined in terms of one or more meanings associated with operation and maintenance of the end item and components. A simple sentence is included for each usage. Where necessary, notes are included.
 - k. Writing guides. Detailed information on the above writing styles is contained in NAVAIR 00-25-700.
 - l. Capitalization and punctuation. Detailed information on capitalization and punctuation is contained in the U.S. Government Printing Office Style Manual, Library of Congress publication Z 253.U58
 - m. Removal and installation procedures. Removal and installation procedures shall be complete. Instructions such as "Reverse removal procedure," shall not be used. If a removal or installation procedure is obvious, the primary step shall be given as a command but the details shall not be required; for example: "remove attaching bolts," is sufficient when the method of removal will be obvious to the technician.
 - n. Simple tasks. A simple task should not be illustrated or described in detail if a brief statement would suffice. A simple task that is almost self explanatory but requires an illustration for clarification should not be detailed. The primary step should be stated with reference to the illustration. Minimum information should be presented to ensure the step is clear and sufficient for its purpose.
- 3.4.2 Abbreviations. The use of abbreviations or acronyms not listed in OPNAVINST 4790.2 shall be held to a minimum, and each shall be defined the first time it appears in each

MIL-DTL-81927C(AS)

WP. The complete technical expression shall be fully spelled out followed by the abbreviation or acronym in parentheses. In the event that a nonstandard abbreviation must be used because the manual is being prepared on composing equipment that cannot produce a certain abbreviation or symbol, the abbreviation shall also be explained the first time it appears in each WP. Abbreviations or acronyms shall not be used in the publication or WP title.

3.4.3 Warnings, cautions, and notes. Procedures or practices that, if not correctly followed, will result in injury to personnel, damage or destruction of equipment, or improper system operation, shall be highlighted by notes, cautions, or warnings.

- a. Warnings and cautions shall precede the text to which they apply.
- b. Notes shall normally be placed before the applicable text; however, the note may follow the applicable text, if required for clarity.
- c. Warnings, cautions, and notes shall not contain procedural steps or direct maintenance actions, nor shall they be numbered.
- d. When a warning, caution, or note consists of two or more paragraphs, the applicable heading shall not be repeated above each paragraph. If it is necessary to use a combination of data, it shall appear in this order: warning, caution, note. Such inserts in text shall be concise and shall be used to emphasize important and critical instructions.
- e. Headings for warnings, cautions, and notes shall be prepared in accordance with NAVAIR 00-25-700.

3.4.4 Quality assurance procedures. Procedures that are essential to equipment performance or to safety of personnel are considered to be "Quality Assurance Procedures". It is necessary to ensure that all required tasks, including final testing of the end item (verification of repair), are accomplished prior to completion of work. Control of these required actions is accomplished by the following two methods;

- a. Highlighting in-process QA inspections. Procedures that are essential to equipment performance or to safety of personnel and that must be observed or checked by a quality assurance inspector (CDI) prior to the technician proceeding to the next step are considered to be "in-process QA inspections". Therefore, quality assurance required procedures shall be highlighted by the addition of the abbreviation "(QA)" following the procedure/step. An explanation of the requirements and highlighting shall be given in the introduction to the data. Examples are as follows: required gauge readings, torque readings (excluding torque limiting), and tasks that will be subsequently covered and the quality assurance requirements cannot be verified without disassembly.

MIL-DTL-81927C(AS)

- b. Quality assurance referencing. When making reference to following actions, the last procedural step of a procedure shall reference the next required action.

3.4.5 Health hazard precaution data. Procedures prescribed for the operation and maintenance of equipment shall be consistent with the safety standards established by the Occupational Safety and Health Act, public law 91-596 and Executive Order 11807. Appropriate warnings shall be included, when hazardous chemicals, adverse health factors in the environment, or use of the equipment cannot be eliminated; see 3.4.5.1. Warnings and cautions applicable to hazardous materials shall be based on information contained in Material Safety Data Sheets (MSDS). Under the provisions of Federal Standard No. 313 MSDS are required to be submitted for hazardous materials. In turn, MSDS must be entered into the Hazardous Material Information System as required under the provisions of DOD 6050.5 series and OPNAVINST 5100.23. Appropriate personnel protective devices shall be included.

3.4.5.1 Warnings applicable to hazardous materials. Complete warnings applicable to all hazardous materials addressed in the manual shall be provided in the Hazardous Materials Warnings Sheets (HMWS) (see 3.7.4.4). The warnings shall be developed from information provided by chemical manufacturers in material safety data sheets (MSDS) required by 29 CFR 1910.1200. MSDSs used within DOD are required to be entered into the Hazardous Materials Information System (HMIS) which is addressed in DOD 6050.5 series publications. The DOD 6050.5 series publications contain MSDS's submitted under the provisions of Federal Standard No. 313. Additional information related to hazardous material requirements is provided in OPNAVINST 5100.23, Navy Occupational Safety and Health (NAVOSH) Program Manual.

- a. A complete warning shall be provided for all hazardous materials addressed in the manual. Appropriate personnel protective equipment requirements shall be included.
- b. Warnings applicable to hazardous materials shall be presented in technical manuals by the use of;
 - (1) Index number (Arabic numeral identifier),
 - (2) Nomenclature and specification of the hazardous material, and
 - (3) Icons (nonverbal graphic symbols).
- c. Starting with the number 1, the warnings shall be sequentially numbered. Each hazardous material shall be assigned only one numeric identifier. Repeated use of a specific hazardous material shall reference the numeric identifier assigned at its initial appearance. Warnings added to the technical manual after the initial issue shall be assigned the next consecutive number regardless of the order of placement in the manual.

MIL-DTL-81927C(AS)

- d. Contractors having an automated publishing system may assign permanent numeric identifiers for hazardous materials warnings in their database; however, the introduction to the manual shall explain that the numeric identifiers may not appear in sequential order, since all warnings contained in the database may not appear in the manual.

3.4.5.1.1 Icons applicable to hazardous material warnings. NAVAIR 00-25-700 depicts the icons that are approved for use in association with warnings for hazardous materials. The introduction of additional icons shall have prior approval from the requiring activity.

3.4.5.1.2 Hazardous materials referenced in text. In the text of the manual, the caption "WARNING" shall not be used for hazardous materials.

- a. Such warnings shall identified (highlighted) by the related icon.
- b. Complete warnings shall be provided in the HMWS pages for each hazardous material used in the manual.

3.4.5.1.3 Multivolume/manual set. (See 3.7.3.)

- a. Multivolume set (division of an existing manual). (See 3.7.3.1.) The warnings applicable to hazardous material shall be repeated in all volumes regardless of whether all numbered warnings do or do not appear in each volume. A note shall be placed at the bottom of the first page of the list of hazardous materials warnings (3.7.4.4d) stating that all numbered warnings may not appear in all volumes of the manual.
- b. Multimanual set. Each volume of the set shall contain complete warnings in the HMWS pages for each hazardous material used in the manual.

3.4.6 Nuclear hardness. Nuclear survivability requirements include such factors as overpressure and burst, thermal radiation, electromagnetic pulses (EMP) and Transient Radiation Effects on Electronics (TREE). If equipment to be operated, maintained or overhauled has nuclear survivability requirements, applicable warnings shall be incorporated into technical publications to ensure that hardness of equipment is not degraded during operation and maintenance. Caution shall be taken not to include classified information in an unclassified publication.

3.4.6.1 Symbol. All hardness critical processes/steps/items shall be marked with the appropriate symbols [HCP] / [HCI] / [OCP] / [OCI] / [CSP] / [CSI].

3.4.7 Electrostatic discharge [ESD] sensitive parts. If electronic equipment to be handled, inspected, repaired, or assembled is ESD sensitive, the items shall be marked and identified with the symbol [ESD].

MIL-DTL-81927C(AS)

3.4.8 Ozone Depleting Substances (ODS). The continued use of Ozone Depleting Substances (ODS) has been prohibited, by Executive Order 12856 of 3 August 1993. The use of ODS materials in NAVAIR manuals is prohibited. A listing of these substances is provided in NAVAIR 00-25-700.

3.4.9 Nomenclature consistency. Nomenclature of identical systems, subsystems, equipment, support equipment, components, and parts of the end item shall be consistent throughout a manual, volumes of a manual, and manuals that are a part of a set of manuals covering an end item. The preparing activity shall develop nomenclature lists for associate preparing activities and sub-preparing activities to ensure such consistency. The correct nomenclature shall be derived from one of the following sources (listed in the order of precedence):

- a. "AN" nomenclature,
- b. Nameplate nomenclature,
- c. H-6 assigned nomenclature, or
- d. Nomenclature on the drawing from which the item was manufactured

3.4.9.1 Noun modifiers. Noun modifiers shall be added to the description of parts as required to assure positive identification, such as cotter pins/taper pins. These modifiers need not appear on the preparing activity's drawing. Noun modifiers, once added for clarity, shall be used throughout the technical data.

- a. Simple identifying modifiers provided for parts may be dropped after the first full identification of the item in the WP. For example, "Remove attaching bolt" is acceptable and preferred to "Remove cadmium plated steel bolt," unless specific identification of one bolt within a group of similar objects is required.
- b. When an item is identified by a common name, both this name and the correct technical name shall be clearly identified the first time the item appears in the text of a WP. The listing of common names in IPBs is not required.

3.4.9.2 Placard data. If all or a portion of the name of a control or display appears as a label on the equipment, that portion shall be written exactly as on the label, except that the placard shall be written in all capital letters to distinguish it from surrounding text, e.g., "POWER switch" or "MAIN PWR circuit breaker." It is also permissible to spell out the word for a symbol that cannot be reproduced by the machine used to prepare the manuscript or reproducible copy.

3.4.9.3 Designation of equipment. The official designation of aeronautical equipment shall be expressed in specific terms such as model number, type, serial number range, or similar terms.

MIL-DTL-81927C(AS)

Nomenclature corresponding to that appearing on the equipment in the form of nameplates, decals, engraved legends or other markings shall be stated in text using the same wording that appears on the hardware.

3.4.9.4 National item identification numbers. National item identification numbers shall not appear in WP manuals.

3.4.9.5 Part numbers. Part numbers shall not be used in text or on illustrations except when necessary for clarity.

3.4.10 Symbols. Graphic symbols shall be used in the manual in accordance with the standards specified in 3.4.10.1 and 3.4.10.2. If possible, new or unusual symbols shall be avoided. When new or unusual symbols are required, they shall be identified at each occurrence or in a key or legend on a diagram. It is permissible to spell out symbols that cannot be reproduced on the machine on which the manuscript or reproducible copy is being prepared.

3.4.10.1 Electrical and electronic symbols. Graphic symbols for electrical and electronic parts shall be in accordance with IEEE Std. 315, ANSI Y10.5 and IEEE Std. 260, as applicable.

3.4.10.2 Logic diagram symbols. Graphic symbols for logic diagrams shall be in accordance with IEEE Std. 91-84.

3.4.11 Reference designations. Electrical and electronic reference designations shall be in accordance with IEEE Std. 200.

3.4.12 Dimensions and tolerances. Dimensions and tolerances shall be shown in limit dimensions in accordance with ANSI Y14.5.

3.4.13 Footnotes. Footnotes shall not be used. Notes may be placed in text, tables, or on illustrations, but not at the bottom of a page deliberately separated from the applicable text, table, or illustration to which they apply.

3.4.14 Assignment of titles. Easy access to the data contained in the technical manual cannot be stressed too strongly. The construction of titles, such as titles of WPs, IPB figure, illustration, or tables and the placement of those titles in an index will often be the key to a successful search for information. Titles shall be assigned with full consideration of the importance they have in finding information. Titles shall describe the contents of the data element in definitive terms. Ambiguous titles shall be avoided.

MIL-DTL-81927C(AS)

3.5 References. Refer to NAVAIR 00-25-700 for detailed guidance.

3.5.1 Reference procedures. The following requirements apply to all WP manuals. IPB figures have additional requirements which are found in MIL-DTL-15014 and MIL-DTL-81929.

3.5.1.1 General requirements.

- a. The use of references in text can create undue hardship and/or confusion for the user of the technical manual. It is recognized that use of references is required to avoid inordinate duplication of data; however, references shall be kept to a minimum. A high amount of referencing in text frequently indicates improper task analysis or LSA.
- b. Reference shall not be made to coverage contained in manuals of a different maintenance level, above or below.
- c. Reference shall not be made to coverage contained in other than NAVAIR manuals, except when the manual has been formally assigned a NAVAIR publication number.

NOTE

Commercial or joint usage manuals shall be formally reviewed and approved for use prior to use by NAVAIR activities. When approved, the manuals are assigned NAVAIR publication numbers. Information related to review, approval and assigned number status can be provided by the requiring activity. The NAVAIR number is normally added during the next update of the manual and shall not be listed on existing copies of the manual. Clarification can be provided by the requiring activity.

- d. The reference shall insure a terminology match with the referenced data and shall be identical with the terminology used in the index of the referenced manual or chapter or section.
- e. Reference to procedures is not authorized when the entire procedure is not required to be performed, e.g., "Remove tach generator NAVAIR 01-XXXXX-2-4 (WP 007 00)" when only the electrical connector is required to be removed. Reference to selected procedural steps is prohibited, e.g., "Perform steps e through h, m and p. of removal procedure" or "Perform only the steps of the disassembly procedure necessary to remove the amplifier".
- f. When the entire existing procedure is not required to be performed, in its entirety, the necessary modified procedures shall be added to text, e.g., "Remove the 4 bolts (7, figure 3) and reposition the power supply assembly (PS1) to right to allow access to the amplifier (A3)" or "Remove safety wire and disconnect electrical connector from the tach generator."

MIL-DTL-81927C(AS)

3.5.1.2 Mandatory compliance maintenance procedures. Mandatory compliance maintenance practices contained in NAVAIR general series manuals shall be referenced (e. g., Aviation Hydraulics, Aviation Hose and Tube Repair, Cleaning and Corrosion Control, etc.). Refer to NAVAIR 00-25-700 (WP 002 00) for a listing of General Maintenance Engineering Series manuals with annotated mandatory compliance.

3.5.1.3 Maintenance procedures contained in other manuals. Maintenance procedures that are required to complete maintenance tasks that are contained in another maintenance manual shall be referenced by publication number and WP (chapter/section) number. These references shall appear in the applicable chapter or section. Short procedures of two pages or less may be duplicated especially when required for safety, clarity or continuity of task performance.

3.5.1.4 Principles of operation. Principles of operation shall not be duplicated in other maintenance WPs. When required, they shall be referenced on the WP title page. Normally, they shall not be referenced in the text.

3.5.1.5 Troubleshooting procedures (abbreviated references). Replacement or repair instructions in troubleshooting procedures shall be referenced in one of the following methods: on the fault logic diagram, in the fault logic text, in the troubleshooting table, or in tabular form in the chapter or section. The fault isolation actions may be directed in abbreviated form, e.g., "Replace amplifier A3A1."

3.5.1.6 Standard maintenance tasks. Standard maintenance tasks that may be committed to memory through use and training and are explained in general information manuals available to the technician shall not be detailed, for example, NAVAIR 01- General Aircraft Information Manuals. The primary step shall appear in text, for example: "Connect external electrical power."

3.5.1.7 Tasks performed by other work centers. Procedures that require performance of tasks by technical personnel other than those normally assigned to the subject task shall be referenced on the WP title page and in the text. For example, if the primary task is removal of a component of the flight control system that is inaccessible without removal of the power plant, a preparatory step of the procedure would be, "Remove power plant (A1-F77AA-220-300, WP094 00)."

3.5.1.8 Team efforts. Procedures that require the assistance of additional technical skills other than those primarily assigned to the subject task and are considered a team effort, shall appear in the same chapter or section. For example, if the task is removal of an electro-mechanical pump, both the electrical and mechanical tasks shall appear in the same chapter or section.

MIL-DTL-81927C(AS)

3.5.1.9 Inordinate duplication (two or more pages). Procedures within a task that require an inordinate amount of duplication shall be referenced. Generally, maximum duplication shall be no more than two pages (including text and illustrations) for any one task.

3.5.1.10 Duplication of short procedures. Except as noted above, duplication of short procedures, rather than reference to them, is preferred. The WP shall be planned to include all information required, including duplication. The goal of self-contained, task-oriented WPs with minimum references shall be the prime consideration. WPs that have a minimum of text and a long list of references shall be considered unacceptable.

3.5.1.11 Quality assurance referencing. When making reference to following actions, the last procedural step of a procedure shall reference next required action, when applicable, e.g.,

- a. The last step of an installation procedure shall reference testing (Operational Checkout) or a required maintenance action, e.g., "Service hydraulic system (WP017 00)", when the maintenance procedure (Installation of a hydraulic system component) requires an open line.
- b. The last step of a required maintenance action shall reference testing (Operational Checkout) or an additional required maintenance action, e.g., when a hydraulic actuator is replaced.

3.5.2 References to other manuals or volumes. References in the text shall be made by the referenced task title as follows:

- a. For non-WP concept publications, reference shall be made by publication number.
- b. For WP format publications, reference shall be made by publication number and WP number.
- c. For WP concept/conventional format publications, reference shall be made by publication number and chapter number. Section designation (letter) shall be added to the chapter number, when applicable.
- d. Reference shall not be made to a paragraph, figure, or table number.
- e. When reference is made to a classified supplement and the discussion is incomplete without the data contained in the supplement, the classified supplement shall be listed under "Reference Material" on the chapter or section title page.

3.5.3 References within a manual or volume. References in the text shall be made by the referenced task title as follows:

MIL-DTL-81927C(AS)

- a. WP number.
- b. Paragraphs within a WP by paragraph sidehead and number. The text of the reference shall ensure that the proper action to be accomplished is clear.
- c. Figures within a WP by number.
- d. Index numbers on illustrations. Detail view identification and sheet numbers shall be added for clarity.
- e. Tables within a WP by number (if assigned).
- f. Materials such as lubricants, cleaning fluid, or fuel by Government specification number.
- g. Government specifications and standards by the basic number unless it is essential to reference a specific revision to the specification or standard. Government specifications and standards shall not be referenced for completion of maintenance tasks.
- h. Parts on diagrams by complete reference designation.
- i. Switch positions and panel markings, by name as marked on the equipment.

3.6 General format.

3.6.1 Manuscript copy. Manuscript copy may be prepared single column double-spaced, double column single-spaced or single column single-spaced, justified left hand margin only, depending on method of preparation. Typing shall be on one side only on standard bond paper with a page size of approximately 8 1/2 x 11 inches. Binding edge shall not be less than 1 inch, and the outside edge not less than 1/2 inch. Tabular data shall be single spaced to conserve space. When included, IPB GAPL pages shall be single spaced. Normally, double column single-spaced is provided for in-process reviews.

3.6.1.1 Manuscript, completeness of. The manuscript shall be complete in all respects and shall be fully edited and proofread. Front matter, text, illustrations and tables shall also be in accordance with the technical content specification. Any method of covering and binding that incorporates legible, collated copy will be acceptable. In the event any required data is not available during scheduled in-process reviews, the preparing activity shall define those portions of the manual that are still to be prepared. If a figure (illustration), table, or text is not included, a statement to that effect shall appear in text.

MIL-DTL-81927C(AS)

3.6.1.2 Marginal copy. The marginal copy of manuscript pages shall be as described in 3.6.3, except that it may be the same font and type size used for the manuscript text.

3.6.2 Reproducible copy. Reproducible copy shall consist of all pages, including text, tabular data and illustrations, in a form suitable for reproduction.

3.6.2.1 Reproducible copy preparation methods. Equipment used for preparing reproducible copy shall produce clear, legible, usable technical manuals at the most economical cost regardless of reproduction media.

3.6.2.2 Page size of reproducible copy. Page sizes authorized for use in manuals prepared to this specification are 8 1/2 x 11 inches, and 17 x 11 inches. Other page sizes may be used when authorized by the requiring activity.

3.6.2.3 Image area of reproducible copy. The image area for a 8 1/2 X 11 page is 7 X 10. The image area for a 17 X 11 page is 15 1/2 X 10.

3.6.2.4 Authorized printed manual size by thickness. The thickness of a printed copy shall be not greater than the following limits:

| <u>Page Size</u> (Inches) | <u>Thickness</u> (Inches) | <u>Approximate Sheet Count</u> (Sheets of Paper) |
|------------------------------|------------------------------|---|
| 8 1/2 x 11 | 3 | 600 |
| 17 x 11 | 1 | 150 (Heavy Stock Paper) |

3.6.2.5 Typeface and type size. Text typeface and type size are controlling factors of legibility. It is preferred that a serif typeface (e.g., Times Roman, Courier, Prestige, Schoolbook) be used for text and tabular data. Leading (vertical line spacing) and kerning (horizontal character spacing) shall be such that clear, legible text is produced. For the purposes of this specification, the following nominal type sizes shall mean the corresponding measured sizes (for reduced manuals, see 3.6.2.2):

MIL-DTL-81927C(AS)

| <u>Nominal size</u> | <u>Allowable measured size (points)</u> |
|---------------------|---|
| small | 7 1/2 to 9 1/2 |
| normal | 9 1/2 to 11 1/2 |
| large | 11 1/2 to 16 1/2 |
| very large | 16 1/2 to 20 1/2 |
| extra large | 20 1/2 to 25 |

3.6.2.6 Reproducible copy layout.

3.6.2.6.1 Text. Text for manuals shall be double column, single spaced, with the left margin justified. Full justification may be used whenever available equipment permits without an increase in cost. Text shall be double spaced between paragraphs, procedural steps, and before and after the headings "WARNING," "CAUTION," and "NOTE." The text type size for all manuals prepared to this specification shall be normal size in the prepared products. IPB GAPL pages shall be considered text. Layout shall conserve space without lessening usability or clarity of material. Double spacing of text within a paragraph, or similar wastefulness, is unacceptable. Blank space on reproducible copy shall be avoided whenever possible; however, usability and clarity considerations take precedence.

3.6.2.6.2. Tabular data. Unless otherwise specified, all tabular data shall be single spaced; however, tabular data may be double spaced if legibility/usability is improved. The typeface size for tables and tabular listings, including numerical and reference designation indices, shall be small or normal. Table title blocks shall be boxed. The entire table may be boxed. Tables may be either full-page width or single-column width.

3.6.2.7 Oversize reproducible copy. Reproducible copy may be prepared oversize. One-to-one copy (reproducible material the same size as the required page size) is preferred. If prepared oversize, the actual area utilized shall be of such size that, when the copy is photographically reduced to the prescribed image area for the manual, the final type size will meet the type size requirements prescribed in 3.6.2.4.

3.6.2.8 Illustrations. The artwork requirements for illustrations are provided in 3.9. The typeface size for text, dimensions and callouts on illustrations, including schematics and diagrams, shall be a minimum typeface of 8 points and a maximum typeface of 14 points. Illustrations and text may be combined on a single page. A figure shall not be placed in the middle of a page horizontally dividing multiple columns of text (with multiple columns of text both above and below the table), but shall be placed at the top or bottom of the page.

MIL-DTL-81927C(AS)

3.6.2.8.1 Foldout illustrations. Foldout pages may be prepared for 8 1/2 by 11 inch manuals. All foldout pages shall be prepared for printing on one side only as right-hand pages and shall be backed up by a blank page. An apron is required for each foldout. Foldout illustrations shall be placed at the end of the applicable chapter or section. Foldout-foldup pages are not permitted. Maximum foldout page size shall be 45 x 11 inches, with a maximum image area (including marginal copy) of 36 by 10 inches.

3.6.2.8.2 Unacceptable reproducible artwork. The following shall not be acceptable as reproducible artwork:

- a. Continuous tone film negatives.
- b. Film positives.
- c. Brownline prints, bromides, and prints made by similar reproduction processes.
- d. Line illustrations containing weak or broken lines.
- e. Illustrations containing illegible lettering.

3.6.2.9 Indentation:

- a. Paragraphs. Paragraphs shall begin at the left margin.
- b. Procedural steps. The first line of a procedural step shall be indented three spaces from the left margin.
 - (1) Each succeeding subordinate step shall be indented an additional two spaces from the left margin, e.g., set tabs at 3, 5, 7, 9, 11, 13, 15, etc. (from the left margin).
 - (2) Carry over lines shall not return to the left margin but shall start under the first letter of the preceding line (blocked).
- c. Warnings, cautions, and notes;
 - (1) The titles for warnings, cautions, and notes shall be centered in the column.
 - (2) The entire text for warnings, cautions, and notes shall be indented three spaces (or approximately 1.5 picas) from the left and right margins.

3.6.3 Marginal copy, except manual title page. The marginal copy for all pages, except the manual title page, consists of the items listed below, placed as required:

MIL-DTL-81927C(AS)

- a. Classified markings, if applicable. The security classification markings for manuals shall be identified in accordance with DOD 5200.1R, DOD 5220.22-M, and OPNAV 5510.1.
- b. Publication number(s). The publication number shall be assigned by the requiring activity and shall be placed, on all pages, in the extreme upper left corner of the reproduction area in large bold type.
 - (1) Standard Technical Manual Identification System (TMINS). Publication numbers derived by utilizing "TMINS" shall not be preceded by the authorizing activity's acronym.
 - (2) Joint usage publications. If the publication is jointly used, the requiring activity's publication number shall be placed as required above, and the other publication number(s) shall be placed below the requiring activity's publication number in large bold type. When three or more other user publication numbers are assigned, all publication numbers shall appear in large bold type.
- c. Publication date. The publication date shall be one of the following: (1) Basic (initial issue) date, (2) Revision date (see 3.11.2), or (3) Change number and date (see 3.10.2.2). The publication date and change number shall be assigned by the requiring activity.
 - (1) WP title page (first page). The publication date shall be placed below the publication number in normal bold type.
 - (2) Second and subsequent pages. The basic, change, or revision date shall not appear on the page; the change number only shall be placed on each changed page in the upper left corner in normal bold type.
- d. Page identification, including page numbering.
 - (1) Front matter. Page identification is used for front matter, except the title page, in lieu of WP and page numbering. The page identification shall be placed in the upper right corner of the page on the same line as the requiring activity's publication date in large bold type.
 - (a) Numerical index of effective WPs/pages (A page). The first page shall be numbered using the word "PAGE," followed by the upper case letter "A." The second and subsequent pages shall be numbered using the word "PAGE," followed by sequentially assigned upper case letters, e.g., "PAGE A, PAGE B."

MIL-DTL-81927C(AS)

- (b) Technical Publications Deficiency Reports (TPDR) incorporated pages. TPDR pages shall be numbered using the acronym "TPDR," followed by sequentially assigned Arabic numerals, e.g., "TPDR-1, TPDR-2, etc."
- (c) Warnings applicable to hazardous materials page(s). The warning pages shall be numbered using the acronym "HMWS" (hazardous materials warning sheet) followed by sequentially assigned Arabic numerals, e.g., "HMWS-1, HMWS-2."

(2) WPs.

- (a) WP number. The WP number (see 3.6.5.1 through 3.6.5.1.1.1) shall be assigned by the requiring activity. On all WP pages, the WP number shall be placed in the extreme upper right corner of the reproduction area in large bold type, e.g., "001 00", "099 02", etc.
- (b) Page number. (See 3.6.5.3.) The page number shall be placed below the WP number in normal bold type. The pages of each WP shall be identified by the word "Page" and numbered consecutively in Arabic numerals beginning with the number one (1). All pages shall be assigned a page number.
- (c) Foldout illustration page numbers. Each continuous foldout illustration shall be assigned a page number. The page number for a foldout page shall be so placed that the number will be visible when the page is folded. The reverse side of foldout pages shall be blank. Each foldout page number shall include a blank page notation, for example: "Page 27/(28 blank)."
- e. "Blank" page numbers. "Blank" pages shall be assigned a page number, but the number and the word "blank" shall appear in parentheses on the preceding page following the preceding page number in normal bold type, e.g., "Page 15/(16 blank)."

3.6.4 Security classification markings. The security classification markings for manuals shall be identified in accordance with DOD 5200.1R, DOD 5220.22-M, and OPNAV 5510.1.

3.6.5 Numbering - work package manuals.

3.6.5.1 WP number. Each WP shall be assigned a permanent number. The WP number shall be considered permanent upon distribution of the basic issue of the manual. Once considered permanent, the WP number shall not change. In cases where revision to a manual requires a complete rewrite, the WP numbers may be changed only when authorized by the requiring activity.

MIL-DTL-81927C(AS)

3.6.5.1.1 WP numbering system. Each WP number shall be a five digit number, beginning with the number 001 00. There shall be one blank space between the third and fourth numerals.

- a. Basic WP number. The basic WP number is identified by the first three digits of the WP number.
- b. Basic WP number suffix (last two digits). The last two digits of the WP number are used to indicate the relationship of the coverage to the basic WP number (first three digits) and coverage in related WPs assigned the same basic WP number, e.g., the relationship of the coverage contained in WP 007 01 and 007 02 or Index WPs (001 00, 00101, and 001 02). Normally all technical content WP last two digits shall be assigned "00", indicating all required coverage for the WP subject (task).
- c. Assignment of the last two digits (basic WP number suffix) The index WPs are normally the only exceptions to the assignment of the last two digits of the WP number in the basic issue of the manual. When the basic issue of a manual requires two or more WPs for proper coverage of the same basic task, assignment of the last two digits is authorized, e.g., permanent configuration difference, different support equipment, or preferred and alternate procedures.

3.6.5.1.2 WP number assignment.

- a. Single WP manuals. Single WP manuals (3.7.2) shall be assigned the WP number 001 00.
- b. Multiple WP manuals.
 - (1) Index WPs.
 - (a) Alphabetical Index WP. The Alphabetical Index WP shall be the first WP in the manual and shall be assigned WP number 001 00.
 - (b) Numerical Index of Part Numbers WP. The Numerical Index of Part Numbers WP shall be assigned WP number 001 01.
 - (c) Numerical Index of Reference Designations WP. The Numerical Index of Reference Designations WP shall be assigned WP number 001 02.
 - (2) Introduction WP. The Introduction WP shall be assigned WP number of 002 00.
 - (3) Technical Content WPs (003 00 and subsequent). The technical content WPs shall

MIL-DTL-81927C(AS)

be assigned in numeral sequence starting with the WP number 003 00 and continuing through the WP number 999 00.

- c. Reserved WP numbers. WP numbers may be reserved for future use for expansion purposes, provided that the numbers reserved and not titled are accounted for and marked "Reserved" in the numerical index of effective WPs. If a WP number has been assigned a title and technical content is not available at the time of distribution, the deficiency shall be noted in the numerical index of effective WPs by the statement "To Be Provided."
- d. Deleted WPs. WP numbers for WPs deleted by a change or revision shall be accounted for and marked "Deleted" in the numerical index of effective WPs.

3.6.5.1.2.1 Assignment of the last two digits of the WP number. Except as noted in 3.6.5.1.2, the last two digits of the WP number shall be "00", indicating that it is reserved during the preparation of the basic issue of the manual to permit expansion of the manual to incorporate changed or new configuration data without affecting the WP numbers previously assigned.

3.6.5.1.3 WP numbers - division of an existing manual. When an existing manual is divided because it exceeds the thickness limitation, the previously assigned WP numbers shall not be reassigned or renumbered. The first volume shall contain the front matter and as many WPs as appropriate beginning with WP001 00. The second and subsequent volumes shall contain an alphabetical index for the volume and the WPs contained in the volume (see 3.7.3).

3.6.5.2 Paragraph numbers. Paragraphs within a WP shall be numbered consecutively in Arabic numerals beginning with the number one.

3.6.5.3 Procedural step numbers. Procedural steps shall be numbered with lower case letters and Arabic numerals alternately, using indentation and standard (parentheses and underlining) highlighting techniques to identify their relationship to each other.

3.6.5.4 Figure and table numbers:

- a. Figures and tables within a chapter or section shall be numbered consecutively in Arabic numerals beginning with the number one.
- b. Figures and tables that are not referenced except from an adjacent paragraph and are one column in width should not be numbered.
- c. Figures and tables that are referenced in two or more paragraphs and all tables that are full page width shall be assigned numbers.

MIL-DTL-81927C(AS)

- d. Each page of a multi-sheet table or illustration shall be identified by a sheet number following the table/figure number and title.
 - (1) The first sheet of the table/figure shall include the total number of sheets that make up the table/figure.
 - (2) The second and subsequent frames shall be numbered consecutively.

3.6.5.5 Foldout figure numbers. All foldout figures within a chapter or section shall be identified by the prefix "FO-" followed by a consecutively assigned Arabic numeral beginning with the number one. All pages of an IPB foldout figure, including GAPL pages, shall be identified with foldout figure numbers. When a foldout consists of more than one sheet, the sheets shall be numbered in consecutive order following the figure title.

3.6.5.6 Detail view identification.

- a. Detail views of an assembly or subassembly shall be prepared and identified when the subject matter cannot be clearly illustrated in the main view of the figure.
- b. The subject assembly or subassembly shall be identified either with a capital letter adjacent to the applicable index number on the main view, or a bracket with a leader line from the index number to the bracket (see MIL-M-81929).
- c. Complex multiple view or foldout illustrations (see 3.9.7) may reference sub-detail views from a detail view and a sub-detail view may reference a sub-sub-detail view.
- d. Sub-detail views shall be identified with the detail view's assigned capital letter prefix, followed by a consecutively assigned Arabic numeral beginning with the number one.
- e. Sub-sub-detail views shall be identified with the sub-detail view's identification, followed by a consecutively assigned capital letter. For example, the first sub-detail view of "A" is "A1" and the first sub-detail view of "A1" is "A1A."

3.7 Technical manual arrangement.

3.7.1 General arrangement of WP manuals. The parts of the WP technical manual shall be arranged in the following order:

- a. Front matter.
- b. Alphabetical index, WP001 00.

MIL-DTL-81927C(AS)

- c. Numerical index of part numbers (WP manual with IPB) WP001 01 (see 3.7.6).
- d. Numerical index of reference designations (WP manual with IPB) WP001 02 (see 3.7.7)
- e. Introduction, WP002 00.
- f. Technical content, WP003 00 and subsequent, as required.

3.7.2 Single WP manuals.

3.7.2.1 Arrangement of single WP manuals. When the intended coverage of an end item or repairable assembly is noncomplex (a page count of 50 or less), the detailed arrangement described in 3.7.1 may not be cost effective and a single WP manual shall be developed. When it is anticipated that more than one of the subassemblies may become repairable at the maintenance level of the manual, a single WP manual shall not be developed. The primary factor to be considered in the decision to prepare a single WP or multi-WP manual is usability.

3.7.2.2 Single WP manual format and content. Single WP manuals shall be prepared in the same general style and format as multi-WP manuals. Single WP manuals shall not contain more than one IPB figure. The multi-WP manual requirement to cover data elements in separate WPs shall be interpreted as being presented in separate primary paragraphs. The technical content shall be developed using the basic requirements of a technical content WP (see 3.8) with the following exceptions:

- a. Alphabetical index WP shall not be required. The normal technical content WP alphabetical index shall be used.
- b. Numerical index of part numbers and numerical index of reference designations are not required (see 3.7.6 and 3.7.7).
- c. Introduction WP is not required, but the contents of the Introduction shall be provided as the first primary and related subordinate paragraphs of the technical content. The Introduction shall contain the information required by 3.7.8.2, with the following exceptions:
 - (1) An explanation of the normal technical content WP technical directive listing (3.8.1.2) is not required. An explanation of the historical record of applicable technical directives (3.7.2.2.2e) listing and related entries shall be provided.
 - (2) The consolidated list of "Reference Material" is not required. The normal technical content WP listing shall be used.

MIL-DTL-81927C(AS)

- (3) The consolidated lists of "Support Equipment Required" and "Material Required" are not normally required. The normal technical content WP listings shall be used. When multiple lists are required in the manual (see 3.8.2.1), the consolidated list(s) shall be placed below the "Historical Record of Applicable Technical Directives."
- (4) The Introduction to the IPB shall be required, but the explanation of how to use the numerical index of part numbers and reference designations is not required.

3.7.2.2.1 Front matter.

- a. Title page (see 3.7.4.1).
- b. Numerical index of effective pages (A page) (see 3.7.2.2.1.1).
- c. TPDR page (see 3.7.4.3).
- d. HMWS pages (see 3.7.4.4).

3.7.2.2.1.1 Numerical index of effective pages (A page). A numerical index of effective pages (A page) shall be included for all single WP manuals. The A page shall back up the title page and be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3.
- b. Title. The title "NUMERICAL INDEX OF EFFECTIVE PAGES" shall be centered below the marginal copy using uppercase letters in normal bold type. The title shall be underlined. There shall be two clear spaces (two blank lines) below the title.
- c. Subtitle. The subtitle "List of Current Changes" shall be centered below the title in upper and lower case letters in normal type.
- d. List of current changes. A list of current changes to the manual, including the basic issue or revision, shall be listed under the subtitle. The list of current changes shall account for and include the numbers and dates of all rapid action changes (RACs) issued and all interim rapid action changes (IRACs) incorporated since the basic manual or its latest revision. All subsequent changes to manuals and manual revisions shall reflect the cumulative status of all RACs issued and incorporated. To maintain continuity of all issued RAC numbers, canceled RAC numbers, including those assigned but never issued, shall be included in the cumulative status of RACs incorporated.

MIL-DTL-81927C(AS)

- e. Change statement. The change statement shall be placed two clear spaces (two blank lines) below the list of current changes, and shall read as follows:

"Only those pages assigned to the manual are listed in this index. If changed pages are issued, insert the changed pages and dispose of superseded pages, including classified data, in accordance with applicable regulations. The portion of text affected by the change is indicated by change bars or the symbol "R" in the outer margin of each column of text. Changes to illustrations are indicated by pointing hands, change bars, or shaded areas as applicable."

- f. Total page count statement. The following total page count statement shall be placed below the change statement: "Total number of pages assigned to this manual is ____ consisting of the following:."
- g. Numerical listing column heads. The column heads "Page Number" and "Change Number" shall be below the total page statement on the first page. Additional sets of columns may be used depending on the size of the manual. A one-point rule shall be placed above and below the column heads.
- h. Numerical listing. A numerical listing of pages assigned to the manual shall be listed below the "Page Number" column head. All front matter pages shall be listed. All pages shall be listed without a break in sequence. All blank pages shall be listed separately.
- i. Second and subsequent pages. The second and subsequent pages shall be prepared as follows:
 - (1) Marginal copy. The marginal copy shall be in accordance with 3.6.3.
 - (2) Title. The title "NUMERICAL INDEX OF EFFECTIVE PAGES (Continued)" shall be centered two clear spaces (two blank lines) below the marginal copy using uppercase letters in normal bold type. The title shall be underlined. There shall be two clear spaces (two blank lines) below the title.
 - (3) Numerical listing column heads. The column heads "Page Number" and "Change Number" shall be placed below the title. Additional sets of columns may be used depending on the size of the manual. A one-point rule shall be placed above and below the column heads.
 - (4) Numerical listing. A numerical listing of pages assigned to the manual shall be listed below the "Page Number" column head. All front matter pages shall be listed. All pages shall be listed without a break in sequence. All blank pages shall be listed separately.

MIL-DTL-81927C(AS)

3.7.2.2.2 WP title page. The first page of the technical content shall be the WP title page. The title page shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3. The WP number shall be "001 00".
- b. Title block. The title block shall be placed below the marginal copy. The following information shall appear in the title block, in the order listed, if applicable. The information shall appear in normal type. Boldface type may be used, if desired, for the items appearing in all capital letters;
 - (1) A one-point rule shall be placed below the marginal copy.
 - (2) Publication title;
 - (a) Type of manual, refer to 3.7.4.1g(1).
 - (b) End item nomenclature, refer to 3.7.4.1g(2).
 - (3) If applicable, an effectivity notice shall be centered below the publication title, e.g., "EFFECTIVITY: Serial Nos. 23456 through 34567" or "EFFECTIVITY: Serial NO. 567890 and subsequent or after incorporation of AVC 1234."
 - (4) A one-point rule shall be placed below the last line of information in the title block.
- c. Reference material list. Reference material required to complete the task or discussion shall be listed in accordance with 3.8.1c. If no reference material applies, the word "None" shall be centered below the title. One clear space (one blank line) shall appear between the title and the first line of reference material or the word "None," as applicable.
- d. Alphabetical Index. The title "Alphabetical Index" shall be centered two clear spaces (two blank lines) below the reference material list. The column heads "Subject" and "Page No." shall be placed one clear space below the title. The column heads shall be underlined. An alphabetical list reflecting the contents of the manual shall be provided, with the applicable page number on which the information will be found. The minimum requirement shall be a listing of primary and secondary sideheads; however, access to data shall be the prime requirement of the index.
- e. Historical record of applicable technical directives. The normal technical content WP "Record of applicable technical directives" shall not be used in single WP manuals. The

MIL-DTL-81927C(AS)

composite life cycle, historical listing located in the Introduction WP is used to ensure clarity to the user. An explanation of this listing and related entries shall be provided in the introduction. This record shall be prepared in accordance with 3.7.8.3.1.

3.7.2.2.3 Technical content. The first page of the technical content shall be a title page. The technical content may start following the historical record of technical directives (space permitting) on the title page and below the marginal copy on the second and subsequent pages. The development of the technical content shall be the same as required by the technical content specification except that the requirements for a functional element shall be provided by a primary paragraph vice a WP, e.g., all of the requirements for an "INTRODUCTION WP" shall be provided under the primary paragraph "INTRODUCTION," unless herein exempted. The technical content shall be prepared in accordance with content specification designated by the requiring activity. "Support Equipment Required" and "Materials Required" lists shall be provided in the coverage for each functional element/task (primary sidehead), as required.

3.7.3 Multivolume and multimanual sets.

3.7.3.1 Arrangement of a multimanual set. When the task analysis indicates that more than one manual is required, the coverage may be divided into a set of manuals. Each manual of the set will be assigned a separate publication number. Each manual shall cover one or more related subjects, e.g., indexes, power plant and related systems, automatic flight controls, etc. The first manual of the multi-manual set shall be an index for the multimanual set. An index is not required for a small multimanual set (two to six separate manuals), unless required to ensure proper access to coverage.

3.7.3.1.1 Multimanual set index. When required, a manual shall be prepared containing the alphabetical and IPB related indexes for the multimanual set. The manual shall be arranged in the following order:

- a. Front matter (see 3.7.4).
- b. Multimanual set alphabetical index (see 3.7.3.1.1.1).
- c. Numerical index of part numbers (see 3.7.6).
- d. Numerical index of reference designations (see 3.7.7).
- e. Multimanual set short introduction (see 3.7.8.5)

3.7.3.1.1.1 Multimanual set alphabetical index. The alphabetical index shall begin on the first right hand page following the numerical index of effective pages (A page). The primary

MIL-DTL-81927C(AS)

purpose of this index is to provide access to the alphabetical index of the manual containing the required coverage. The alphabetical index shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3. The WP number shall be 001 00.
- b. Title page. The first page of the index shall be the alphabetical index title page. The title page shall be prepared as follows:
 - (1) Title block. The title block shall be placed below the marginal copy. The following information shall appear in normal type. Boldface type may be used for the items appearing in all capital letters;
 - (a) A one-point rule shall be placed below the marginal copy.
 - (b) The WP title "ALPHABETICAL INDEX" shall be centered below the line.
 - (c) Publication title, consisting of;
 1. Type of manual, refer to 3.7.4.1g(1).
 2. End item nomenclature, refer to 3.7.4.1g(2).
 - (d) A line shall be placed below the publication title.
 - (2) Column heads. The column heads "SYSTEM/SUBSYSTEM" and "PUBLICATION NUMBER" shall be placed below the title block. The column heads shall be underlined.
 - (a) Main entries in the system/subsystem column shall begin at the left margin.
 - (b) Subordinate entries listed below a main entry shall be indented three from the left margin.
- c. Second and subsequent pages.
 - (1) Marginal copy; The marginal copy shall be in accordance with 3.6.3.
 - (2) Column heads. The column heads "SYSTEM/SUBSYSTEM" and "PUBLICATION NUMBER" shall be placed below the marginal copy. The column heads shall be underlined.

MIL-DTL-81927C(AS)

- (a) Main entries in the system/subsystem column shall begin at the left margin.
 - (b) Subordinate entries listed below a main entry shall be indented four spaces (approximately 2.5 picas) from the left margin.
- d. Technical content. The primary consideration in the development of the alphabetical index shall be the accessibility of the data. The following guidelines apply:
- (1) As a minimum, the index shall list the publication number for every system and subsystem contained in the complete set of manuals.
 - (2) Cross indexing and duplication by functional element (e.g., Description, Principles of Operation, etc.) shall not be included, unless required to provide access to the correct manual, e.g., system or subsystem coverage breakdown by functional element in separate manuals.

3.7.3.2 Division of an existing manual. When an existing manual (after distribution of the basic issue) exceeds reasonable size for handling (bulk would exceed the thickness limit, see 3.6.2.4), it will require division into two or more parts. The manual shall be divided by placing the front matter, Index and Introduction WPs and as many WPs as possible in the first volume. The title page of each volume shall contain a statement that the applicable volume is incomplete without the other volume(s). Each volume will be assigned a publication number. When a manual is divided, it shall be arranged as follows:

a. First volume:

- (1) Front matter (see 3.7.4)
- (2) Alphabetical index for all volumes (see 3.7.3.1.1.1)
- (3) Numerical index of part numbers (see 3.7.6)
- (4) Numerical index of reference designations (see 3.7.7)
- (5) Introduction (see 3.7.8)
- (6) Technical content (first group of technical content WPs).

b. Second and subsequent volumes:

- (1) Front matter (see 3.7.4)

MIL-DTL-81927C(AS)

- (2) Alphabetical index (for the volume) (see 3.7.5)
- (3) Short introduction (see 3.7.8.4)
- (4) Technical content (remainder of technical content WPs or second group of WPs, as required).

3.7.3.2.1 Division of a multimanual set index. If it is anticipated that a revision of the existing index or the initial issue of an index exceeds reasonable size for handling (bulk exceeds thickness limit, see 3.6.2.4), a logical division of the information to be covered shall be established and the manual divided into two or more volumes. The title page of each volume shall contain a continuation notice in accordance with 3.7.4.1j. Each volume will be assigned a publication number. If possible, division of the information shall be by functional element and the publication title shall reflect the volume's content. Each volume of the manual shall include an appropriate sub-title, e.g., Volume I, Alphabetical Index and Introduction; Volume II, Numerical Index of Part Numbers; Volume III, Numerical Index of Reference Designations, etc.

3.7.4 Front matter in WP manuals. The front matter shall consist of the following items:

- a. Title page.
- b. Numerical index of effective WPs/pages (A page).
- c. TPDR page.
- d. HMWS page.

3.7.4.1 Title page - WP manuals. A title page shall be prepared for all manuals. The reproducible copy shall be prepared as follows:

- a. Publication number. The publication number assigned by the requiring activity shall be placed in the extreme upper left corner of the page. Each manual or volume thereof shall have a separate publication number assigned. If the manual is to be used jointly with other services, the requiring activity's publication number shall be placed above the other services' publication number(s). All publication numbers shall be in very large bold type.
- b. Former publication number. If the manual has been renumbered, the former publication number will appear below the new number and shall be preceded by the word "Formerly" in very large bold type. At the next change/revision, only the new number shall appear.
- c. Publication date. The publication date or revision date shall be placed in the upper left

MIL-DTL-81927C(AS)

corner, below the publication number, joint usage number, and/or former publication number in large bold type.

- d. Change number and date. The change number and date, if applicable, shall be placed in the upper left corner, below the publication date, in large bold type.
- e. Top line. A line shall be placed across the page below the publication date or revision date or the change number and date, as applicable.
- f. Type of document. The words "TECHNICAL MANUAL" shall be centered on the page below the one-point rule in very large bold type.
- g. Publication title. The publication title shall consist of the type of manual and the end item nomenclature:
 - (1) Type of manual. The type of manual is a combination of the level(s) of maintenance coverage, if applicable, and functional element(s) contained in the manual (refer to 1.1 and 3.2.1.2).
 - (2) End item nomenclature. The end item nomenclature such as the system, subsystem, or equipment (including AN type designation), shall be centered below the type of manual in very large bold type. Spacing shall be determined by the number of additional items required on the title page. When applicable, the model(s) and part number(s) shall be placed below the nomenclature. The model(s) and part number(s) shall be in very large bold type. If the manual covers more than one model and/or part number and space considerations so dictate, the entries may be made in large bold type, depending on the number of entries.
 - (a) Multiple AN type designations. When the manual covers more than one AN type designation, each AN type designation shall be placed sequentially below the end item nomenclature followed by the applicable model and/or part number. If the manual covers more than one type designation and space considerations so dictate, the entries may be made in large bold type, depending on the number of entries, e.g.,

AN/ARC-300(V)1, MODEL NUMBER MXD 507, PART NUMBER 123456-801
 AN/ARC-300(V)2, MODEL NUMBER MXD 508, PART NUMBER 123456-802

or

RT-2099/ARC-300 (V), P/N 45678-801
 RT-2099/ARC-300 (V), P/N 45678-802

MIL-DTL-81927C(AS)

- (b) System coverage of multiple end items. When a single manual is authorized to cover a system, all system components shall be listed below the system nomenclature. The system nomenclature shall be in large bold type with applicable model and part numbers listed below in large bold type. The caption "Consisting of" shall be centered below the system data in large bold type. The system components shall be listed below the caption "Consisting Of" in the same manner and type sizes as the system data. AN type designations may be listed on the same line and in the same type size as the model and part numbers if necessary for spacing or balance.
- h. Supersedure notice. When a manual is revised, a supersedure notice shall be placed below the end item nomenclature, designator, model, and/or part number(s) in normal bold type. The notice shall always include the publication number and date, and if applicable, the change number and date of the superseded manual (for example: "This manual supersedes AE-172AA-720-100, dated 15 November 1978"). If a classified manual is being revised, the supersedure notice shall add the following statement, "which shall be destroyed in accordance with applicable security regulations."
- i. Cross reference notices. When required, a cross reference notice to supplements shall be placed below the supersedure notice or publication title in normal bold type.
- j. Continuation notice. When a manual must be divided, a continuation notice shall appear on the title page of each volume below the supersedure notice or publication title in normal bold type (see 3.7.3). The title page of each volume shall contain a statement that the applicable volume is incomplete without the other volume(s) of the set.
- k. Distribution statement. A distribution statement shall be placed above the authority notice. The type size shall be not greater than normal nor less than 8 point. The distribution statement shall read as follows:

DISTRIBUTION STATEMENT C. Distribution authorized to U.S. Government agencies and their contractors to protect publications required for official use or for administrative or operational purposes, determined on (date). Other requests for this document shall be referred to Commanding Officer, Naval Air Technical Services Facility, 700 Robbins Avenue, Philadelphia, PA 19111-5097.

- (1) Determination date. The determination date shall be the date of the publication (basic, revision, change date as applicable) when the distribution statement is applied.
- (2) Changed distribution statement. If the distribution statement is changed, the

MIL-DTL-81927C(AS)

determination date will be the date of issue that effected the change.

- l. Destruction notice. The destruction notice shall be placed directly below the distribution statement and shall read as follows:

(1) For classified manuals:

DESTRUCTION NOTICE -- For classified documents follow the procedures in DOD 5220.22M, Industrial Security Manual, Section 11-19 or DOD 5200.IR, Information Security Program Regulation, Chapter IX (Chapter 17 of OPNAVINST 5510.1).

(2) For unclassified manuals:

DESTRUCTION NOTICE -- For unclassified, limited documents, destroy by any method that will prevent disclosure of contents or reconstruction of the document.

- m. Bottom line. A line shall be placed 1 1/2 inches above the bottom of the page.
- n. Authority notice. The authority notice shall be centered above the line in normal bold type.

3.7.4.1.1 Title page - classified WP manuals. The title page of a classified manual shall show the classification of the equipment nomenclature as specified in DOD 5220.22M. The following additional data is applicable to classified manual title pages:

- a. The security classification assigned by the requiring activity shall be placed on the top and bottom of the title page in the same or larger type size as the publication number.
- b. Classified text may not appear on the last page of a classified manual. A blank page shall be furnished as the last page of a classified manual. The overall classification of the manual shall be placed at the top and bottom center of the back page.
- c. Manuals classified Top Secret shall have the statement "This Publication consists of ____ Top Secret pages of ____ total pages. Copy No. of ____ copies" placed on the title page in normal bold type.
- d. The applicable downgrading and declassification notation in accordance with DOD 522.22M shall be placed at the bottom of the page below the classification marking in normal bold type. The notation shall be boxed.

MIL-DTL-81927C(AS)

3.7.4.2 Numerical index of effective WPs/pages (A page). Except for single WP manuals (see 3.7.2.2.1.1), a numerical index of effective WPs/pages shall be included for all manuals prepared to WP format. The A page shall back up the title page and shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3.
- b. Title. The title "NUMERICAL INDEX OF EFFECTIVE WPS/PAGES" shall be centered two clear spaces below the marginal copy using uppercase letters in normal bold type. The title shall be underlined. There shall be two clear spaces below the title.
- c. Subtitle. The subtitle "List of Current Changes" shall be centered below the title in upper and lower case letters in normal type.
- d. List of current changes. A list of current changes to the manual, including the basic issue or revision, shall be listed under the subtitle. The list of current changes shall account for and include the numbers and dates of all RACs issued and all IRACs incorporated since the basic manual or its latest revision. All subsequent changes to manuals and manual revisions shall reflect the cumulative status of all RACs issued and incorporated. To maintain continuity of all issued RAC numbers, canceled RAC numbers, including those assigned but never issued, are to be included in the cumulative status of RACs incorporated.
- e. Change statement. The change statement shall be placed two clear spaces (two blank lines) below the list of current changes, and shall read as follows:

"Only those pages assigned to the manual are listed in this index. If changed pages are issued, insert the changed pages and dispose of superseded pages, including classified data, in accordance with applicable regulations. The portion of text affected by the change is indicated by change bars or the symbol "R" in the outer margin of each column of text. Changes to illustrations are indicated by pointing hands, change bars, or shaded areas as applicable."
- f. WP title listing column heads. The column heads "WP Number" and "Title" shall be placed two clear spaces (two blank lines) below the change statement in normal type. A one-point rule shall be placed above and below the column heads.
- g. WP title listing. A numerical listing of WPs assigned to the manual and their titles shall be placed below the column heads in normal type.
- h. Total page count statement. The following total page count statement shall be placed below the change statement: "Total number of pages assigned to this manual is ____ consisting of the following:."

MIL-DTL-81927C(AS)

- i. Numerical listing column heads. The column heads "Page Number" and "Change Number" shall be below the total page statement on the first page. Additional sets of columns may be used depending on the size of the manual. A one-point rule shall be placed above and below the column heads.
- j. Numerical listing. A numerical listing of pages assigned to the manual shall be listed below the "Page Number" column head. All front matter pages shall be listed. All pages shall be listed without a break in sequence. All blank pages shall be listed separately.
- k. Second and subsequent pages. The second and subsequent pages shall be prepared as follows:
 - (1) Marginal copy. The marginal copy shall be in accordance with 3.6.3.
 - (2) Title. The title "NUMERICAL INDEX OF EFFECTIVE WPS/PAGES (Continued)" shall be centered two clear spaces (two blank lines) below the marginal copy using uppercase letters in normal bold type. The title shall be underlined. There shall be two clear spaces (two blank lines) below the title.
 - (3) Column Heads. The WP title listing column heads or numerical listing column heads, as appropriate, shall be placed two clear spaces below the title in normal type. A one-point rule shall be placed above and below the column heads.
 - (4) Listing. The numerical listing of WPs or numerical listing of pages assigned to the manual, as appropriate, shall be continued from the previous page under the column heads.
 - (5) Total page count statement. If the total page count statement was not placed on page A due to the length of the numerical listing of WPs, it shall be placed following the numerical listing of WPs.

3.7.4.3 Technical publication deficiency reports (TPDR) incorporated pages. A list of TPDRs incorporated shall be prepared for all changed/revised manuals. The TPDR list shall begin on the first right hand page following the A page (numerical index of effective work packages/pages). In multivolume sets, each volume shall contain a list of TDPRs incorporated for the volume.

MIL-DTL-81927C(AS)

3.7.4.3.1 TPDR incorporated pages preparation. TPDR pages shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3.
- b. Title page. The first page of the listing shall be the title page. The title page shall be prepared as follows:
 - (1) Title block. The title block shall be placed below the marginal copy. The following information shall appear in normal type.
 - (a) A one-point rule shall be placed below the marginal copy.
 - (b) The title "LIST OF TECHNICAL PUBLICATION DEFICIENCY REPORTS INCORPORATED" shall be centered below the line.
 - (c) Publication title, consisting of;
 1. Type of manual (refer to 3.7.4.1g(1)).
 2. End item nomenclature (refer to 3.7.4.1g(2)).
 - (d) A one-point rule shall be placed below the publication title.
- c. Second and subsequent pages. The pages shall be prepared as follows:
 - (1) Marginal copy. The marginal copy shall be in accordance with 3.6.3.
 - (2) Title block. The title block shall be placed below the marginal copy.
 - (a) A one-point rule shall be placed below the marginal copy.
 - (b) The title "LIST OF TECHNICAL PUBLICATION DEFICIENCY REPORTS INCORPORATED" shall be centered below the marginal copy in normal bold type.
 - (c) A one-point rule shall be placed below the title.

3.7.4.3.2 Development of the list of TPDRs incorporated. The list shall reflect the data incorporated in the technical manual resulting from valid TPDRs. A double column format shall be used. Column headings shall be "Identification No." and "Location". The "Identification No." column shall indicate the reporting activity and its TPDR file number. The "Location"

MIL-DTL-81927C(AS)

column shall indicate the WP number (WP)/page No. (pg)/paragraph No.(p)/figure No.(F)/table No.(T) as appropriate, identifying the location in the manual where the data has been incorporated. The list shall reflect the data that has been incorporated in that particular issue. The list shall not be cumulative. The TPDR page shall be prepared at the first formal change to the manual. If no TPDRs are to be incorporated, the word "None" shall be entered.

3.7.4.4 Hazardous Materials Warning Sheets (HMWS). The complete warnings applicable to hazardous materials and related information shall be placed in the manual's front matter as warning sheets. The acronym "HMWS" shall be used to identify the warning sheets. The HMWS pages shall be placed in the manual starting on the first right hand page following the A page (initial issue) or TPDR pages (change or revision). The HMWS pages shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3.
- b. Title page. The first page (HMWS-1) of the listing shall be the title page. The title page shall be prepared as follows:
 - (1) Title block. The title block shall be placed below the marginal copy;
 - (a) A one-point rule shall be placed below the marginal copy.
 - (b) The title "WARNINGS APPLICABLE TO HAZARDOUS MATERIALS" shall be centered below the line in normal bold type.
 - (c) A one-point rule shall be placed below the title.
 - (2) Introductory paragraphs. The following paragraphs shall be placed below the one-point rule:

Warnings in this manual alert personnel to hazards associated with the use of hazardous materials. Additional information related to hazardous materials is provided in OPNAVINST 5100.23, Navy Occupational Safety and Health (NAVOSH) program manual, NAVSUPINST 5100.27, Navy Hazardous Material Control Program, and the DOD 6050.5, Hazardous Materials Information System (HMIS) series publications. For each hazardous material used within the Navy, a Material Safety Data Sheet (MSDS) must be provided and be available for review by users. Consult your local safety and health staff concerning any questions regarding hazardous materials, MSDS, personal protective equipment requirements, appropriate handling and emergency procedures, and disposal guidance.

MIL-DTL-81927C(AS)

Under the heading "HAZARDOUS MATERIALS WARNINGS", complete hazardous material warnings are listed by (1) warnings sequentially assigned index numbers, (2) material, (nomenclature, specification, including related icons), and (3) complete warnings, including appropriate personnel protective equipment requirements.

In the text of the manual, the caption "WARNING" is not used for hazardous material warnings. Hazards are cited by the numeric identifier that relates to the complete warnings, the nomenclature and applicable specification of the hazardous material, and appropriate icon(s). Users of hazardous materials shall refer to the complete warnings.

- (3) Subtitle. The subtitle "EXPLANATION OF HAZARDOUS MATERIALS ICONS" shall be centered below the introductory paragraphs in normal bold type. There shall be two clear spaces (two blank lines) above and below the subtitle.
- (4) Explanation of hazardous materials icons. Each of the nine authorized icons, with related explanation, shall be provided in double column format.
- c. Second and subsequent pages. The second and subsequent pages shall be prepared as follows:
 - (1) Marginal copy. The marginal copy shall be in accordance with 3.6.3.
 - (2) Warnings caption. The caption "HAZARDOUS MATERIALS WARNINGS" shall be centered below the marginal copy in normal bold type. There shall be two clear spaces above and below the caption.
 - (3) Column heads. The column heads "Index," "Material," and "Warning" shall be placed below the caption in upper and lower case letters. The column heads shall appear in normal type and shall be underlined.
- d. Listing of "HAZARDOUS MATERIALS WARNINGS". The listing shall be prepared in full-page, three-column format. Complete warnings shall be provided for all hazardous materials used in the manual. For multivolume sets (see 3.7.3), each volume shall contain a complete listing of the hazardous materials used in the multivolume set.
 - (1) "INDEX". Enter the hazardous material warning Arabic numeral identifier, either the manual's sequentially assigned index number (3.4.4xx.1c) or the contractor's database permanent numeric identifier (3.4.4.1d).
 - (2) "MATERIAL". Enter the hazardous material's nomenclature and applicable specification. Provide all applicable icons below the nomenclature and applicable specification.

MIL-DTL-81927C(AS)

- (3) "WARNING." Enter complete warning with appropriate personnel protective equipment requirements (see 3.4.4.1).
- (4) "MULTIVOLUME SET NOTATION." If applicable, a note shall be placed at the bottom of the first page of the list of hazardous material warnings stating that not all numbered warnings may appear in all volumes of the manual (3.4.4.1d and 3.4.4.1.3a).
- (5) "CONTRACTOR'S INDEX NUMBER NOTATION." If applicable, a note shall be placed at the bottom of the first page of the list of hazardous material warnings stating that the missing index numbers are not applicable to this manual (3.4.1d).

3.7.5 Alphabetical index work package. Except for single WP manuals, the alphabetical index WP shall be the first WP and shall begin on the first right hand page following the front matter. The primary purpose of this index is to provide access to the alphabetical index of the WP containing the required coverage.

3.7.5.1 Alphabetical index work package title page. The first page of the index shall be a title page. The title page shall be prepared as follows:

- a. Marginal copy; The marginal copy shall be in accordance with 3.6.3. The WP shall be numbered "001 00."
- b. Title block, The title block shall be placed below the marginal copy. The following information shall appear in the title block, in normal type, in the order listed, as applicable:
 - (1) A one-point rule shall be placed below the marginal copy.
 - (2) The WP title "ALPHABETICAL INDEX" shall be centered below the one-point rule.
 - (3) End item nomenclature (3.7.4.1g(2)) shall be centered below the WP title.
 - (4) A one-point rule shall be placed below the last line of information in the title block.
- c. Column heads. The column heads "Title" and "WP Number" shall be placed below the title block. The column heads shall be underlined.
 - (1) Main entries. Main entries in the "title" column shall begin at the left margin.

MIL-DTL-81927C(AS)

- (2) Subordinate (cross-reference) entries. Subordinate entries listed below a main entry shall be indented three spaces (approximately 1.5 picas) from the left margin.

3.7.5.2 Second and subsequent pages of the alphabetical index WP.

- a. Marginal copy; The marginal copy shall be in accordance with 3.6.3.
- b. Column heads. The column heads "Title" and "WP Number" shall be placed below the marginal copy. The column heads shall be underlined.

- (1) Main entries in the "Title" column shall begin at the left margin.

- (2) Subordinate (cross-reference) entries listed below a main entry shall be indented three spaces (approximately 1.5 picas) from the left margin.

3.7.5.3 Development of the alphabetical index WP. The primary consideration in the development of the alphabetical index shall be the accessibility of the data. The primary purpose of this index is to provide access to the alphabetical index of the WP containing the required coverage. The following guidelines apply:

- a. WP title block data.

- (1) Maintenance level(s). The maintenance level entries are not required, unless the data is separated into two or more WPs by maintenance level.
- (2) General subject. (See 3.7.9.1b(3).) The general subject of the Introduction WP and all technical content WPs shall be main entries. The general subject may also be used as subordinate entries when required to clarify access to coverage.
- (3) WP end item's nomenclature. The WP end item's nomenclature shall be identical with the WP title block, except for arrangement of wording.
 - (a) Nomenclature for the assembly/subassembly shall be arranged with the noun name preceding the modifiers, e.g., "Power Driven Rotary Vacuum Pump" shall be listed as "Pump, Rotary, Vacuum Power Driven."
 - (b) Nomenclature shall also be listed under significant modifiers as functional task or element cross reference entries, e.g., "Vacuum Pump, Rotary, Power Driven."
 - (c) "AN" nomenclature shall not be used as a main entry, but shall be used as a

MIL-DTL-81927C(AS)

subordinate (cross-reference entry), e.g., "Mount, Antenna, Coupler, UHF, MT-1995/A, (34A1)" shall be listed as "MT-1995/A UHF Antenna Coupler Mount (34A1)."

- (d) WP end item's reference designation shall not be used as a main entry, but shall be listed following applicable entries to improve access to data. This is extremely critical when more than one item have similar nomenclature.
- (4) Effectivity notice. The effectivity shall be listed as a subordinate entry when the same basic item is covered in more than one WP by effectivity.
- b. System and subsystems. System and subsystem entries shall be obtained from the WP titles and selected primary sideheads. System names shall be listed as main entries. Subsystems shall be listed as subordinate entries for the applicable system. Subsystem names shall be listed as main entries when listed in the WP title block.
- c. Functional task or maintenance elements. The functional tasks and elements shall be obtained from the WP titles and selected primary sideheads. Functional tasks and elements shall be listed as main entries, if not already listed as WP general subject. When the WP general subject contains two or more functional tasks or elements, each separate task or element shall be listed alphabetically as main entries and as cross-reference entries. When the WP general subject is "Maintenance Instructions" (see 6.3.6) or "Maintenance" (see 6.3.5), all related tasks are required to be covered in the WP and therefore all WP sideheads shall be reviewed to insure adequate coverage is provided. Refer to 3.7.9.1b(3).

3.7.6 Numerical index of part numbers WP. WP manuals containing more than one IPB figure shall have a numerical index of part numbers WP. The index shall begin on the first right hand page following the alphabetical index. The primary purpose of this index is to provide direct access to the specific manual, WP, and figure related to a specific part number.

3.7.6.1 Numerical index of part numbers WP title page. The first page of the index shall be a title page. The title page shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3. The WP shall be numbered "001 01."
- b. Title block. The title block shall be placed below the marginal copy. The following information shall appear in the title block, in normal type, in the order listed, as applicable;

MIL-DTL-81927C(AS)

- (1) A one-point rule shall be placed below the marginal copy.
- (2) The WP title "NUMERICAL INDEX OF PART NUMBERS" shall be centered below the one-point rule.
- (3) End item nomenclature (see 3.7.4.1g(2)) shall be centered below the WP title.
- (4) A one-point rule shall be placed below the last line of information in the title block.
- c. Column heads. The column heads "PART NUMBER" and "WP/FIGURE/INDEX NUMBER" or "PUBLICATION/WP/FIGURE/INDEX NUMBER" shall be placed below the title block. The column heads shall be underlined.

3.7.6.2 Second and subsequent pages of the numerical index of part numbers WP.

- a. Marginal copy; The marginal copy shall be in accordance with 3.6.3.
- b. Column heads. The column heads "PART NUMBER" and "WP/FIGURE/INDEX NUMBER" or "PUBLICATION/WP/FIGURE/INDEX NUMBER" shall be placed below the marginal copy. The column heads shall be underlined.

3.7.6.3 Development of the numerical index of part numbers. The numerical index shall be prepared as follows:

- a. "Part number" column. The part number column is used to establish the content. All part numbers listed in the GAPL part number column of every IPB figure contained in the manual shall be listed. Superseded parts that have continued application shall be listed. Government standard and attaching parts may be listed in the index only for their first appearance in the manual to reduce unnecessary redundant entries in the index. The most cost effective method of presentation shall be used. Part numbers for items listed more than once in the manual (except for Government standard and attaching parts) shall have entries for each listing. Part numbers shall be listed in alphanumeric sequence as follows:
 - (1) First position of the part number in order of precedence; the letters A thru Z, the numerals zero through nine.
 - (2) Second and succeeding positions of the part number in order of precedence, from left to right; space (blank position), diagonal (/), point (.), dash (-), letters A through Z, and numerals zero through nine.

MIL-DTL-81927C(AS)

- (3) Items without part numbers (listed with a dash (-) in the GAPL part number column) shall be listed alphabetically, using the identifying noun in lieu of a part number.
- b. "WP/FIGURE/INDEX NUMBER" column. The diagonal line (/) is used to separate the entries. When more than one entry is required for a part number the entries shall listed in the following order of precedence: WP number, figure number, and index number. When the entry is for the IPB figure's end item, the index number shall be left blank. Each entry shall list the WP number first, followed by a diagonal line, the figure number second, followed by a diagonal line, and the index number.
- c. "PUBLICATION/WP/FIGURE/INDEX NUMBER" column. This is applicable to a multimanual set index (see 3.7.3.2.1) and to an existing manual that is divided into volumes (see 3.7.3.1). The publication number shall be added to the figure and index number listing required by b, above. A sufficient portion of the publication number of the manual/volume in which each part number listed appears shall be identified. For example, if the publication number of the first manual is A1-F18AA-110-100 and the second manual is numbered A1-F18AA-120-100, only the numbers 110-100 and 120-100 would be listed. If the first volume is numbered A1-610AA-IMM-010 and the second volume is numbered A1-610AA-IMM-020, only the numbers 010 and 020 would be listed. The method of identification shall be explained in the applicable introduction. The publication number shall be separated from the figure number by a diagonal line (/) in the listing.

3.7.7 Numerical index of reference designations WP. WP manuals containing more than one IPB figure shall have a numerical index of reference designations WP. The index shall begin on the first right hand page following the numerical index of part numbers. The primary purpose of this index is to provide direct access to the specific manual, WP, and figure related to a specific reference designation.

3.7.7.1 Numerical index of reference designations WP title page. The first page of the index shall be a title page. The title page shall be prepared as follows:

- a. Marginal copy; The marginal copy shall be in accordance with 3.6.3. The WP shall be numbered "001 02".
- b. Title block. The title block shall be placed below the marginal copy. The following information shall appear in the title block, in normal type, in the order listed, as applicable;
- (1) A one-point rule shall be placed below the marginal copy.

MIL-DTL-81927C(AS)

- (2) The WP title "NUMERICAL INDEX OF REFERENCE DESIGNATIONS" shall be centered below the one-point rule.
- (3) End item nomenclature (see 3.7.4.1g(2)) shall be centered below the WP title.
- (4) A one-point rule shall be placed below the last line of information.
- c. Column heads. The column heads "REF DES," AND "WP/FIGURE/INDEX NUMBER" or "PUBLICATION/WP / FIGURE/INDEX NUMBER" shall be placed below the title block. The column head "USABLE ON CODE" may be added (see 3.7.7.3c), if required. The column heads shall be underlined.

3.7.7.2 Second and subsequent pages of the numerical index of reference designations WP.

- a. Marginal copy; The marginal copy shall be in accordance with 3.6.3.
- b. Column heads. The column heads "REF DES," and "WP/FIGURE/INDEX NUMBER" or "PUBLICATION/WP/FIGURE/INDEX NUMBER" shall be placed below the marginal copy. The column head "USABLE ON CODE" may be added (see 3.7.7.3c), if required. The column heads shall be underlined.

3.7.7.3 Development of the numerical index of reference designations WP. The numerical index shall be prepared as follows:

- a. "REF DES" column. The reference designations column is used to establish the content. All reference designations identified in any IPB figure contained in the manual shall be listed in reference designation sequence.
 - (1) Multiple identical assemblies (same reference designations). When multiple reference designations apply to the same IPB figure (e.g., circuit card assembly), all detail part reference designations shall be listed in the first appearance in the manual.
 - (a) Second and subsequent items may reference the first item to reduce unnecessary redundant entries in the index.
 - (b) The second and subsequent reference designations shall reference the end item breakdown figure and reference first related item, e.g., "BDKN same as A3" or "See A3 for BDKN."
 - (c) The most cost effective method of presentation shall be used.

MIL-DTL-81927C(AS)

- (2) Multiple end items. When more than one unit is covered by one manual, a unit reference designation shall be assigned or the same reference designation may apply to subassemblies of different end items.
 - (3) Effectivity difference. When a reference designation applies to more than one IPB figure (e.g., effectivity difference), a "USABLE ON CODE" may be added to the index. An explanation of the "USABLE ON CODE" application and usage shall be added to the introduction.
- b. "WP/FIGURE/INDEX NUMBER" column. The diagonal line (/) is used to separate the entries. When more than one entry is required for a reference designation, the entries shall be listed in the following order of precedence: WP number, figure number, and index number. When the entry is for the IPB figure's end item, the index number shall be left blank. Each entry shall list the WP number first, followed by a diagonal line, the figure number second, followed by a diagonal line, and the index number.
 - c. "PUBLICATION/WP/FIGURE/INDEX NUMBER" column. This is applicable to a multimanual set index (see 3.7.3.2.1) and to an existing manual that is divided into volumes (see 3.7.3.1). The publication number shall be added to the figure and index number listing required by b, above. A sufficient portion of the publication number of the manual/volume in which each reference designation listed appears shall be identified. For example, if the publication number of the first manual is A1-F18AA-110-100 and the second manual is numbered A1-F18AA-120-100, only the numbers 110-100 and 120-100 would be listed. If the first volume is numbered A1-610AA-IMM-010 and the second volume is numbered A1-610AA-IMM-020, only the numbers 010 and 020 would be listed. The method of identification would be explained in the applicable introduction. The publication number shall be separated from the figure number by a diagonal line (/) in the listing.
 - d. "USABLE ON CODE" column, if required. This column may be added to the index if required for clarity (refer to 3.7.7.3a). When added, the column shall be added to all index pages. When figure-specific usable on codes are used in different IPB figures, a modified coding shall be used for this index.

3.7.8 Introduction WP. All multiple WP manuals shall have an Introduction WP. The second and subsequent manuals of a multimanual set shall have a short Introduction WP (refer to 3.7.8.4). Single WP manuals shall provide the Introduction as the first primary and related subordinate paragraphs of technical content. Refer to 3.7.2.2c. The introduction WP shall begin on the first right-hand page following the last Index WP; (1) Alphabetical index, (2) Numerical index of part numbers, or (3) Numerical index of reference designations, as applicable. The Introduction WP number shall be WP 002 00. The primary purpose of the introduction is to

MIL-DTL-81927C(AS)

provide information necessary to use the data provided in the manual as effectively as possible.

3.7.8.1 Introduction WP title page. The first page of the introduction shall be a title page. The title page shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3. The WP shall be numbered "002 00".
- b. Title block. The title block shall be placed below the marginal copy. The following information shall appear in the title block, in normal type, in the order listed, as applicable;
 - (1) A one-point rule shall be placed below the marginal copy.
 - (2) The WP title "INTRODUCTION" shall be centered below the one-point rule.
 - (3) End item nomenclature (refer to 3.7.4.1g(2)) shall be centered below the WP title.
 - (4) A one-point rule shall be placed below the last line of information in the title block.
- c. Technical content. Technical content shall begin below the marginal copy.

3.7.8.2 Second and subsequent pages of the Introduction WP. The second and subsequent page shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3.
- b. Technical content. Technical content shall begin below the marginal copy.

3.7.8.3 Content of the Introduction WP. The introduction WP shall include the following:

- a. All manuals. The following information shall be included in all WP manuals:
 - (1) Purpose and scope. The purpose and scope of the manual.
 - (2) Description and designated nomenclature. The designated nomenclature and a brief description of the end item. The introduction shall not include an illustration of the equipment.
 - (3) Record of technical directives. The introduction shall include an explanation of the following listings, including the related entries;

MIL-DTL-81927C(AS)

- (a) Record of technical directives on technical content WP title pages.
- (b) Historical record of technical directives included in the introduction WP.
- (4) Historical record of technical directives. The historical record of technical directives shall be prepared in accordance with 3.7.8.3.1.
- (5) Quality assurance requirements and highlighting techniques. An explanation of the quality assurance requirements and methods of highlighting QA provisions. (See 3.4.3.1.)
- (6) Support equipment availability statement. The statement "When an item of support equipment is not available, an approved alternate identified in the activity's Individual Material Readiness List (IMRL) may be substituted."
- (7) Complete list of Support Equipment Required. A complete list of support equipment required consolidated from all listings in the manual. (See 3.7.8.3.2.) The Introduction shall include an explanation of the listing's content and entries.
- (8) Complete list of "Materials Required". A complete list of materials required consolidated from all listings in the manual. (See 3.8.2.2.) The Introduction shall include an explanation of the listing's content and entries. The listing shall be prepared as a full-page-width numbered table.
- (9) Complete list of "Reference Material". A complete list of reference material consolidated from all technical content WP listings in the manual (see 3.8.1c). The listing shall include the H4/H-8 cataloging handbooks and NAVAIRINST 4423.11. The Introduction shall include an explanation of the listing's content and entries. The listing shall be prepared as a full-page-width numbered table.
- (10) Requisitioning and automatic distribution of NAVAIR technical publications. The following statement applies to requisitioning and automatic distribution of NAVAIR technical publications:

"Procedures to be used by naval activities and other Department of Defense activities requiring NAVAIR technical manuals are defined in NAVAIR 00-25-100."
- (11) Cross-reference of abbreviations, symbols, new and unusual terms used in the manual(s) and not included in OPNAVINST 4790.2. This listing, which might I include terms such as LOX, QEC, MAG, HCP, HCI, ESD, etc., shall be prepared as a full-page-width numbered table.

MIL-DTL-81927C(AS)

(12) Nuclear survivability requirements.

- (a) The Introduction shall include an explanation of the Hardness Critical Items [HCI] symbol's usage and method of highlighting and other pertinent information as necessary to emphasize the uniqueness of HCI.
- (b) The Introduction shall include a caution statement explaining that the symbol establishes the requirement that all paragraphs and processes/steps in the maintenance manual and items in the IPB identified by the symbol must be followed as written to ensure nuclear hardness is not degraded.

(13) Electrostatic discharge (ESD) sensitive parts.

- (a) The Introduction shall include an explanation of the ESD symbol's usage and method of highlighting and other pertinent information as necessary to emphasize the uniqueness of ESD sensitive components.
- (b) The Introduction shall include a caution statement explaining that the symbol establishes the requirement that all paragraphs and processes/steps in the maintenance manual and items in the IPB identified by the symbol must be followed as written to ensure ESD sensitive components are not degraded. The caution shall reference NAVAIR 01-1A-23 (WP 005 00) for standard maintenance practices and handling procedures and precautions.

b. Introduction to the IPB. All manuals with one or more IPB figures shall include an introduction to the IPB. The introduction shall include, but not be limited to the following:

- (1) Joint Service manuals. Complete identifying information is required if the IPB is to be used by another service that designates the end item by its own type, model or serial numbers.
- (2) Numerical Indexes of Part Numbers and Reference Designations. An explanation shall be provided, including how to use the Numerical Index of Part Numbers and Reference Designations. The explanation for an Multimanual Set Index (see 3.7.3.2.1) or Multivolume Set (see 3.7.3.1) shall include the method of listing publication numbers.
- (3) Source, Maintenance, and Recoverability (SM&R) codes. An explanation of SM&R

MIL-DTL-81927C(AS)

codes with reference to a figure, shall be included. Reference to the specific issue of the NAVAIR instruction to which the end item was provisioned shall be made. The method of provisioning used for multiple application of identical parts should be explained, together with the specific impact on the listed SM&R codes (e.g., first occurrence coding). In addition, the Naval Supply Systems Command publication NAVSUP P2300 shall be cited as the source for the most current SM&R code listed in an IPB and if different than the manual, the manual requires an update to reflect any related maintenance instructions.

- (4) Part Number column. The meaning of a dash (-) or "COML" shall be explained.
- (5) Description column. The following entries shall be explained, if applicable:
 - (a) Indention to show relationship, numbers and leaders (periods).
 - (b) Preceding symbols (HCI or ESD).
 - (c) Manufacturer's code.
 - 1. Appearance in listing, including suppression of the government and/or prime contractor's codes. When the prime contractor's code is suppressed, The code shall be identified in the introduction.
 - 2. Reference shall be made to the H-4/H-8 catalog series for detailed information.
 - (d) Conditional acronym or abbreviation (LOX/QEC/MAG).
 - (e) Method of listing attaching parts.
 - (f) Parts kits. Method of listing, including indention.
 - (g) Amplifying information.
- (6) Units per Assembly column. Any unusual entries.
- (7) Useable on code column. Application and Alternate/Equivalent/Redesigned parts.
- c. Wiring data information. All information necessary to understand and use the data shall be provided in the introduction of the WP, or when a separate manual/volume is required, in the Introduction WP. (See 3.9.11 and 3.9.12.)

MIL-DTL-81927C(AS)

- d. Additional requirements. Any specific requirements imposed by the technical content specification.

3.7.8.3.1 Historical record of applicable technical directives (TDs). The introduction to the manual shall contain a historical record of applicable TDs. The record shall be prepared as follows:

a. Format;

- (1) This record shall be prepared as a full-page-width numbered table.
- (2) The title shall be "Historical Record of Applicable Technical Directives."
- (3) The column heads shall be "TD Type/No.," "TD Date," "Title and ECP/RAMEC No.," "Date Inc.," and "Remarks." The following technical content shall be listed under the column heads.

b. Technical content.

- (1) Until the first TD or approved Engineering Change Proposal (ECP) has an effect on the manual, the word "None" shall be centered below the title.
- (2) All issued TDs having any impact on the technical manual shall be listed upon incorporation into the manual, e.g., all technical manuals listed under the TD's "DOCUMENTATION AFFECTED:" require update to incorporate the change impact of the TD.
- (3) Approved ECPs that have no effect on retrofit of the end item, shall not be listed in the record of applicable TDs, e.g., "no technical directive will be issued".
- (4) All TDs and related ECPs or Rapid Action Minor Engineering Change (RAMEC) listed shall remain in the record during the life cycle of the manual.
 - (a) "TD Type/No." The type and number of the TD, e.g., "A6 AFC 454" or "AVC 1492", shall be entered. Note: The "TD Type/No." is identified on the Change Control Board (CCB) formal letter of ECP or RAMEC approval. Refer to NAVAIR 00-25-300.
 - (b) "TD Date" -- Enter the date of issue of the TD. If the number of the TD has been assigned but the directive has not been issued, a dash (-) shall be placed in this column.

MIL-DTL-81927C(AS)

- (c) "Title and ECP/RAMEC No." -- The title of the TD and the ECP or RAMEC number, if applicable, shall be listed. If a TD listed is the direct result of an approved ECP or RAMEC, the acronym ECP or RAMEC and number shall be shown in parentheses following the technical directive title.
- (d) "Date Inc." -- The date the information affected by the TD or the ECP was incorporated into the manual.
 - 1. If the TD number has been assigned and the directive has not yet been issued (retrofit program), but the ECP that incorporates the change in the production program has been approved;
 - a. The production ECP coverage shall be indicated in this column, and
 - b. The following notation shall be entered in the remarks column, "Production coverage only."
 - 2. When the retrofit TD is approved and incorporated in a change or revision following the incorporation of the production ECP coverage;
 - a. The TD date of issue shall be entered in the "TD Date" column,
 - b. The notation "Production coverage only" shall be removed from the Remarks column, and
 - c. The date of retrofit coverage incorporation shall be listed in this column (in lieu of the production ECP coverage incorporation date).
- (e) "Remarks" -- Applicable remarks shall be entered. If no remarks apply, a dash (-) shall be placed in this column.

3.7.8.3.2 Consolidated list of support equipment required. The Introduction WP shall contain a complete list of support equipment (SE) required (consolidated from all listings in the manual) and shall provide the additional information necessary to assist the work centers to ensure that the required SE will be available when required. The list shall be prepared as follows:

- a. Format;
 - (1) The list shall be prepared as a full-page-width numbered table.
 - (2) The title shall be "Support Equipment Required."

MIL-DTL-81927C(AS)

- (3) The column heads shall be "Nomenclature," "QTY," "CAGE Code," "Part Number," "Application," and "Remarks."
- (4) Items shall be listed in alphabetical sequence by noun nomenclature. Alternate items shall be listed below the prime item to which they apply and indented three spaces. Alternate item nomenclature is not required to match the prime item.

b. Technical content.

- (1) All SE required to perform operational checkouts, troubleshooting (fault isolation), or maintenance shall be listed.
 - (a) All peculiar SE shall be listed.
 - (b) Standard hand tools should not be listed, but special tools shall be listed.
 - (c) Standard measuring equipment, such as voltmeters and torque wrenches, shall be listed.
 - (d) Only those special tools and SE authorized for use at the level of maintenance covered shall be listed.
- (2) If the manual contains multilevel maintenance procedures, the authorized maintenance level(s) shall be indicated in the application column by the use of the letter(s) "O", "F", "G", "H" and/or "D" on the same line as the item nomenclature. Aircraft engine manuals shall use the following special application codes to identify usage restrictions:
 - (a) "J" shall be used to indicate the first degree engine maintenance level,
 - (b) "8" shall be used to indicate the second degree engine maintenance level, and
 - (c) "9" shall be used to indicate the third degree engine maintenance level.
- (3) When the manual is used by other services or Navy commands, all usage restrictions shall be identified in the "Remarks" column (e.g., "USAF only" or "NAVSEA only").
- (4) The quantity required shall be entered in "QTY" column.
- (5) Illustrations shall not be prepared in support of such lists, but may be developed in support of maintenance procedures.

MIL-DTL-81927C(AS)

- c. Alternate items. If an alternate item can be used, it shall be listed below the prime item to which they apply and indented three spaces.

- (1) Alternate item nomenclature is not required to match the prime item.
- (2) The term "or equivalent" shall not be used to identify alternate part numbers.
- (3) The requirement to list alternates shall not be interpreted to mean the preparing activity shall perform research to include such alternates.
- (4) If information on an equivalent item is passed to the preparing activity for inclusion in the manual, the item shall be listed as required above.

3.7.8.4 Short Introduction WP, Multivolume Set. (See 3.7.3.) The Introduction WP for the second and subsequent volumes of a multivolume set shall be limited to a brief statement of the coverage included in the manual, an explanation of the presentation of technical content, and a reference to the comprehensive introduction contained in the first volume of the set.

3.7.8.5 Short Introduction WP, Multimanual Set Index. (See 3.7.3.2.1.) The Introduction WP of a Multimanual Set Index shall be limited to a brief statement of the coverage included in the manual, an explanation of the presentation of technical content, an explanation of how to use the Numerical Index of Part Numbers and Reference Designations, including the method of listing publication numbers, and a reference to the comprehensive introduction contained in each manual of the set.

3.8 Technical content WP. All WPs numbered 003 00 and above shall be considered technical content WPs and shall begin on a right-hand page. Exceptions to this rule are discussed in 3.7.2.2. An "introduction" paragraph shall not be required for each technical content WP. If the title of the WP defines the general content and coverage of the WP, an opening statement essentially repeating the title of the WP is unnecessary repetition; however, an introduction shall be used when it clarifies the title of the WP or is required by the technical content specification.

3.8.1 Technical content WP title page. The first page of the technical content WP shall be a title page. The title page shall be prepared as follows:

- a. Marginal copy. The marginal copy shall be in accordance with 3.6.3.
- b. Title block. The title block shall be placed below the marginal copy. The following

MIL-DTL-81927C(AS)

information shall appear in the title block, in normal type, in the order listed, as applicable;

- (1) One-point rule. A one-point rule shall be placed below the marginal copy.
- (2) Maintenance levels. The maintenance level shall be centered below the line. If two or more maintenance levels are assigned, the maintenance level(s) shall be centered below the line, for example: "INTERMEDIATE AND DEPOT MAINTENANCE".
- (3) WP general title. The general subject shall be centered on the page, for example: "DESCRIPTION and PRINCIPLES OF OPERATION," "TESTING AND TROUBLESHOOTING," "MAINTENANCE WITH ILLUSTRATED PARTS BREAKDOWN," or "OPERATING INSTRUCTIONS".
- (4) End item nomenclature. End item nomenclature (3.7.4.1g(2)) shall be centered below the WP general title.
- (5) Manufacturer's name. For WPs that include an IPB, the manufacturer's name shall be centered below the end item nomenclature in parentheses, e.g., "(Northern Industries)." If there is more than one manufacturer of the end item, the manufacturer's name shall not appear in the title block.
- (6) Effectivity notice. If applicable, an effectivity notice shall be centered on the page, e.g., "EFFECTIVITY: Serial numbers 23456 through 34567 Prior to incorporation of AVC 1492" or "EFFECTIVITY: Aircraft Serial number 567890 and subsequent, including Aircraft incorporating AFC 356."
- (7) Supersedure notice. If applicable, a supersedure notice shall be placed below the effectivity notice. If the WP supersedes a WP in the same manual, the supersedure notice shall be as follows: "This WP supersedes (WP number), (dated)." If the superseded WP is contained in another manual, the notice shall include the publication number as follows: "This WP supersedes (WP number), (dated), contained in NAVAIR 01-F14AAA-2-4." If an unclassified or classified WP supersedes a classified WP, the notice shall be as follows: "This WP supersedes (WP number), (dated), which shall be destroyed in accordance with applicable security regulations."
- (8) Cross reference notice. If applicable, cross-reference notes to supplements shall be included, for example: "This WP is incomplete without WP042 00 contained in confidential supplement, NAVAIR 16-30XYZ-20."

MIL-DTL-81927C(AS)

- (9) One-point rule. A one-point rule shall be placed below the last line of information in the title block.
- c. Reference material list. The reference material list shall be prepared within the following guidelines in the sequence listed as they apply:

(1) Format:

- (a) The title "Reference Material" shall be centered below the title block.
- (b) One clear space shall appear below the title and the first line of reference material or the word "None," as applicable.
- (c) The listing shall be prepared in full-page-width unnumbered table format. The list shall contain two subcolumns.
1. Title. The left subcolumn shall be left justified and shall list the publication or WP general title (refer to 3.8.1b(3)). The WP title shall be listed below the related publication title. The WP title shall be indented three spaces (or approximately 1.5 picas) from the left margin.
2. Number. The right subcolumn shall be right justified and shall list the appropriate publication or WP number.
3. Interconnection. A series of leaders (periods) shall be placed between the subcolumns to connect the titles and numbers.

(2) Technical content:

- (a) Reference material required to complete the task or discussion shall be listed. If no reference material applies, the word "None" shall be centered below the title.
- (b) Only those publications required for performance of the task covered by the WP shall be included in the Reference Material list. Publications such as guides or standards which are not directly needed to accomplish the task (backup informational material or bibliography) shall not be listed in the Reference Material list even if cited in the WP text.
- (c) The maintenance level of publications listed shall not be required.

MIL-DTL-81927C(AS)

- (d) Additional WPs within the same manual that are required to complete the task or discussion shall be presented first, in numerical sequence, by the WP title and WP number only. The publication number is not required.
 - (e) Publications prepared in WP format required for reference shall be presented in numerical sequence by title, publication number, WP title and WP number. When two or more WPs are referenced in the same manual, they shall be listed in numerical sequence; repetition of the manual title and publication number is not required.
 - (f) Publications not prepared in WP format shall be presented in numerical sequence by title and publication number.
- d. Alphabetical Index. The title "Alphabetical Index" shall be centered below the list of reference material or the word "None", as applicable. Two clear spaces (two blank lines) shall appear above the title "Alphabetical Index" and one clear space (one blank line) shall appear below this title. The column heads "Subject" and "Page No." shall be placed below the title. The column heads shall be underlined. An alphabetical list of the contents of the WP shall be provided, with the applicable page number on which the information will be found. The minimum requirement shall be a listing of primary and secondary sideheads; however, access to data shall be the prime requirement of the index.
- e. Record of Applicable TDs. The record of technical directives shall be prepared in accordance with the following as applicable:
- (1) Format;
 - (a) This record shall be prepared as a full-page-width table. The title "Record of Applicable Technical Directives" shall be centered below the alphabetical index. Two clear spaces shall appear above the title "Record of Applicable Technical Directives" and one clear space shall appear below the title.
 - (b) The column heads shall be "TD Type/No.," "TD Date," "Title and ECP/ RAMEC No.," "Date Inc.," and "Remarks." The following technical content shall be listed under the column heads.
 - (2) Technical content;
 - (a) Until the first TD or approved ECP has an effect on the manual, the word "None" shall be centered below the title.

MIL-DTL-81927C(AS)

- (b) All issued TDs having any impact on the technical manual shall be listed upon incorporation into the manual, e.g., all technical manuals listed under the TD's "DOCUMENTATION AFFECTED:" require update to incorporate the change impact of the TD.
- (c) Approved ECPs that have no effect on retrofit of the end item shall not be listed in the record of applicable technical directives, e.g., no technical directive will be issued.
- (d) All TDs and related ECPs or RAMECs listed upon related coverage incorporation into the manual;
 - 1. "TD Type/No." Enter the type and number of the TD, e.g., "A6 AFC 454" or "AVC 1492". Note: The "TD Type/No." is identified on the Change Control Board (CCB) formal letter of ECP or RAMEC approval. Refer to NAVAIR 00-25-300.
 - 2. "TD Date." Enter the date of issue of the TD. If the number of the TD has been assigned but the directive has not been issued, a dash (-) shall be placed in this column.
 - 3. "Title and ECP/RAMEC No." The title of the TD and the ECP or RAMEC number, if applicable, shall be listed. If a TD listed is the direct result of an approved ECP or RAMEC, the acronym ECP or RAMEC and number shall be shown in parentheses following the technical directive title.
 - 4. "Date Inc." The date the information affected by the TD or the ECP was incorporated into the manual.
 - a. If the TD number has been assigned and the directive has not yet been issued (retrofit program), but the ECP that incorporates the change in the production program has been approved;
 - (1) The production ECP coverage shall be indicated in this column, and
 - (2) The following notation shall be entered in the remarks column, "Production coverage only."
 - b. Then the retrofit TD is approved and incorporated in a change or revision following the incorporation of the production ECP coverage;

MIL-DTL-81927C(AS)

- (1) The TD date of issue shall be entered in the "TD Date" column,
 - (2) The notation "Production coverage only" shall be removed from the Remarks column, and
 - (3) The date of retrofit coverage incorporation shall be listed in this column (in lieu of the production ECP coverage incorporation date).
5. "Remarks" - Applicable remarks shall be entered. If no remarks apply, a dash (-) shall be placed in this column. change or revision cycle after rescission of the TD.
- (e) TDs shall be removed from the record of applicable TDs during the next change or revision cycle after rescission of the TD.

3.8.2 Content of technical content WP. The technical content shall be prepared in accordance with the content specification designated by the requiring activity. "Support Equipment Required," "Materials Required," and "Reference Material," lists shall be included in the WPs and only as specifically applicable to the subject matter of the technical content.

3.8.2.1 SE required lists.

- a. Format. Items shall be listed in column format as follows:
 - (1) Title. The title "Support Equipment Required" shall be centered in normal bold type one clear space (one blank line) below the paragraph heading to which the listing applies.
 - (2) Column heads. The column heads "Nomenclature" and "Part Number" shall be placed one clear space (one blank line) below the title in normal type and underlined.
 - (3) Listing. Items shall be listed in alphabetical sequence by noun nomenclature.
- b. Location. All SE required to perform operational checkouts, troubleshooting (fault isolation), or maintenance shall be listed prior to the procedures to which the SE applies. When the procedures contained in the WP require basically the same SE, a single SE required listing shall be placed below the applicable primary sidehead.
- c. Technical content.
 - (1) All SE required to perform operational checkouts, troubleshooting (fault isolation), or maintenance shall be listed.

MIL-DTL-81927C(AS)

- (a) All peculiar SE shall be listed.
 - (b) Standard hand tools should not be listed, but special tools shall be listed.
 - (c) Standard measuring equipment, such as voltmeters and torque wrenches, shall be listed.
 - (d) Only those special tools and SE authorized for use at the level of maintenance covered shall be listed.
- (2) If the WP contains multilevel maintenance procedures and any of the SE items is authorized for use at only certain level(s), the restrictive use shall be indicated by the use of an O, F, G, H, and/or D in parentheses following the item nomenclature. Aircraft engine manuals shall use the following special application codes to identify usage restrictions;
- (a) "J" shall be used to indicate the first degree engine maintenance level,
 - (b) "8" shall be used to indicate the second degree engine maintenance level, and
 - (c) "9" shall be used to indicate the third degree engine maintenance.
- (3) When more than one of the same item is required, the quantity shall follow the nomenclature in parentheses.
- (4) When the manual is used by other services or Navy commands, all usage restrictions shall be identified by a symbol following part number in parentheses. The usage of the symbol shall be explained in an notation following the table, e.g., "(AF)=USAF only", "(NS)=NAVSEA only", "(MC)=MARINE CORPS only".
- (5) Illustrations shall not be prepared in support of such lists, but may be developed in support of maintenance procedures.
- d. Notations. An appropriate notation shall follow the listing to explain each restriction and/or quantity requirement.

3.8.2.2 Materials required lists.

- a. Format. Items shall be listed in column format as follows:

- (1) Title. The title "Materials Required" shall be centered in normal bold type one clear

MIL-DTL-81927C(AS)

space (one blank line) below the paragraph heading to which the listing applies.

- (2) Column heads. The column heads "Nomenclature", "Specification/Part Number" and "HMWS Index Number" as applicable, shall be placed one clear space (one blank line) below the title in normal type and underlined.
- (3) Listing. Items shall be listed in alphabetical sequence by noun nomenclature.
- b. Location. All materials required to perform procedures shall be listed prior to the procedures to which the materials apply. When the procedures contained in the WP require basically the same materials, a single materials required listing shall be placed below the applicable primary sidehead.
- c. Technical content. Materials required lists shall be included when consumable materials and/or expendable items are required to perform procedures.
 - (1) Ozone Depleting Substances (see 3.4.8) shall not be used. Refer to NAVAIR 00-25-700 for listing of prohibited materials.
 - (2) Materials required lists shall follow immediately after the SE required lists (if applicable) and prior to the applicable procedures in which the material is used.
 - (3) Parts that require mandatory replacement in the procedure shall be listed by part number, e.g., performed packing.
 - (4) Materials shall be listed by Government specification unless alternate identification is approved by the requiring activity.
 - (5) If the WP contains multilevel maintenance procedures and any of the materials is authorized for use at only certain level(s), the restriction shall be indicated by the use of an O, I, and/or D in parentheses following the item nomenclature.
 - (6) The quantity of items required, if greater than one, shall follow the nomenclature in parentheses.
- d. Notations. An appropriate notation shall follow the listing to explain each restriction and/or quantity requirement.

3.9 Artwork requirements.

3.9.1 Style and technique. Illustrating style and technique shall be of a quality which will

MIL-DTL-81927C(AS)

produce artwork that clearly, adequately, and economically portrays the information to be illustrated:

- a. Illustration material shall be used to;
 - (1) describe an item or idea when this can be done more effectively and efficiently by graphic methods,
 - (2) clarify text,
 - (3) present phases difficult to describe in the text alone,
 - (4) call attention to details, and
 - (5) furnish graphic identification of parts and tools.
- b. Illustrations shall be placed as near as possible to where they are first referenced.
- c. Foldout illustrations shall be placed at the end of the WP or manual;
 - (1) A foldout illustration may be placed at the end of a WP when it is applicable to only that WP.
 - (2) When a foldout illustration applies to or is used with more than one WP, it shall be placed at the end of the manual.
- d. When a full page illustration is more effectively presented sideways on a page (turn page), it shall be turned 90 degrees counterclockwise.

3.9.2. Scale. Illustrations shall be prepared to as small a scale as possible consistent with effective portrayal of the intent of the illustration, with all essential detail clear and legible. If prepared oversize, the illustration shall meet all requirements stated herein after reduction to proper image size. The desired sizes of illustrations for 8 1/2 x 11 inch manuals are 3 3/8" X 4 1/4" (1/4 page image), 7" X 4 1/4" (1/2 page), and 7" X 9" (full page). Although not desired, the vertical dimension of 1/4 and 1/2 page illustrations may be exceeded. The horizontal dimension shall not be exceeded.

3.9.3 Use of photographs and halftones. Unless specifically approved by the requiring activity for special usage, photographs, photographic (halftone) artwork, or prescreened photographs shall not be included in manuals prepared to this specification. Line drawings shall be used in lieu of photographs (halftones) when practicable. Line tracings of photographs are

MIL-DTL-81927C(AS)

acceptable. When a photographic line tracing is prepared, proper definition of line work shall be used in lieu of photo retouching. The intended subject matter shall be highlighted and unnecessary background shall be eliminated. Items required for reference (location) shall be subdued.

3.9.3.1 Exceptions to use of halftone illustrations. In certain instances, such as the requirement to illustrate corrosion damage or wear patterns, a line drawing or a line tracing of a photograph will not contain the necessary detail and clarity. When such illustrative material must be contained in a technical manual, photographic (halftone) illustrations or color overlays (see 3.9.6.4) may be used. Such information may be contained in a supplement to the maintenance manual if approved by the requiring activity. The supplement shall contain information on the purpose of the supplement and sufficient technical data (test) to ensure understanding and maintain continuity of information. The basic manual shall identify the supplement and its usage.

3.9.3.2 Halftone illustrations. When approved by the requiring activity, the halftone illustration shall be detailed and sharp, free of heavy shadows, distorted objects, cluttered foregrounds or backgrounds, and shall give good contrast from white, middle tones, and black.

3.9.3.3 Retouching. Photographic retouching shall be used to emphasize detail, exclude unwanted detail, correct slight photographic defects and eliminate undesirable shadow. Quality of retouched photographs shall be such that tonal values are held when retouched.

3.9.4 Multiple use of illustrations. Whenever possible, one illustration shall be used in support of two or more requirements. For example, illustrations prepared to support maintenance procedures should be used to support IPBs when the illustration meets both requirements. Clarity of presentation to the user shall be the prime requirement. The illustrations shall be developed to meet dual usage. The following guidelines apply:

- a. An illustration prepared for a specific maintenance level(s) IPB shall not be duplicated in a lower level maintenance manual if the illustration depicts a breakdown of the item beyond that which is allowed at the lower level.
- b. Use of IPB figures (illustrations) as reference material in maintenance procedures is acceptable only if the clarity of presentation is not affected. If more than one figure is required in support of a single maintenance action (for example: a "top" figure and a "detail" figure), either a new illustration shall be prepared (and the IPB not used) or the IPB figure(s) shall be modified, as required.
- c. Duplication of IPB illustrations without modification, except for marginal copy, is acceptable if the clarity of presentation is not affected. All index numbers shown need not

MIL-DTL-81927C(AS)

be referred to in the procedure. If only a "detail" figure is used, the index numbers (of the original illustration) shall be reindexed.

3.9.4.1 Make from illustration. The illustration shall contain all information required to fabricate an item SM&R source coded MO, MG, MF, or MH.

3.9.4.2 Assembly item illustration. Assemblies SM&R source coded AO, AF, AG, or AH shall be supported by sufficient IPB information to requisition all parts required for the assembly. Some items (e.g., fuses, tubes, electrical cables) may need an illustration and assembly information.

3.9.5 Types of illustrations. A manual may contain the following types of illustrations, as necessary: assembled view, detail, exploded, operational, procedural, functional, lubrication, cutaway, waveform, multiple-view, electrical wiring diagram, electrical schematic, fluid schematic mechanical schematic, foldout, and halftone. (See 3.9.3.1 and 3.9.3.2 for acceptable use of halftone illustrations.) Preparation of cutaway illustrations for manual use shall require approval of the requiring activity.

3.9.5.1 Lead lines. Lead lines shall be used on exploded views to show the item disassembled when it is not obvious where the exploded part(s) belong.

3.9.6 Line drawings. Line drawings shall be prepared using suitable materials that will produce products capable of maintaining consistent high-density tonal values.

3.9.6.1 Darkness and sharpness of lines. The darkness and sharpness of lines shall be sufficient to reproduce clearly at required reproduction size without additional treatment. Line width shall be in accordance with ANSI Y14.2. Parallel lines on wiring and schematic diagrams shall be no less than 1/16 inch apart when reduced to printed size. Secondary lines, such as those used to indicate extensions or measurements, shall be lighter yet strong enough to reproduce clearly. Accented lines may be used to emphasize essential detail. If it is required to use a mechanical pattern to "code" lines, such as fluid, mechanical linkage, and electrical wiring, or to use such patterns to accentuate illustrations, such patterns shall be clearly defined. All types and sizes of lines used on oversized illustrations shall be clearly defined after reduction to required image size. Shading may be used to give substance and form to the item depicted, to sharpen the contrast between the subject and its background or to increase effectiveness. Shading effects shall not be used for decorative purposes.

3.9.6.2 Use of human figure. When it is necessary to illustrate an operation, procedure or installation, illustrations may include a human figure or parts of the body. Jewelry shall not appear in any illustration. The human figure shall not be permitted to obscure details of the equipment necessary for a complete understanding of its operation. The human figure shall be

MIL-DTL-81927C(AS)

in regulation clothing designated by the requiring activity.

3.9.6.3 Text on artwork. Legends, notes, callouts, indexes, and procedural steps on artwork (including schematics and diagrams) shall be considered text.

3.9.6.4 Use of color. Color may be used in artwork only with specific authorization, for each use, of the requiring activity.

3.9.6.5 Credit lines. The photographer's or artist's name shall not appear on artwork; neither shall a manufacturer's name, symbol, or trademark appear thereon for the purpose of identifying the illustration. A preparing activity's illustration identification number may be used for artwork; if used, the number shall be placed in the right, lower corner of the illustration and shall be no larger than 8-point type.

3.9.6.6 Callouts. Items such as index numbers, reference designator, nomenclature, leader lines, legends, keys, and procedures shall be used to identify significant features. Lettering shall be in upper case. Crowding shall be avoided when nomenclature is placed on illustrations. Callouts shall be placed in the background area close to, but not touching the illustrated item.

3.9.6.6.1 Index numbers. Index numbers for each separate figure shall begin with number one and continue consecutively. All sheets of a multiple-sheet illustration shall be considered one figure. Sequence of procedures shall be the preferred method for illustrations prepared in support of maintenance procedures.

3.9.6.6.2 Legends (keys). A legend consisting of a numerical listing and associated identification shall be included on, or adjacent to the artwork, except IPB illustrations. Nomenclature used on legends and in text shall be identical.

3.9.6.7 Leader lines. Normally, leader lines shall touch the object to which the lines apply. Lines shall be uniform, short, and as straight as possible. "Dog-legs" shall be avoided except when a straight line is not practical because of the required layout. Lines shall not cross or come in contact with other callout lines, nor shall they obscure essential details. A line shall be highlighted if it will be easier to follow. Arrowheads are preferred for clarity.

3.9.6.8 Grid lines. Grid lines on charts or graphs shall be lighter in weight than the axes and data presented.

3.9.6.9 Locator views. When required by the complexity of the equipment, detail-view illustrations shall contain a locating view in the top left-hand or right-hand corner. The view shall consist of a small outline view of the overall aircraft or equipment with the area covered by the view highlighted.

MIL-DTL-81927C(AS)

3.9.6.10 Procedures on illustrations. When required, procedural-step illustrations shall have one or more brief instructions with each illustrated step. The instruction shall be as close as possible to the illustrated step.

3.9.6.11 Detail views. A detail view of a part or subassembly shall be illustrated when the subject matter cannot be clearly illustrated in the main view of the figure. The desired subject matter may be identified with a detail letter and index number on the main view and illustrated, as required, in the detail view. Detail views shall be boxed.

3.9.7 Multiple view illustrations. Multiple views shall be prepared when necessary to identify significant features on an illustration.

- a. The multiple view illustration shall be prepared to improve the identification of the parts or to clarify the relationship or the location of the parts, e.g., effectivity differences or top, bottom, front and/or back views of an end item or assembly.
- b. Each view shall be oriented and enlarged as necessary to identify significant features. Orientation shall be by use of arrows, or by text (for example: "Rotated 180 degrees ") as it relates to the main illustration.
- c. Each view shall be identified by a capital letter and/or a caption.
- d. Views may or may not be captioned, but if one view is captioned, all shall be captioned. The caption shall be centered with respect to the view to which it applies. Where captions are not used, the identifying letter shall be so centered. When a caption and an identifying letter are used together, the identifying letter shall precede the caption.
- e. Identifying letters and captions shall be larger than any other lettering on the illustration. The identifying letter shall be larger than the caption when both are used.

3.9.7.1 Foldout illustrations. When it is necessary to provide coverage of complex installations with a single IPB figure, a foldout illustration may be used, e.g., aircraft equipment rack, or operator's station, with maintenance interaction (i.e., removal or relocation of one assembly to access another assembly or repair part). A foldout illustration may also be used when a component board or single item contains a high amount of detail parts and cannot be adequately covered with multiple sheet or multiple view illustrations. The format of a IPB foldout illustration shall be as follows;

- a. Complex foldout illustration. A complex foldout illustration shall be developed as an end item illustration with reference to following detailed views of various lengths prepared as combined maintenance/IPB illustration(s). Detail views may also reference additional

MIL-DTL-81927C(AS)

detail views. Callouts may be assigned to maintenance significant items as required to support the maintenance actions. Maintenance related text and short tabular data may also be used. The primary consideration shall be clarity of presentation.

- b. Single item foldout illustration. Foldout illustrations prepared in support of component boards or similar items shall be developed in the same manner as partial/full page I illustrations prepared for component boards, except for the additional length. The legend shall be placed adjacent to the artwork as part of the foldout illustration.

3.9.8 Figure titles. Illustrations shall be assigned figure titles. The title shall follow the figure number and shall be placed below the applicable illustration. Figure titles shall begin with an identifying name, for example: "Indicator, Fuel." Figure titles of foldout illustrations shall be visible when the illustration is folded.

3.9.9 Troubleshooting diagrams. Troubleshooting diagrams shall be prepared in logic tree diagram format. When troubleshooting diagrams are required, each box shall include all necessary information, abbreviated where possible to save space. For example, test and decision boxes/ steps shall identify the type of test or inspection, identification of the test point, and expected reading range. Replacement boxes/steps shall identify the item to be replaced. Applicable WP reference for the indicated repair shall be presented in accordance with 3.5.1.5. All test and decision boxes/steps shall be written to permit only two outcomes: "yes" or "no". Troubleshooting diagrams shall be developed using terminology and test points as identified on the referenced schematics.

3.9.10 Schematic diagrams. All electrical and electronic schematics, functional block diagrams, and fluid and mechanical schematic diagrams shall conform to circuit or system flow without regard to physical arrangement of components and parts and their relative locations. The flow should read from left to right and from top to bottom. Ideally arranged schematics, including multiframe drawings, should show the primary inputs in the upper left corner and should flow across and down the page to end with the primary outputs in the lower right corner of the diagram. The schematic shall consist of symbols grouped as circuit entities, for example, amplifiers and power supplies. Each group shall be located on the schematic so that the complete schematic requires a minimum amount of wiring (electrical and electronic diagrams) or the shortest lines (fluid or mechanical diagrams). All wires (lines) shall be routed as directly as possible so that they cross the fewest wires (lines) possible.

3.9.10.1 Electrical wiring and schematic diagrams. Electrical wiring and electrical schematic diagrams shall be prepared in general accordance with ANSI Y14.15 and the specific format requirements contained herein.

MIL-DTL-81927C(AS)

3.9.10.1.1 Circuit parameters. Circuit parameters shall be marked according to their reference designations (if applicable), types, and values. When these markings tend to clutter the field of the illustration, a table of these markings, in order of reference designation (electrical or electronic diagrams) or nomenclature (fluid or mechanical diagrams) shall be included, or tabular data referenced, for all circuit parameters. Reference designations shall agree with those used in related engineering drawings. Nomenclature shall be in accordance with 3.4.9. Normal operating conditions and other conditions specified by the applicable technical content specification shall be indicated.

3.9.10.1.2 Test point identification symbols. Identification of test points by symbols shall not be employed where the test points are readily identifiable by other means. For example, "Test jacks (TP-5)," "Connector pins (J100-M)," and "Component pins (X4-2, Q1-E, and Z5-14)" are readily identifiable points and do not require symbols. Test points that are not otherwise identifiable (artificial test points) shall be identified by test point symbols. The test point symbol shall be an encircled uppercase letter and an Arabic numeral. These test points will be referred to in the text such as "Test point A2." Artificial test points shall be used when specific voltage and resistance test points, used in checking a circuit, are otherwise unidentifiable. Different letters shall be assigned to each component (on a diagram), for example: test points A1, A2, and A3 in component 1, test points B1, B2 and B3 in component 2.

3.9.10.2 Components shown on schematic diagrams. When it is necessary to show components of a system on a schematic diagram, the general shape of the component and a minimum amount of detail shall be illustrated. This requirement applies to those components that will be easily recognized by the reader and therefore would assist him in interpreting the diagram. It does not apply to components without definitive shapes or recognizable detail. For example, if an electronic component is located in a container that is essentially a box without dials or switches, an outline of a "box" will suffice. The nomenclature of the component shown shall appear adjacent to the item.

3.9.11 Wiring diagrams. Wiring diagrams, as required, shall be prepared to illustrate the wiring of the systems, subsystems, and equipment. Wiring diagrams are not required for simple interconnect devices which are supported by wire lists (see 3.9.12.1). A table of components shall be included with the diagram. The table shall be identified by the same figure number as the diagram. The reference designation and nomenclature of each component shown on the diagram shall be listed. In aircraft weapon system manuals (organizational level maintenance), the aircraft location and access cover or door covering the component shall also be listed, as applicable. The diagram shall be arranged as follows:

- a. Each line representing the wires and interconnections shall be coded or otherwise identified.

MIL-DTL-81927C(AS)

- b. Each wire shall be shown individually.
- c. Each wire shall be drawn so that it can be traced from point of origin to destination.
- d. Wires located within a cable harness shall be shown as a individual wires; wire bundling techniques shall not be used.
- e. In the table of components, the column headings "REF DES," "NOMENCLATURE," "LOCATION" (if required), and "ACCESS COVER/DOOR" (if required), shall be boxed and placed below the marginal copy. A full page, unnumbered boxed table format shall be used.
- f. Computer Graphic Augmented Design and Manufacture (CADAM) drawings are acceptable as long as they meet the legibility and usability requirements of the specification.
- g. Wiring data information. All information necessary to understand and use the data shall be provided in the introduction of the WP or when a separate manual/volume is required, in the Introduction WP.

3.9.12 Wire lists.

3.9.12.1 Application of wire lists. Wire lists, as required, shall be prepared in support of maintenance procedures. A wire list is intended to present the same type of information as a wiring diagram but in tabular form (see 3.9.11). Wire lists shall not be considered illustrations. Generally, wire lists and wiring diagrams shall not be prepared in support of the same end item; however, an end item may be supported by either a wiring diagram or a wire list and one or more of its components may be supported by the alternate item at the more detailed coverage level. Normally, wire lists are supported by schematics. Wire numbers, cross-referenced to wire junction points, and wire junction points, cross-referenced to wire numbers, shall be listed in separate tables.

3.9.12.1.1 Wire number to junction point list. The specific format and column headings shall be in accordance with requirements of the technical content specification. The column heads shall be "WIRE NUMBER," "EFFECTIVITY" (or modified to apply to specific usage, for example: "AIRCRAFT EFFECTIVITY"), "WIRE TYPE," "FROM REF DES," and "TO REF DES." The columns shall contain the following information:

- a. Wires shall be listed in alphanumeric sequence by wire number.
- b. When applicable, end item effectivity shall be indicated by code. The code shall be

MIL-DTL-81927C(AS)

explained in the introductory matter of the WP or, if a separate volume contains all of the lists for the end item, in the introduction WP.

- c. The wire type shall be indicated by military specification code. The code shall be explained in the introductory matter of the WP, or in the introduction WP, as applicable.
- d. The point of origin reference designation number shall be listed.
- e. The point of termination (of the wire segment) reference designation number shall be listed.

3.9.12.1.2 Junction point to wire number list. The specific format and column headings shall be in accordance with requirements of the technical content specification. The column heads shall be "FROM REF DES," "WIRE NUMBER," "EFFECTIVITY" (or modified to apply to specific usage, for example: "AIRCRAFT EFFECTIVITY"), "CABLE ASSEMBLY" or "HARNESS NO." (if applicable), "TO REF DES," and "TO AREA" (if applicable). The columns shall contain the following information:

- a. All reference designations shall be listed in alphanumeric order (point of origin).
- b. The applicable wire numbers shall be listed.
- c. When applicable, end item effectivity shall be indicated by code. The code shall be the same as that used in the wire number to junction point list.
- d. When applicable, the cable assembly or harness number shall be listed. If the end item covered does not utilize cable or harness installations, this column is not required.
- e. The point of termination (of the wire segment) reference designation number shall be listed.
- f. When applicable, the area location of the point of termination shall be indicated by code. The code shall be explained in the introductory matter of the WP or, if in a separate volume, in the introduction WP. Normally, this column is not required except for major end items, such as an aircraft weapon system.

3.9.12.1.3 Placement of wire list. When wire lists are prepared, the length of such lists may require placement of the lists in a separate volume of the manual. Since the wire list is essentially reference materials, no limit shall be placed on the page count of the WP containing such lists. Wire lists shall precede any related foldout illustration.

MIL-DTL-81927C(AS)

3.9.13 Engineering drawings. Engineering drawings, which may not have been prepared primarily for illustration purposes but which comply with the applicable engineering drawing preparation specifications, are acceptable as illustrations, provided they support the specific requirements for the particular element. Engineering drawings may not be used if they do not provide the coverage required by the technical content specification. Schematics provided as backup support in the manual are not required to meet the format and circuit flow requirements of 3.9.10. The drawings shall conform to the type size requirements for reproducible material and shall be legible for reproduction when reduced to technical manual size. Borders, title blocks, manufacturer's notes, and irrelevant material shall be removed. Grid locations, if provided, shall not be removed.

3.9.14 Cartoons. Use of cartoons and similar material is unacceptable.

3.10 Changes to WP manuals.

3.10.1 Changes to manuals containing 16 pages or less. Manuals containing 16 pages or less shall not be changed but shall be revised.

3.10.2 Changes to manuals or volumes containing more than 16 pages. When a change is prepared to a WP manual or volume, the change may consist of one or more revised, added, or changed WPs/pages. When required, WPs/pages may be deleted from the manual during a change cycle. Since WPs are assigned permanent numbers (see 3.6.5.1), deleted WP numbers shall not be reassigned to added WPs. The numerical index of effective WPs/pages (see 3.7.4.2) shall account for all revised, added, changed, or deleted WPs/pages affected by the change as well as previous changes to the manual, if applicable.

3.10.2.1 Changed manual title page. The WP manual title page shall be prepared in accordance with 3.7.4.1.

3.10.2.2 Manual change number and date. The change number and date shall be assigned by the requiring activity. The first change following the basic issue to the manual shall be numbered "Change 1." Subsequent changes issued shall be numbered consecutively.

3.10.2.3 Changed WP. A WP may be changed when one or more pages have been affected by the current change to the WP manual, or when a WP must have a RAC issued against it. A changed WP shall consist of a changed WP title page and those pages affected by the change to the WP, including unchanged backup pages, if applicable. A WP consisting of 10 pages or less shall always be revised and not changed.

3.10.2.3.1 Changed WP title page. The changed WP title page shall be prepared in accordance with 3.8.1. The WP change number and date shall be the same as the manual change

MIL-DTL-81927C(AS)

number and date (see 3.10.2.2). Changed WP pages shall be listed in the numerical index of effective WPs/pages (see 3.7.4.2).

3.10.2.3.2 Second and subsequent pages in a changed WP. The change number shall be placed below the publication number on all pages affected by the change. If a page has been previously changed, the previous change number shall be removed and replaced by the current change number.

3.10.2.3.3 Renumbering during a change to a WP. A changed WP shall incorporate changed or added material and delete material no longer applicable to the subject of the WP. Paragraphs, illustrations, tables, pages, and index numbers on illustrations added between existing ones shall be assigned the preceding number plus consecutive capital letter suffixes. For example, 3A and 3B might be added between existing numerals 3 and 4. Suffix letters I and O shall not be used. Other than the addition of suffix letters, existing identification numbers and suffixes shall not be renumbered.

3.10.2.3.4 Added or deleted material in a changed WP. Added or deleted material in a changed WP shall be prepared as follows:

- a. Added material shall be placed in proper sequential order within the WP. If this causes an overrun, the material that will not fit on the existing page shall be placed on an added page. If blank space is available on either the preceding or following page of the one affected, this space may be used for overrun material; however, correct sequential order of material shall be maintained. Pages shall not be added between a right-hand (odd numbered) and a left-hand (even numbered) page. If additional copy is added to a right-hand page, the overrun shall be carried to the next left-hand page and the overrun from this page shall be placed on an added page. Therefore, such added pages shall always be assigned even numbers, for example: "2A, 2B, 4A, or 4B."
- b. Deleted paragraphs, procedural steps, or callouts following index numbers on illustrations shall be indicated by placing the word "Deleted" after the affected item, for example: "r. Deleted." or "2 Deleted."
- c. Deleted pages shall be accounted for by placement of a note at the bottom of the preceding page or at the top of the succeeding page, for example: "Page 7 Deleted." The note shall be placed within the required image area (with marginal copy) (see 3.6.2.3).

3.10.2.3.5 Change symbols in a changed WP. Change symbols are not required for the Alphabetical Index, IPB illustrations, and Numerical Index of (1) Effective WPs/Pages, (2) Effective Pages, (3) Part numbers, or (4) Reference Designations. Changes to text, tables, and illustrations (including new material on added pages) shall be indicated by change symbols. All

MIL-DTL-81927C(AS)

existing change symbols shall be eliminated from pages affected by the current change. After removal of previous change symbols, new change symbols shall be inserted, highlighting material changed or added during the change to the WP.

3.10.2.3.6 Change symbol format. The text and tabular data affected by a change to a WP shall be indicated by the letter "R" or a change bar in the outer margin of double column format material and in the outer margin of single column format material. Change symbols for illustrations shall be as follows:

- a. Change symbols are not required for IPB illustrations.
- b. On line drawings, other than schematic diagrams and wiring diagrams:
 - (1) Miniature pointing hand. A miniature pointing hand shall be used to highlight the area containing the changed material.
 - (2) Change bar. When several changes are made in one area, or the area is congested, a change bar may be used to indicate a general area.
 - (a) Normal change. The change bar shall be placed in such a manner as to clearly indicate "change" without confusing the reader.
 - (b) Extensive change. If an illustration has been extensively changed, a change bar may be placed along the outer margin of the illustration (full page illustration) or in the applicable margin (partial page illustration).
 - (3) Alternate method. An acceptable alternate method for use with an extensively changed full page illustration is the use of the words "Major Change" with a miniature pointing hand adjacent to the words. The symbols and the words shall be placed in a clear space of the reproduction area.
- c. Graphs. The change bar shall also be used on graphs to indicate a change.
- d. Schematic diagrams and wiring diagrams. On schematic diagrams and wiring diagrams, shading and screening shall be used to indicate the changed or added material. If the use of this method will not be effective due to the material illustrated, or if extensive changes have been made, the same techniques used for extensively changed line drawings may be used. Changes to wiring diagrams may also be indicated by the use of a screen border around the affected area. Care shall be exercised in the selection of material and its placement when this alternate method is used.

MIL-DTL-81927C(AS)

- e. Added illustrations. Change symbols are not required.
- f. Deleted illustration. Deleted illustrations shall be shown by a note near the original location of the illustration, for example: "Figure 6. Deleted." If the illustration has been deleted and replaced by a new illustration, the note is not required.

3.10.2.4 Revised WP. A WP shall be revised when the cumulative total of existing changed pages and pages affected by the current change exceeds 60 percent of the total WP pages. Except for required renumbering, a revised WP shall be prepared in accordance with 3.7.5 through 3.8.2 as applicable.

3.10.2.4.1 Renumbering within a revised WP. A revised WP shall incorporate changed or added material and delete material no longer applicable to the subject of the WP. If a WP has been previously changed (see 3.10.2.3), all pages, paragraphs, illustrations, and tables shall be renumbered, as necessary, to eliminate suffixes and to establish correct sequence. All previous change numbers and change dates shall be removed. The current change number and the date of the change to the WP manual shall be placed on the WP title page and the current change number on all subsequent pages.

3.10.2.4.2 Change symbols in a revised WP. Unless otherwise specified, all existing change symbols shall be removed (see 6.2.1).

3.10.2.4.3 Revised WP title page. The WP title page shall be prepared in accordance with 3.8.1 and a supersedure notice shall be placed below the WP title.

3.10.2.5 Added WP. WPs added during a change cycle shall be prepared in accordance with 3.7.5 through 3.8.2, as applicable.

3.11 Revisions to WP manuals. When directed by the requiring activity, a revision shall be prepared (see 6.2.1).

3.11.1 Revised WP manual title page. The WP manual title page shall be prepared in accordance with 3.7.4.1.

3.11.2 WP manual revision date. The revision date shall be assigned by the requiring activity. No revision number shall be assigned.

3.11.3 Renumbering within a revised WP manual. The revision shall incorporate all changed or added material and delete material no longer applicable to the subject of the manual. All pages, paragraphs, illustrations, and tables shall be renumbered as necessary to establish correct sequence. See 3.6.5.1 for WP numbering within a revised manual.

MIL-DTL-81927C(AS)

3.11.4 Change symbols in a revised WP manual. Change symbols are not required for the Alphabetical Index, IPB illustrations, and Numerical Index of (1) Effective WPs/Pages, (2) Effective Pages, (3) Part numbers, or (4) Reference Designations. Changes to text, tables, and illustrations (including new material on added pages) shall be indicated by change symbols. All existing change symbols shall be eliminated from pages affected by the current change. After removal of previous change symbols, new change symbols shall be inserted, highlighting material changed or added during the change to the WP.

3.12 Supplements.

3.12.1 Supplements to unclassified manuals. When directed by the requiring activity, a supplement shall be prepared. The supplement shall conform to the same requirements specified for the manual it is intended to supplement. Cross-reference notes shall be placed on the supplement and the basic manual title page and each applicable WP, as applicable in accordance with 3.7.4.1i and 3.8.1.b(8). In addition, see 6.2.1.

3.12.2 Supplements to classified manuals. Where classified information will comprise 10 percent or less of the information contained in a manual, such information shall not be included in the basic manual and shall be prepared as a classified supplement. This will permit the basic manual to be issued as an unclassified publication (see 3.12.1).

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 material 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.)

MIL-DTL-81927C(AS)

6.1 Intended use. Technical manuals prepared in accordance with the requirements of this specification are intended for use in the repair of aircraft structure and structural components at organizational, intermediate, and depot maintenance levels.

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 Guidance documents. The following documents are cited in section 3 of this specification and are provided for guidance and information only. Unless otherwise specified, the issues are those cited in the solicitation.

FEDERAL

Public Law 91-596 - Occupational Safety and Health Act, dated December 29, 1970, and Executive Order 11807.

DEPARTMENT OF DEFENSE

DIRECTIVES

DOD 5200.1R - Information Security Program Regulation.
 DOD 5220.22M - Industrial Security Manual for Safeguarding Classified Information.
 DOD 6050.5 Series - DoD Hazard Communication Program.

DEPARTMENT OF THE NAVY

INSTRUCTIONS

OPNAVINST 4790.2 - The Naval Aviation Maintenance Program (NAMP).
 OPNAVINST 5100.23 - Navy Occupational Safety and Health (NAVOSH) Program Manual.

MIL-DTL-81927C(AS)

- | | | |
|--------------------|---|---|
| OPNAVINST 5510.1 | - | Information and Personnel Security Program Regulation. |
| NAVAIRINST 4423.11 | - | Assignment and Application of Uniform Source, Maintenance, and Recoverability (SM&R) Codes. |

(Copies of directives and instructions are available by request to Commander, Naval Inventory Control Point, Philadelphia Publication/Forms Branch, Code 03334, 700 Robbins Ave., Philadelphia, PA 19111-5098.)

6.4 Definitions.

6.4.1 Functional block diagram. A modified schematic diagram in which each group of maintenance significant components that together perform one or more functions is represented by a single symbol or block. The block or symbol representing the group of components shows all input and output signals.

6.4.2 Schematic diagram. A diagram which shows by means of graphic symbols the electrical connections and functions of a specific circuit arrangement. The schematic diagram facilitates tracing the circuit and its functions without regard to the actual physical size, shape, or location of the component device or parts.

6.4.3 Requiring activity. The organization of a using military service or that organization delegated by a using service, which is responsible for the selection of and determination of requirements for a specific support element.

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

- a. Periodic (scheduled) maintenance, not including operator's maintenance. Operator's maintenance is included in "Operating Instructions."
- b. Adjustment/alignment.
- c. Assembly/disassembly.
- d. Cleaning and corrosion control.
- e. Calibration. Calibration shall not be included under "Maintenance" and shall be provided in separate calibration procedures or manuals.
- f. Inspection.

MIL-DTL-81927C(AS)

- g. Lubrication.
- h. Manufacturing instructions for items SM&R coded "M_".
- i. Preparation for shipment or storage.
- j. Removal/installation.
- k. Repair.
- l. Rigging.
- m. Servicing.
- n. Support equipment maintenance, when requested.
- o. Wiring and connector repair.

6.4.5 Maintenance Instructions. The term "Maintenance Instructions" 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 Illustrated Parts Breakdown" or "Maintenance with IPB". The term "Maintenance Instructions" includes all applicable functional elements, with related supporting data:

- 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. Testing and troubleshooting.
- d. Maintenance with integrated IPB.
- e. Preparation for storage or shipment.
- f. Local manufacturing and assembly instructions.
- g. Support equipment maintenance instructions, when requested.
- h. General maintenance procedures, when applicable to multiple WPs.
- i. Servicing instructions.

MIL-DTL-81927C(AS)

6.4.6 Operation Instructions. The term "Operation Instructions" includes, but is not limited to the following functional elements:

- a. Description and principles of operation, including controls and indicators.
- b. Operating instructions.
- c. Operator's maintenance.
- d. Preparation for use, storage, and shipment.

6.5 Technical manuals. The requirements for technical manuals should 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 (AMSDDL) 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.

6.6 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 shall not be interpreted as limiting the technical content requirements that are established by the text. The text must take precedence over all examples shown in the sample figures.

6.7 Subject term (key word) listing.

Format manuals

Illustrations

IPB

Illustrated parts

Work package concept

6.8 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.

MIL-DTL-81927C (AS)

INDEX

| | <u>PARAGRAPH</u> | <u>PAGE</u> |
|--|------------------|-------------|
| Abbreviations | 3.4.2 | 16 |
| Acquisition requirements | 6.2 | 86 |
| Added or deleted material in a changed WP | 3.10.2.3.4 | 82 |
| Added WP | 3.10.2.5 | 84 |
| Alphabetical index work package | 3.7.5 | 50 |
| Alphabetical index work package title page | 3.7.5.1 | 50 |
| APPLICABLE DOCUMENTS | 2. | 2 |
| Application of wire lists | 3.9.12.1 | 79 |
| Arrangement of a multimanual set | 3.7.3.1 | 38 |
| Arrangement of single WP manuals | 3.7.2.1 | 34 |
| Artwork requirements | 3.9 | 71 |
| Assembly item illustration | 3.9.4.2 | 74 |
| Assignment of the last two digits of the WP number | 3.6.5.1.2.1 | 32 |
| Assignment of titles | 3.4.14 | 21 |
| Associated specifications | 3.1.3 | 6 |
| Authorized printed manual size by thickness | 3.6.2.4 | 26 |
| Callouts | 3.9.6.6 | 75 |
| Cartoons | 3.9.14 | 81 |
| Change symbol format | 3.10.2.3.6 | 83 |
| Change symbols in a changed WP | 3.10.2.3.5 | 82 |
| Change symbols in a revised WP | 3.10.2.4.2 | 84 |
| Change symbols in a revised WP manual | 3.11.4 | 85 |
| Changed manual titled page | 3.10.2.1 | 81 |
| Changed WP | 3.10.2.3 | 81 |
| Changed WP title page | 3.10.2.3.1 | 81 |
| Changes from previous issue | 6.8 | 89 |
| Changes to manuals containing 16 pages or less | 3.10.1 | 81 |
| Changes to manuals or volumes containing more than 16 pages .. | 3.10.2 | 81 |
| Changes to WP manual | 3.10 | 81 |
| Circuit parameters | 3.9.10.1.1 | 78 |
| Classification (type of manuals) | 1.2 | 1 |
| Combined maintenance levels | 1.2.3 | 2 |
| Combined Operation and Maintenance Instructions | 3.2.1.2.4 | 9 |
| Components shown on schematic diagrams | 3.9.10.2 | 78 |

MIL-DTL-81927C (AS)

INDEX

| | <u>PARAGRAPH</u> | <u>PAGE</u> |
|---|------------------|-------------|
| Comprehensibility..... | 3.4.1.1 | 14 |
| Consolidated list of support equipment required | 3.7.8.3.2 | 62 |
| Content of manual outlines..... | 3.2.5.1 | 13 |
| Content of technical content WP | 3.8.2 | 69 |
| Content of the Introduction WP | 3.7.8.3 | 57 |
| Copyrights and advertising | 3.1.1 | 6 |
| Credit lines..... | 3.9.6.5 | 75 |
| Darkness and sharpness of lines..... | 3.9.6.1 | 74 |
| Definitions | 6.4 | 87 |
| Designation of equipment..... | 3.4.9.3 | 20 |
| Development of the alphabetical index WP | 3.7.5.3 | 51 |
| Development of the list of TPDRs incorporated..... | 3.7.4.3.2 | 47 |
| Development of the numerical index of part numbers..... | 3.7.6.3 | 53 |
| Development of the numerical index of reference designations WP..... | 3.7.7.3 | 55 |
| Detail view identification..... | 3.6.5.6 | 33 |
| Detail views | 3.9.6.11 | 76 |
| Digital TM format or digital copy requirements | 3.2.6 | 13 |
| Dimensions and tolerances..... | 3.4.12 | 21 |
| Division of a multimannual set index | 3.7.3.2.1 | 41 |
| Division of an existing manual | 3.7.3.2 | 40 |
| Division of technical content..... | 3.2.3 | 10 |
| Duplication of short procedures..... | 3.5.1.10 | 24 |
| Electrical and electronic symbols | 3.4.10.1 | 21 |
| Electrical wiring and schematic diagrams..... | 3.9.10.1 | 77 |
| Electrostatic discharge (ESD) sensitive parts..... | 3.4.7 | 19 |
| Engineering drawings | 3.9.13 | 81 |
| Exceptions to use of halftone illustrations..... | 3.9.3.1 | 73 |
| Figure and table numbers..... | 3.6.5.4 | 32 |
| Figure titles | 3.9.8 | 77 |
| Foldout figure numbers | 3.6.5.5 | 33 |
| Foldout illustrations..... | 3.6.2.8.1 | 28 |
| Foldout illustrations..... | 3.9.7.1 | 76 |

MIL-DTL-81927C (AS)

INDEX

| | <u>PARAGRAPH</u> | <u>PAGE</u> |
|---|------------------|-------------|
| Footnotes | 3.4.13 | 21 |
| Front matter | 3.7.2.2.1 | 35 |
| Front matter in WP manuals | 3.7.4 | 41 |
| Functional block diagram | 6.4.1 | 87 |
| General | 2.1 | 2 |
| General | 3.1 | 6 |
| General arrangement of WP manuals | 3.7.1 | 33 |
| General format | 3.6 | 25 |
| General requirements..... | 3.5.1.1 | 22 |
| Government documents..... | 2.2 | 2 |
| Grid lines | 3.9.6.8 | 75 |
| Guidance documents | 6.3 | 86 |
| Halftone illustrations | 3.9.3.2 | 73 |
| Hazardous materials referenced in text | 3.4.5.1.2 | 19 |
| Hazardous Materials Warning Sheets (HMWS)..... | 3.7.4.4 | 48 |
| Health hazard precaution data | 3.4.5 | 18 |
| Historical record of applicabl technical directives (TDs) | 3.7.8.3.1 | 61 |
| Icons applicable to hazardous material warnings..... | 3.4.5.1.1 | 19 |
| Illustrations | 3.6.2.8 | 27 |
| Illustrated Parts Breakdown..... | 3.3 | 13 |
| Illustrated Parts Breakdown figures..... | 3.3.2 | 13 |
| Image area of reproducible copy..... | 3.6.2.3 | 26 |
| Index numbers..... | 3.9.6.6.1 | 75 |
| Inordinate duplication (two or more pages) | 3.5.1.9 | 24 |
| Intended use..... | 6.1 | 86 |
| Intermediate and depot level..... | 1.2.2 | 2 |
| Introduction WP | 3.7.8 | 56 |
| Introduction WP title page | 3.7.8.1 | 57 |
| Junction point to wire number list..... | 3.9.12.1.2 | 80 |
| Lead lines | 3.9.5.1 | 74 |
| Leader lines..... | 3.9.6.7 | 75 |

MIL-DTL-81927C (AS)

INDEX

| | <u>PARAGRAPH</u> | <u>PAGE</u> |
|--|------------------|-------------|
| Legends (keys)..... | 3.9.6.6.2 | 75 |
| Line drawings..... | 3.9.6 | 74 |
| Locator views | 3.9.6.9 | 75 |
| Logic diagram symbols..... | 3.4.10.2 | 21 |
| Maintenance..... | 6.4.4 | 87 |
| Maintenance Instructions..... | 3.2.1.2.2 | 9 |
| Maintenance Instructions..... | 6.4.5 | 88 |
| Maintenance procedures contained in other manuals..... | 3.5.1.3 | 23 |
| Make from illustration..... | 3.9.4.1 | 74 |
| Mandatory compliance maintenance procedures | 3.5.1.2 | 23 |
| Manual change number and date..... | 3.10.2.2 | 81 |
| Manuscript, completeness of | 3.6.1.1 | 25 |
| Manuscript copy..... | 3.6.1 | 25 |
| Marginal copy | 3.6.1.2 | 26 |
| Marginal copy, except manual title page | 3.6.3 | 28 |
| Materials required lists | 3.8.2.2 | 70 |
| Multimanual set alphabetical index | 3.7.3.1.1.1 | 38 |
| Multimanual set index | 3.7.3.1.1 | 38 |
| Multiple use of illustrations | 3.9.4 | 73 |
| Multiple view illustrations | 3.9.7 | 76 |
| Multivolume and multimanual sets..... | 3.7.3 | 38 |
| Multivolume/manual set | 3.4.5.1.3 | 19 |
| National item identification numbers..... | 3.4.9.4 | 21 |
| Nomeclature consistency | 3.4.9 | 20 |
| Non-Government publications | 2.3 | 4 |
| NOTES | 6. | 85 |
| Noun modifiers | 3.4.9.1 | 20 |
| Nuclear hardness | 3.4.6 | 19 |
| Numbering - work package manuals..... | 3.6.5 | 30 |
| Numerical index of effective pages (A page)..... | 3.7.2.2.1.1 | 35 |
| Numerical index of effective Wps/pages (A page)..... | 3.7.4.2 | 45 |
| Numerical index of part numbers WP | 3.7.6 | 52 |
| Numerical index of part numbers WP title page | 3.7.6.1 | 52 |

MIL-DTL-81927C (AS)

INDEX

| | <u>PARAGRAPH</u> | <u>PAGE</u> |
|---|------------------|-------------|
| Numerical index of reference designations WP | 3.7.7 | 54 |
| Numerical index of reference designations WP title page | 3.7.7.1 | 54 |
| Operation instructions | 3.2.1.2.1 | 9 |
| Operation Instructions | 6.4.6 | 89 |
| Order of precedence | 2.4 | 6 |
| Organizational level | 1.2.1 | 2 |
| Other Government documents, drawings and publications | 2.2.2 | 3 |
| Oversize reproducible copy | 3.6.5.7 | 27 |
| Ozone Depleting Substances (ODS) | 3.4.8 | 20 |
| PACKAGING | 5. | 85 |
| Packaging | 5.1 | 85 |
| Page count of a WP | 3.2.4.1 | 12 |
| Page size of reproducible copy | 3.6.2.2 | 26 |
| Paragraph division and headings (sideheads) | 3.2.3.1 | 11 |
| Paragraph numbers | 3.6.5.2 | 32 |
| Part numbers | 3.4.9.5 | 21 |
| Placard data | 3.4.9.2 | 20 |
| Placement of wire list | 3.9.12.1.3 | 80 |
| Principles of operation | 3.5.1.4 | 23 |
| Procedural step numbers | 3.6.5.3 | 32 |
| Procedural steps | 3.2.3.1.1 | 11 |
| Procedures on illustrations | 3.9.6.10 | 76 |
| Proprietary data | 3.1.2 | 6 |
| Quality assurance procedures | 3.4.4 | 17 |
| Quality assurance referencing | 3.5.1.11 | 24 |
| Readability | 3.4.1.2 | 14 |
| Reference designations | 3.4.11 | 21 |
| Reference procedures | 3.5.1 | 22 |
| References | 3.5 | 22 |
| References to other manuals or volumes | 3.5.2 | 24 |
| References within a manual or volume | 3.5.3 | 24 |

MIL-DTL-81927C (AS)

INDEX

| | <u>PARAGRAPH</u> | <u>PAGE</u> |
|---|------------------|-------------|
| Relationship between the Illustrated Parts Breakdown and the WP concept | 3.3.1 | 13 |
| Renumbering during a change to a WP | 3.10.2.3.3 | 82 |
| Renumbering within a revised WP | 3.10.2.4.1 | 84 |
| Renumbering within a revised WP manual | 3.11.3 | 84 |
| Reproducible copy | 3.6.2 | 26 |
| Reproducible copy layout | 3.6.2.6 | 27 |
| Reproducible copy preparation methods | 3.6.2.1 | 26 |
| REQUIREMENTS | 3. | 6 |
| Requiring activity | 6.4.3 | 87 |
| Response to intended user | 3.4.1 | 13 |
| Retouching | 3.9.3.3 | 73 |
| Revised WP | 3.10.2.4 | 84 |
| Revised WP manual title page | 3.11.1 | 84 |
| Revised WP title page | 3.10.2.4.3 | 84 |
| Revisions to WP manuals | 3.11 | 84 |
| SE required lists | 3.8.2.1 | 69 |
| Scale | 3.9.2 | 72 |
| Schematic diagram | 6.4.2 | 87 |
| Schematic diagrams | 3.9.10 | 77 |
| SCOPE | 1. | 1 |
| Scope | 1.1 | 1 |
| Second and subsequent pages in a changed WP | 3.10.2.3.2 | 82 |
| Second and subsequent pages of the alphabetical index WP | 3.7.5.2 | 51 |
| Second and subsequent pages of the Introduction WP | 3.7.8.2 | 57 |
| Second and subsequent pages of the numerical index of part numbers WP | 3.7.6.2 | 53 |
| Second and subsequent pages of the numerical index of reference designations WP | 3.7.7.2 | 55 |
| Security classification markings | 3.6.4 | 30 |
| Separate Operation and Maintenance Instructions manuals | 3.2.1.2.3 | 9 |
| Short Introduction WP, Multimanual Set Index | 3.7.8.5 | 64 |
| Short Introduction WP, Multivolume Set | 3.7.8.4 | 64 |
| Single WP manual format and content | 3.7.2.2 | 34 |

MIL-DTL-81927C (AS)

INDEX

| | <u>PARAGRAPH</u> | <u>PAGE</u> |
|--|------------------|-------------|
| Single WP manuals..... | 3.7.2 | 34 |
| Specification figures | 6.6 | 89 |
| Specifications, standards, and handbooks..... | 2.2.1 | 2 |
| Standard maintenance tasks | 3.5.1.6 | 23 |
| Subject term (key word) listing | 6.7 | 89 |
| Style and technique | 3.9.1 | 71 |
| Style of writing..... | 3.4 | 13 |
| Supplements..... | 3.12 | 85 |
| Supplements to classified manuals | 3.12.2 | 85 |
| Supplements to unclassified manuals..... | 3.12.1 | 85 |
| Symbol | 3.4.6.1 | 19 |
| Symbols | 3.4.10 | 21 |
| TPDR incorporated pages preparation..... | 3.7.4.3.1 | 47 |
| Tabular data | 3.6.2.6.2 | 27 |
| Task development | 3.2.2.1 | 10 |
| Task grouping within a WP | 3.2.4 | 12 |
| Tasks performed by other work centers | 3.5.1.7 | 23 |
| Team efforts..... | 3.5.1.8 | 23 |
| Technical content | 3.7.2.2.3 | 38 |
| Technical content WP | 3.8 | 64 |
| Technical content WP title page | 3.8.1 | 64 |
| Technical manual arrangement..... | 3.7 | 33 |
| Technical manual organization and functional elements..... | 3.2.1.1 | 7 |
| Technical manual organizational arrangement | 3.2.1.2 | 8 |
| Technical manual outline | 3.2.5 | 12 |
| Technical manuals | 6.5 | 89 |
| Technical manuals using work package format | 3.2 | 7 |
| Technical publication deficiency reports (TPDR) | | |
| incorporated pages | 3.7.4.3 | 46 |
| Test point identification symbols..... | 3.9.10.1.2 | 78 |
| Text | 3.6.2.6.1 | 27 |
| Text on artwork | 3.9.6.3 | 75 |
| Title page - classified WP manuals..... | 3.7.4.1.1 | 44 |
| Title page - WP manuals..... | 3.7.4.1 | 41 |

MIL-DTL-81927C (AS)

INDEX

| | <u>PARAGRAPH</u> | <u>PAGE</u> |
|---|------------------|-------------|
| Troubleshooting diagrams | 3.9.9 | 77 |
| Troubleshooting procedures (abbreviated references) | 3.5.1.5 | 23 |
| Typeface and type size | 3.6.2.5 | 26 |
| Types of illustrations | 3.9.5 | 74 |
| Unacceptable reproducible artwork | 3.6.2.8.2 | 28 |
| Use of color | 3.9.6.4 | 75 |
| Use of human figure | 3.9.6.2 | 74 |
| Use of photographs and halftones | 3.9.3 | 72 |
| VERIFICATION | 4. | 85 |
| Verification | 4.1 | 85 |
| WP concept..... | 3.2.1 | 7 |
| WP definition | 3.2.1.3 | 9 |
| WP division..... | 3.2.4.1.1.1 | 12 |
| WP manual revision date | 3.11.2 | 84 |
| WP number | 3.6.5.1 | 30 |
| WP number assignment | 3.6.5.1.2 | 31 |
| WP numbering system | 3.6.5.1.1 | 31 |
| WP numbers - division of an existing manual | 3.6.5.1.3 | 32 |
| WP technical manual preparation..... | 3.2.2 | 10 |
| WP that exceeds 30 pages | 3.2.4.1.1 | 12 |
| WP title page | 3.7.2.2.2 | 37 |
| Warnings applicable to hazardous materials | 3.4.5.1 | 18 |
| Warnings, cautions, and notes | 3.4.3 | 17 |
| Wire lists | 3.9.12 | 79 |
| Wire number to junction point list..... | 3.9.12.1.1 | 79 |
| Wiring diagrams | 3.9.11 | 78 |

CONCLUDING MATERIAL

Preparing activity:
Navy - AS

(Project TMSS-N269)

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

MILDTL-81927C(AS)

2. DOCUMENT DATE (YYMMDD)

971126

3. DOCUMENT TITLE

MANUALS TECHNICAL, WORK PACKAGE STYLE, FORMAT, AND COMMON TECH CONTENT REQMT S

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:7. DATE SUBMITTED
(YYMMDD)(2) DSN:
(If Applicable)

8. PREPARING ACTIVITY

a. NAME
COMMANDER
NAVAL AIR WARFARE CENTER
AIRCRAFT DIVISIONb. TELEPHONE NUMBER (Include Area Code)
(1) Commercial (908) 323-2628 (2) DSN 624-2628c. ADDRESS (Include Zip Code)
CODE 414100B120-3
HIGHWAY 547
LAKEHURST, NJ 08733-5100IF 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